



**prasa**  
PASSENGER RAIL AGENCY  
OF SOUTH AFRICA

## REQUEST FOR QUOTATION (RFQ)

**RFQ NUMBER: KZN/RAIL/2024/02/09/Q**

**REQUEST FOR QUOTATION (RFQ) FOR: THE APPOINTMENT OF A SERVICE PROVIDER FOR  
THE SUPPLY AND MAINTENANCE OF ULTRASONIC MEASURING VEHICLE FOR A PERIOD OF  
TWENTY-FOUR (24) MONTHS FOR PRASA KZN REGION**

### **BRIEFING/SITE MEETING**

**DATE: 01 March 2024**

**Time: 10H00**

**Venue: PRASA Offices, 65 Masabalala Yengwa Avenue, Greyville, Durban Station, Roof Level  
Entrance**

## SECTION 1: SBD1

### PART A INVITATION TO BID

|                                                                                                                                                                                                                                              |                                                                                                                                                                          |               |               |                               |           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|-------------------------------|-----------|
| <b>YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF PASSENGER RAIL AGENCY (PRASA)</b>                                                                                                                                                       |                                                                                                                                                                          |               |               |                               |           |
| BID NUMBER:                                                                                                                                                                                                                                  | KZN/RAIL/2024/02/09/Q                                                                                                                                                    | CLOSING DATE: | 08 March 2024 | CLOSING TIME:                 | 12:00PM   |
| DESCRIPTION                                                                                                                                                                                                                                  | <b>THE APPOINTMENT OF A SERVICE PROVIDER FOR THE SUPPLY AND MAINTENANCE OF ULTRASONIC MEASURING VEHICLE FOR A PERIOD OF TWENTY-FOUR (24) MONTHS FOR PRASA KZN REGION</b> |               |               |                               |           |
| <b>BID RESPONSE DOCUMENTS SHALL BE ADDRESSED AS FOLLOWS:</b>                                                                                                                                                                                 |                                                                                                                                                                          |               |               |                               |           |
| BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX NO. 06 SITUATED AT (STREET ADDRESS):<br><b>65 MASABALALA YENGWA AVENUE</b><br><b>PRASA REGIONAL OFFICE FOYER AREA</b><br><b>HELPPDESK</b><br><b>PRASA SCM</b><br><b>KWAZULU NATAL</b> |                                                                                                                                                                          |               |               |                               |           |
| <b>BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO</b>                                                                                                                                                                                        |                                                                                                                                                                          |               |               |                               |           |
| CONTACT PERSON                                                                                                                                                                                                                               | Mr. Qiniso Makaluza                                                                                                                                                      |               |               |                               |           |
| TELEPHONE NUMBER                                                                                                                                                                                                                             | 031 813 0376                                                                                                                                                             |               |               |                               |           |
| E-MAIL ADDRESS                                                                                                                                                                                                                               | <a href="mailto:Qiniso.Makaluza@prasa.com">Qiniso.Makaluza@prasa.com</a>                                                                                                 |               |               |                               |           |
| <b>SUPPLIER INFORMATION</b>                                                                                                                                                                                                                  |                                                                                                                                                                          |               |               |                               |           |
| NAME OF BIDDER                                                                                                                                                                                                                               |                                                                                                                                                                          |               |               |                               |           |
| POSTAL ADDRESS                                                                                                                                                                                                                               |                                                                                                                                                                          |               |               |                               |           |
| STREET ADDRESS                                                                                                                                                                                                                               |                                                                                                                                                                          |               |               |                               |           |
| TELEPHONE NUMBER                                                                                                                                                                                                                             | CODE                                                                                                                                                                     |               | NUMBER        |                               |           |
| CELLPHONE NUMBER                                                                                                                                                                                                                             |                                                                                                                                                                          |               |               |                               |           |
| FACSIMILE NUMBER                                                                                                                                                                                                                             | CODE                                                                                                                                                                     |               | NUMBER        |                               |           |
| E-MAIL ADDRESS                                                                                                                                                                                                                               |                                                                                                                                                                          |               |               |                               |           |
| VAT REGISTRATION NUMBER                                                                                                                                                                                                                      |                                                                                                                                                                          |               |               |                               |           |
| SUPPLIER COMPLIANCE STATUS                                                                                                                                                                                                                   | TAX COMPLIANCE SYSTEM PIN:                                                                                                                                               |               | OR            | CENTRAL SUPPLIER DATABASE No: | MAAA..... |
|                                                                                                                                                                                                                                              | CRS CIDB PIN:                                                                                                                                                            |               |               |                               |           |

|                                                                                                          |                                                                                             |                                                                                     |                                                                                                               |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <p>2.1 ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?</p> | <p><input type="checkbox"/>Yes <input type="checkbox"/>No</p> <p>[IF YES ENCLOSE PROOF]</p> | <p>2.2 ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?</p> | <p><input type="checkbox"/>Yes <input type="checkbox"/>No</p> <p>[IF YES, ANSWER THE QUESTIONNAIRE BELOW]</p> |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|

#### QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

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

#### PART B: TERMS AND CONDITIONS FOR BIDDING

##### 1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED--(NOT TO BE RE-TYPED) OR IN THE MANNER**
- 1.3. **PRESCRIBED IN THE BID DOCUMENT.**
- 1.4. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

##### 2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE [WWW.SARS.GOV.ZA](http://WWW.SARS.GOV.ZA).
- 2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD

NUMBER MUST BE PROVIDED.

- 2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE.”

**NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID NVALID.**

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....

(Proof of authority must be submitted e.g. company resolution)

DATE: .....

**NB:**

- *Quotation(s) must be addressed to PRASA before the closing date and time shown above.*
- *PRASA General Conditions of Purchase shall apply.*
- *PRASA reserves the right to award the contract to more than one company.*

## **SECTION 2**

### **NOTICE TO BIDDERS**

#### **1. RESPONSES TO RFQ**

Responses to this RFQ [Quotations] must not include documents or reference relating to any other quotation or proposal. Any additional conditions must be embodied in an accompanying letter.

Proposals must reach the PRASA before the closing hour on the date shown on SBD1 above, and must be enclosed in a sealed envelope.

#### **2 COMMUNICATION**

Respondent/s are warned that a response will be liable for disqualification should any attempt be made either directly or indirectly to canvass any SCM Officer(s) or PRASA employee in respect of this RFQ between the closing date and the date of the award of the business.

#### **3 BIDDERS COMPLAINTS PROCESS**

3.1 Bidders are advised utilize this email address (SCM.Complaints@prasa.co.za) for lodging of complains to PRASA in relation to this bid process. The following minimum information about the bidder must be included in the complaint:

3.1.1 Bid/Tender Description

3.1.2 Bid/Tender Reference Number

3.1.3 Closing date of Bid/Tender

3.1.4 Supplier Name;

3.1.5 Supplier Contact details

3.1.6 The detailed compliant

#### **4 LEGAL COMPLIANCE**

The successful Respondent shall be in full and complete compliance with any and all applicable national and local laws and regulations.

#### **5 CHANGES TO QUOTATIONS**

Changes by the Respondent to its submission will not be considered after the closing date and time.

#### **6 PRICING**

All prices must be quoted in South African Rand on a fixed price basis, including all applicable taxes.

## **7 BINDING OFFER**

Any Quotation furnished pursuant to this Request shall be deemed to be an offer. Any exceptions to this statement must be clearly and specifically indicated.

## **8 DISCLAIMERS**

PRASA is not committed to any course of action as a result of its issuance of this RFQ and/or its receipt of a Quotation in response to it. Please note that PRASA reserves the right to:

- Modify the RFQ's goods / service(s) and request Respondents to re-bid on any changes;
- Reject any Quotation which does not conform to instructions and specifications which are detailed herein;
- Reject Quotations submitted after the stated submission deadline or at the incorrect venue ;

Should a contract be awarded on the strength of information furnished by the Respondent, which after conclusion of the contract, is proved to have been incorrect, PRASA reserves the right to cancel the contract.

PRASA reserves the right to award business to the highest scoring bidder/s unless objective criteria justify the award to another Respondent.

Should the preferred fail to sign or commence with the contract within a reasonable period after being requested to do so, PRASA reserves the right to award the business to the next highest ranked Respondent provided that he/she is still prepared to provide the required goods at the quoted price.

## **9 LEGAL REVIEW**

Proposed contractual terms and conditions submitted by a Respondent will be subjected to review and acceptance or rejection by PRASA's Legal Counsel, prior to consideration for an award of business.

## **10 NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE**

Respondents 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. PRASA is required to ensure that price quotations are invited and accepted from prospective bidders listed on the CSD. Business may not be awarded to a

respondent who has failed to register on the CSD. Only foreign suppliers with no local registered entity need not register on the CSD. The CSD can be accessed at <https://secure.csd.gov.za/>.

## 11 PROTECTION OF PERSONAL DATA

In responding to this bid, PRASA acknowledges that it may obtain and have access to personal data of the Respondents. PRASA agrees that it shall only process the information disclosed by Respondents in their response to this bid for the purpose of evaluating and subsequent award of business and in accordance with any applicable law.

Furthermore, PRASA will not otherwise modify, amend or alter any personal data submitted by Respondents or disclose or permit the disclosure of any personal data to any Third Party without the prior written consent from the Respondents. Similarly, PRASA requires Respondents to process any personal information disclosed by PRASA in the bidding process in the same manner.

## 12 EVALUATION METHODOLOGY

PRASA will utilise the following criteria [not necessarily in this order] in choosing a Supplier/Service Provider, if so required:

| EVALUATION CRITERIA                          | WEIGHTING                    |
|----------------------------------------------|------------------------------|
| Stage 1 – Compliance                         |                              |
| Stage 1                                      | Mandatory Requirements       |
| Stage 2- Functionality/Technicality Criteria |                              |
| Technicality/Technicality Criteria           | 80%                          |
| Stage 3                                      |                              |
| Price                                        | 80                           |
| Specific Goals                               | 20                           |
| <b>TOTAL</b>                                 | <b>100</b>                   |
| Stage 4 – Compliance                         |                              |
| Stage 4                                      | Other Mandatory Requirements |

## 13 ADMINISTRATIVE RESPONSIVENESS

The test for administrative responsiveness will include completeness of response and whether all returnable and/or required documents, certificates; verify completeness of warranties and other bid requirements and formalities have been complied with. Incomplete Bids will be disqualified.

## 14 VALIDITY PERIOD

14.1 PRASA requires a validity period of **60 Working Days** from the closing date.

14.2 Respondents are to note that they may be requested to extend the validity period of their response, on the same terms and conditions, if the internal processes are not finalized within the validity

period. However, once the delegated authority has approved the process the validity of the successful respondent(s)' bid will be deemed to remain valid until finalization of the award.),

## **15 PUBLICATION OF INFORMATION ON THE NATIONAL TREASURY E-TENDER PORTAL**

Respondents are to note that, bid awards, amendments and cancellations will be published on the e-tender portal and or media used to advertise the bid. For the award of business, PRASA is required to publish the prices and preferences claimed of the successful and unsuccessful Respondents *inter alia* on the National Treasury e-Tender Publication Portal, ([www.etenders.gov.za](http://www.etenders.gov.za)), on CIDB website for construction related RFQ's. (*Where applicable*).

## **16 RETURNABLE DOCUMENTS**

**Returnable Documents** means all the documents, Sections and Annexures, as listed in the tables below. There are three types of returnable documents as indicated below and Respondents are urged to ensure that these documents are returned with the quotation based on the consequences of non-submission as indicated below:

### **15.1. Mandatory Returnable Documents**

Failure to provide Mandatory Returnable Documents at the Closing Date and time of this RFQ will result in a Respondent's disqualification. Respondents are therefore urged to ensure that all documents are returned with their Quotations.

## SECTION 3

### 1 EVALUATION CRITERIA:

Bidders are to comply with the following requirements and failure to comply may lead to disqualification.

#### Stage 1 – Mandatory Requirements

If you do not submit/meet the following mandatory documents/requirements, you be will be automatically disqualified.

Only bidders who comply with stage 1 will be evaluated further.

| No. | Description of requirement                                                                                                                                                                                                                                                                     |  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| a)  | Section 1 - Invitation to Bid (SDB 1)<br><i>Must be completed &amp; duly signed</i>                                                                                                                                                                                                            |  |
| b)  | Section 6 - Declaration of Interest (SBD 4)<br><i>Must be completed &amp; duly signed</i>                                                                                                                                                                                                      |  |
| c)  | Section 4 - Pricing and Delivery Schedule<br><i>Must be completed</i>                                                                                                                                                                                                                          |  |
| d)  | Section 8 - Bill of Quantities (BOQ)<br><i>Must be completed on all line items.</i>                                                                                                                                                                                                            |  |
| e)  | Joint Venture / Consortium agreement / Trust Deed/ Confirmation in writing of their intention to enter into a JV or consortium agreement signed by all parties should they be awarded business by PRASA through this RFQ process (if applicable)<br><i>Must be completed &amp; duly signed</i> |  |
| f)  | Bidders to fill and sign the closing /submission register on submission of tender documents, failure to comply will result in a disqualification from the tender process.<br><i>Must be completed &amp; duly signed</i>                                                                        |  |

### STAGE 2: TECHNICAL / FUNCTIONALITY REQUIREMENTS

#### Functional Evaluation Criteria

Qualifying bidders shall then be evaluated on functionality after meeting all compliance requirements outlined above. The minimum threshold for the technical/functionality requirements is 70% as per the standard Evaluation

Criteria presented above. Bidders who score below this minimum requirement shall not be considered for further evaluation in stage 3. Details of the technical/functional requirements are below.

## EVALUATION AND SCORING

### EVALUATION AND SCORING METHODOLOGY

The evaluation of the Bids by the evaluation committees will be conducted at various levels. The following levels will be applied in the evaluation:

| LEVEL                            | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Verify completeness              | The Bid is checked for completeness and whether all required documentation, certificates; verify completeness warranties and other Bid requirements and formalities have been complied with. Incomplete Bids will be disqualified.                                                                                                                         |
| Detailed Evaluation of Technical | Detailed analysis of Bids to determine whether the Bidder is capable of delivering the Project in terms of business and technical requirements. <b>The minimum threshold for technical evaluation is [80%], any bidder who fails to meet the minimum requirement will be disqualified and not proceed with the evaluation of Price and Specific Goals.</b> |
| Verify compliance                | The Bids are checked to verify that the essential RFP requirements have been met. Non-compliant Bids will be disqualified.                                                                                                                                                                                                                                 |
| Specific Goals                   | Evaluate Specific Goals                                                                                                                                                                                                                                                                                                                                    |
| Price Evaluation                 | Bidders will be evaluated on price offered.                                                                                                                                                                                                                                                                                                                |
| Scoring                          | Scoring of Bids using the Evaluation Criteria.                                                                                                                                                                                                                                                                                                             |
| Recommendation                   | Report formulation and recommendation of Preferred and Reserved Bidders                                                                                                                                                                                                                                                                                    |
| Best and Final Offer             | PRASA may go into the Best and Final Offer process in the instance where no bid meets the requirements of the RFP and/or the Bids are to close in terms of points awarded.                                                                                                                                                                                 |
| Approval                         | Approval and notification of the final Bidder.                                                                                                                                                                                                                                                                                                             |

## FUNCTIONAL EVALUATION CRITERIA

Bidders are evaluated based on the functional criteria set out in this RFP. Only those Bidders which score **[80]** points or higher (out of a possible **100**) during the functional evaluation will be evaluated during the third stage of the Bid.

| ITEM | CRITERIA                                                                                                             | WEIGHT     |
|------|----------------------------------------------------------------------------------------------------------------------|------------|
| 1    | Technical Specifications as per requirements: (Ultrasonic measuring vehicle)                                         | 60         |
| 2    | Relevant experience: provide client list including letter of reference with contactable details in the last 10 years | 40         |
|      | <b>TOTAL</b>                                                                                                         | <b>100</b> |

Table 3: Technical Evaluation Criteria

Details of the scoring methodology presented above are outlined in Table below:

| WEIGHT | EVALUATION CRITERIA                                                                                                                                                                                                                                                           | TECHNICAL SPECIFICATIONS                                                                        |                                                                                                                                                                               |                                                                                                                                                                               |                                                                                                                                                                               |                                                                                                                                                                               |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |                                                                                                                                                                                                                                                                               | SCORING                                                                                         |                                                                                                                                                                               |                                                                                                                                                                               |                                                                                                                                                                               |                                                                                                                                                                               |
|        |                                                                                                                                                                                                                                                                               | 1                                                                                               | 2                                                                                                                                                                             | 3                                                                                                                                                                             | 4                                                                                                                                                                             | 5                                                                                                                                                                             |
| 60     | <b>Technical Specifications as per requirements: (UMV)</b> <ul style="list-style-type: none"> <li>Machine capability for the detection of rail defects</li> <li>Self-propelled and capable of being hauled.</li> <li>Conforms to moving structure and track gauge.</li> </ul> | No submission or irrelevant information provided regarding technical specification requirements | Relevant information listing 1 element                                                                                                                                        | Relevant information listing 2 elements                                                                                                                                       | Relevant information listing all 3 elements                                                                                                                                   | Relevant information listing more than 3 elements                                                                                                                             |
| 40     | <b>Relevant experience of heavy on-track machine maintenance projects within the last 10 years (completion/reference letter with a client's letterhead with description of works and date of completion)</b>                                                                  | No submission or irrelevant information provided/less than 2 completed projects                 | Relevant experience in maintenance of track with on-track maintenance machines with at least 2 completed projects with a completion/reference letter on a client's letterhead | Relevant experience in maintenance of track with on-track maintenance machines with at least 3 completed projects with a completion/reference letter on a client's letterhead | Relevant experience in maintenance of track with on-track maintenance machines with at least 4 completed projects with a completion/reference letter on a client's letterhead | Relevant experience in maintenance of track with on-track maintenance machines with at least 5 completed projects with a completion/reference letter on a client's letterhead |

## 2.1 Stage 3- Price and Specific Goals

The following formula, shall be used to allocate scores to the interested bidders:

The maximum points for this tender are allocated as follows:

| DETAILS                                          | POINTS     |
|--------------------------------------------------|------------|
| PRICE                                            | 80         |
| SPECIFIC GOALS                                   | 20         |
| <b>TOTAL POINTS FOR PRICE AND SPECIFIC GOALS</b> | <b>100</b> |

### FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

#### POINTS AWARDED FOR PRICE

#### THE 80/20 PREFERENCE POINT SYSTEMS

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

**80/20**

$$PS = 80 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

#### POINTS AWARDED FOR SPECIFIC GOALS

- 3.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

**Table 1: Specific goals for the tender and points claimed are indicated per the table below.**

**Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)**

| The specific goals allocated points in terms of this tender    | Number of points allocated (80/20 system) (To be completed by the organ of state) | Number of points claimed (80/20 system) (To be completed by the tenderer) | Evidence Required for Specific Goals                                                |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Entities with a B-BBEE contributor status of at least level 2; | 10                                                                                |                                                                           | BEE Certificate / Affidavit (in case of JV, a consolidate scorecard will be accept) |
| Black Women Owned                                              | 2                                                                                 |                                                                           | Certified copy of ID Documents of the Owners                                        |
| EME or QSE 51% Black Owned                                     | 3                                                                                 |                                                                           | Audited Annual Financial/ B-BBEE Certificate / Affidavit                            |
| 51 % Black Owned                                               | 3                                                                                 |                                                                           | CIPC Documents / B-BBEE Certificate / Affidavit                                     |
| Black Youth owned                                              | 2                                                                                 |                                                                           | Certified copy of ID Documents of the Owners                                        |
| <b>Total:</b>                                                  | <b>20</b>                                                                         |                                                                           |                                                                                     |

- A CIPC Registration Documents/CSD Registration Report will be used to verify the above evidence.
- Points will be awarded/allocated on a proportional/pro-rata basis.
- Formula: Number of Points allocated x Percentage (%) owned = Number of Points Claimed.

#### Stage 4 –Other Mandatory Requirements

If you do not submit/meet the following mandatory documents/requirements, PRASA may request the bidder/s to submit the information within five (5) working days. Should this information not be provided, your bid proposal will be disqualified. This information will be requested from the most responsive bidder/s.

| No. | Description of requirement                                 |  |
|-----|------------------------------------------------------------|--|
| a)  | Letter of Good Standing: COIDA. (Delete if not applicable) |  |
| b)  | Supply of valid SARS Pin                                   |  |
| e)  | CSD supplier registration number                           |  |

## SECTION 4

### PRICING AND DELIVERY SCHEDULE

Respondents are required to complete the attached Pricing Schedule.

- 1 Prices must be quoted in South African Rand, inclusive of all applicable taxes.
- 2 Price offer is firm and clearly indicate the basis thereof.
- 3 Pricing Bill of Quantity is completed in line with schedule if applicable.
- 4 Cost breakdown must be indicated.
- 5 Price escalation basis and formula must be indicated.
- 6 To facilitate like-for like comparison bidders must submit pricing strictly in accordance with this price schedule and not 15uthori a different format. Deviation from this pricing schedule could result in a bid being declared non-responsive.
- 7 Please note that should you have offered a discounted price(s), PRASA will only consider such price discount(s) in the final evaluation stage on an unconditional basis.
- 8 Respondents are to note that if price offered by the highest scoring bidder is not market related, PRASA may not award the contract to the Respondent. PRASA may:
  - 9 negotiate a market-related price with the Respondent scoring the highest points.
  - 10 if that Respondent does not agree to a market-related price, negotiate a market-related price with the Respondent scoring the second highest points.
  - 11 if the Respondent scoring the second highest points does not agree to a market-related price, negotiate a market-related price with the Respondent scoring the third highest points;
  - 12 If a market-related price is not agreed with the Respondent scoring the third highest points, PRASA must cancel the RFQ.

I / We \_\_\_\_\_ (Insert Name of Bidding Entity) of

\_\_\_\_\_ code \_\_\_\_\_

(Full address) conducting business under the style or title of: \_\_\_\_\_

represented by: \_\_\_\_\_ in my capacity as:

\_\_\_\_\_ being duly 15authorized, hereby

offer to undertake and complete the above-mentioned work/services at the prices quoted in the bills of quantities / schedule of quantities or, where these do not form part of the contract, at a lumpsum, of \_\_\_\_\_ R

\_\_\_\_\_ (amount in numbers);

\_\_\_\_\_ (amount in words) Incl. VAT.

**DELIVERY PERIOD:** Suppliers are requested to offer their earliest delivery period possible.

Delivery will be effected within ..... Working days from date of order. (To be completed by Service provider)

## SECTION 5

### PRASA GENERAL CONDITIONS OF PURCHASE

#### General

PRASA and the Supplier enter into an order/contract on these conditions to supply the items (goods/services/works) as described in the order/contract.

#### Conditions

These conditions form the basis of the contract between PRASA and the Supplier. Notwithstanding anything to the contrary in any document issued or sent by the Supplier, these conditions apply except as expressly agreed in writing by PRASA.

No servant or agent of PRASA has authority to vary these conditions orally. These general conditions of purchase are subject to such further special conditions as may be prescribed in writing by PRASA in the order/contract.

#### Price and payment

The price or rates for the items stated in the order/contract may include an amount for price adjustment, which is calculated in accordance with the formula stated in the order/contract.

The Supplier may be paid in one currency other than South African Rand. Only one exchange rate is used to convert from this currency to South African Rand. Payment to the Supplier in this currency other than South African Rand, does not exceed the amounts stated in the order/contract. PRASA pays for the item within 30 days of receipt of the Suppliers correct tax invoice.

#### Delivery and documents

The Supplier's obligation is to deliver the items on or before the date stated in the order/contract. Late deliveries or late completion of the items may be subject to a penalty if this is imposed in the order/contract. No payment is made if the Supplier does not provide the item as stated in order/contract.

Where items are to be delivered the Supplier:

Clearly marks the outside of each consignment or package with the Supplier's name and full details of the destination in accordance with the order and includes a packing note stating the contents thereof; On dispatch of each consignment, sends to PRASA at the address for delivery of the items, an advice note specifying the means of transport, weight, number of volume as appropriate and the point and date of dispatch; Sends to PRASA a detailed priced invoice as soon as is reasonably practical after dispatch of the items, and states on all communications in respect of the order the order number and code number (if any).

## **Containers / packing material**

Unless otherwise stated in the order/contract, no payment is made for containers or packing materials or return to the Supplier.

### **Title and risk**

Without prejudice to rights of rejection under these conditions, title to and risk in the items passes to PRASA when accepted by PRASA.

### **Rejection**

If the Supplier fails to comply with his obligations under the order/contract, PRASA may reject any part of the items by giving written notice to the Supplier specifying the reason for rejection and whether and within what period replacement of items or re-work are required.

In the case of items delivered, PRASA may return the rejected items to the Supplier at the Supplier's risk and expense. Any money paid to the Supplier in respect of the items not replaced within the time required, together with the costs of returning rejected items to the Supplier and obtaining replacement items from a third party, are paid by the Supplier to PRASA.

In the case of service, the Supplier corrects non-conformances as indicated by PRASA.

### **Warranty**

Without prejudice to any other rights of PRASA under these conditions, the Supplier warrants that the items are in accordance with PRASA's requirements, and fit for the purpose for which they are intended, and will remain free from defects for a period of one year (unless another period is stated in the Order) from acceptance of the items by PRASA.

### **Indemnity**

The Supplier indemnifies PRASA against all actions, suits, claims, demands, costs, charges and expenses arising in connection therewith arising from the negligence, infringement of intellectual or legal rights or breach of statutory duty of the Supplier, his subcontractors, agents or servants, or from the Supplier's defective design, materials or workmanship.

The Supplier indemnifies PRASA against claims, proceedings, compensation and costs payable arising out of infringement by the Supplier of the rights of others, except an infringement which arose out of the use by the Supplier of things provided by PRASA.

### **Assignment and sub-contracting**

The successful Respondent awarded the contract may only enter into a subcontracting arrangement with PRASA's prior approval. The contract will be concluded between the successful Respondent and PRASA, therefore, the successful Respondent and not the sub-contractor will be held liable for performance in terms of its contractual obligations.

**Governing law**

The order/contract is governed by the law of the Republic of South Africa and the parties hereby submit to the non-exclusive jurisdiction of the South African courts.

## 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>1</sup> in the enterprise, employed by the state? **YES/NO**

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

| Full Name | Identity Number | Name of State institution |
|-----------|-----------------|---------------------------|
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |

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

2.2.1 If so, furnish particulars:

.....  
 .....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise

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<sup>1</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.

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>2</sup> will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the 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

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<sup>2</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.

COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of bidder

## **SBD 6.1**

### **PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022**

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

**NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022**

## **2. GENERAL CONDITIONS**

2.1 The following preference point systems are applicable to invitations to tender:

- 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).

## **2.2 To be completed by the organ of state**

- a) The applicable preference point system for this tender is the 80/20 preference point system.
- b) The applicable preference point system for this tender is the 80/20 preference point system.
- c) The 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

2.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

## 2.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

|                                           | POINTS |
|-------------------------------------------|--------|
| PRICE                                     | 80     |
| SPECIFIC GOALS                            | 20     |
| Total points for Price and Specific Goals | 100    |

- 2.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 2.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

## 3. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

#### 4. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

##### 3.2. POINTS AWARDED FOR PRICE

##### 4.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

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

|                                                           |           |                                                           |
|-----------------------------------------------------------|-----------|-----------------------------------------------------------|
| <b>80/20</b>                                              | <b>or</b> | <b>90/10</b>                                              |
| $Ps = 80 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)$ | or        | $Ps = 90 \left( 1 - \frac{Pt - P_{min}}{P_{min}} \right)$ |

Where

Ps = Points scored for price of tender under consideration  
 Pt = Price of tender under consideration  
 Pmin = Price of lowest acceptable tender

##### 3.3. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

##### 3.3.1. POINTS AWARDED FOR PRICE

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

|                                                           |           |                                                           |
|-----------------------------------------------------------|-----------|-----------------------------------------------------------|
| <b>80/20</b>                                              | <b>or</b> | <b>90/10</b>                                              |
| $Ps = 80 \left( 1 + \frac{Pt - P_{max}}{P_{max}} \right)$ | or        | $Ps = 90 \left( 1 + \frac{Pt - P_{max}}{P_{max}} \right)$ |

Where

Ps = Points scored for price of tender under consideration  
 Pt = Price of tender under consideration  
 Pmax = Price of highest acceptable tender

#### 4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
- (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

**Table 1: Specific goals for the tender and points claimed are indicated per the table below.**

*(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.*

*Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)*

| The specific goals allocated points in terms of this tender    | Number of points allocated (80/20 system) (To be completed by the organ of state) | Number of points claimed (80/20 system) (To be completed by the tenderer) | Evidence Required for Specific Goals                                                |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Entities with a B-BBEE contributor status of at least level 2; | 10                                                                                |                                                                           | BEE Certificate / Affidavit (in case of JV, a consolidate scorecard will be accept) |
| Black Women Owned                                              | 2                                                                                 |                                                                           | Certified copy of ID Documents of the Owners                                        |
| EME or QSE 51% Black Owned                                     | 3                                                                                 |                                                                           | Audited Annual Financial/ B-BBEE Certificate / Affidavit                            |
| 51 % Black Owned                                               | 3                                                                                 |                                                                           | CIPC Documents / B-BBEE Certificate/Affidavit                                       |
| Black Youth owned                                              | 2                                                                                 |                                                                           | Certified copy of ID Documents of the Owners                                        |
| <b>Total:</b>                                                  | <b>20</b>                                                                         |                                                                           |                                                                                     |

- A CIPC Registration Documents/CSD Registration Report will be used to verify the above evidence.
- Points will be awarded/allocated on a proportional/pro-rata basis.
- Formula: Number of Points allocated x Percentage (%) owned = Number of Points Claimed.

#### DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number: .....

4.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/firm for the preference(s) shown and I 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 paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
  - (a) disqualify the person from the tendering 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) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted 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

(e) forward the matter for criminal prosecution, if deemed necessary.

.....  
**SIGNATURE(S) OF TENDERER(S)**

**SURNAME AND NAME:** .....

**DATE:** .....

**ADDRESS:** .....

.....

.....

.....

**FORM D: SITE INSPECTION / PRE-TENDER BRIEFING SESSION (COMPULSORY)**

|                       |                                                                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request number:       | <b>KZN/RAIL/2024/02/09/Q</b>                                                                                                                                             |
| Request for Proposal: | <b>THE APPOINTMENT OF A SERVICE PROVIDER FOR THE SUPPLY AND MAINTENANCE OF ULTRASONIC MEASURING VEHICLE FOR A PERIOD OF TWENTY-FOUR (24) MONTHS FOR PRASA KZN REGION</b> |

**Attendance**

This is to certify that \_\_\_\_\_ has / have today attended the site inspection / tender briefing session to which this enquiry relates.

THUS DONE and SIGNED at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_

\_\_\_\_\_ for / on behalf of PRASA

\_\_\_\_\_ Designation

**Acknowledgement**

This is to certify that the Bidder has / have acquainted himself / themselves with the Contract, Project Specification / Special Conditions, Specifications and / or Bills of Quantities / Schedule of Quantities / Schedule of Prices, together with the drawings enumerated therein, as laid down by the PRASA for the carrying out of the proposed WORKS to which the enquiry relates

THUS DONE and SIGNED at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_

DULY AUTHORISED SIGNATORY(IES)      WITNESSES

|          |          |
|----------|----------|
| 1. _____ | 1. _____ |
| 2. _____ | 2. _____ |
| 3. _____ | 3. _____ |

## SECTION 8

### SCOPE OF WORK:

#### **PART A: PROJECT SPECIFICATION FOR MAINTENANCE OF RAILWAY TRACK WITH ON-TRACK MACHINERY**

##### 1. DEFINITIONS AND INTERPRETATION

In this Contract, unless inconsistent with the context: -

**ACTUAL PREPARATION TIME (Tp)** means the period between the actual commencement of the track occupation and the actual commencement of the work by the machinery, plus the period between the actual end of the work by the machinery and the actual time when the machinery is secured at its staging point, clear of the occupied track. Preparation time excludes all periods of delay by PRASA KZN.

**ANNUAL HOLIDAYS** means the annual holiday with duration of 15 consecutive working days plus statutory public holidays, Saturdays and Sundays that may fall within in this period, when no Work will be performed by the Contractor.

**AVAILABLE** means when required to do work, a machine can produce work to the standards specified.

**BREAKDOWN TIME (Tb)** means all periods during which the machinery is non-available.

**CANT** means the difference in elevation between the running surfaces of the two rails.

**CURVE LOCATION POINTS** means the four points, which locate the transitions of the curve, or the two points, which locate the circular curve, where no transitions are provided.

**DAY** shall mean a calendar day. Where a specific number of days is allowed in the Contract for the performance of any act or is stipulated for the extinction of any right or the duration of any event or circumstance the days between the commencement and last day of the Annual Holidays (both days included) and the day from which the period is stated or agreed to commence, shall be excluded from the calculation of the number of days concerned.

**DOUBLE SHIFT WORKING** means the working of two consecutive shifts of 8 hours, which may each be non-continuous and scheduled at any times during a 24-hour day.

**IDLE TIME (Ti)** means all periods of 15 consecutive days or longer during which PRASA KZN does not require work to be performed by the machinery (see clause 14.4). This excludes the stoppage of work during the annual holiday.

**JOINT ASSEMBLIES** means all types of joints, including flash-butt and thermit welded, fishplate and block-joints.

**LINE** means the maximum rate of deviation of the running edge of one rail from a straight line between two points on the same rail of tangent track. Measurements will be taken 15mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

**MACHINERY** means the on-track machinery provided complete with all fittings, accessories and ancillary equipment including trailers, caravans and spare parts, as may be required to comply with the requirements of the specifications.

**MAXIMUM OCCUPATION TIME (Tom)** means the total occupation time, non-continuous, on a normal working day, not

exceeding a total net period stated in the Special Conditions and Specifications.

**MONTH** means the continuous period from the first day to the last day of any calendar month, both days included.

**MONTHLY WORKING TIME (T<sub>wm</sub>)** means the targeted average monthly working time.

**MOVING TIME (T<sub>m</sub>)** means the period required to move the machinery from work site to work site as a train, as part of or on a train. Moving time will commence at the announced time of departure and will end when the staging point at the new work site is reached. Periods of overnight stops when the machinery is travelling as a train, as part of or on a train will be excluded from moving time. Moving time will be included in occupation time for payment purposes.

**NIGHT SHIFT ALLOWANCE** means an allowance paid for any time worked between 19h00 and 05h00 (Night shift allowance is additional to either overtime or normal shift time, if applicable)

**NON-AVAILABLE** means when required to do work, the machinery or the operation thereof is unsafe, or the machinery is not able to produce work to the standards specified, due to any reason other than a stoppage of work caused by PRASA KZN.

**NORMAL WORKING DAY** means a total shift of 8 hours, which may be non-continuous, out of every 24 hours for 5 consecutive days out of every 7 days, or for 10 consecutive days out of every 14 days. The Technical Officer will determine the daily starting time, which may vary to suit seasonal changes or train timetables.

The Technical officer shall decide when 10/14-day work shifts will be worked. When a machine works further than 600 km away from the machine's base depot, the contractor may request working a 10/14-day shift if occupation conditions allow. PRASA KZN will consider such working shifts and the additional Saturday and Sunday shift payments will then apply.

**OCCUPATION** means a closure of the line on which work is to be performed for a specified period.

**OCCUPATION DAY (To-day)** means any day that the machinery will be required by the Technical Officer to be available.

**OCCUPATION TIME (To)** means the period(s) between the announced commencement time of an occupation and the time when the machinery is secured at its staging point for the last time.

**OVERTIME** means any time worked in excess of the hours of a normal working day and any time worked on Saturdays, Sundays and statutory public holidays in excess of 5 consecutive days out of 7 days or in excess of 10 consecutive days out of 14 days, all on the written instruction of, or as approved by the Technical Officer.

**PLAIN TRACK** means all track excluding sets and restricted track.

**QUOTED PREPARATION TIME (T<sub>q</sub>)** means the combined period, as quoted by the Contractor in the Schedule of Machinery (for one complete cycle), to move the machinery from its staging point, travel to the point of work, to prepare it for work, and on completion of the work to return and secure it at the staging point, clear of the occupied track.

**RESTRICTED TRACK** means that portion of plain track where locking bars, guard rails and check rails are not removed prior to working or where sleepers are skewed by more than 75mm (measured at the rail's centre line) or where Dowty retarders and boosters are fitted which prevent the machine from producing work at the scheduled rates as defined in the Special Conditions and Specifications.

**SETS** mean all types of turnouts, including crossings, single and double slips.

**SHIFT ALLOWANCE** (normal) means an allowance paid for time worked on a Saturday, Sunday or statutory paid public holiday when working 5 consecutive days out of 7 days or 10 consecutive days out of 14 days (Payment for shift allowance ceases when overtime is paid)

**SPLICE JOINT** means a prefabricated rail expansion device. The thermit welds at either end demarcate the extremities of

the splice joint.

**SPLIT OCCUPATION** means an occupation on any one-day, divided into 2 periods, the sum of which does not exceed 9 hours, with a 2 hour break in between and the total period not exceeding 11 hours.

**STANDING TIME (Ts)** means a stoppage of work caused by PRASA KZN.

**TIME WORKED IN (Twi)** means any day a machine is agreed to be available and works outside of and in lieu of a normal working day. Such Twi as well as production statistics and all relevant times must be reflected against the day for which the time was worked in.

**TOP** means a change of gradient of one or both rails.

**TRACK** means and includes plain track, restricted track, sets, splice joints and all joint assemblies.

**TRAVELLING TIME (Tt)** means the time for the machinery to travel between work site and staging point.

**TWIST** means the algebraic difference between adjacent cant measurements.

**VERSINE** means the offset measurement at midpoint of a 10m chord taken at any location on curved track. Measurements will be taken 15 mm below the top of the rail, against the gauge side of the rail used by the machine as a datum for aligning.

**WORK** means the work to be carried out in terms of the Contract.

**WORKING TIME (Tw)** means the periods during which the machinery is actually engaged on the operation or function for which it was provided.

## **2 THE CONTRACTOR'S GENERAL OBLIGATIONS**

2.1 The Contractor's general obligations under the Contract comprise: -

2.1.1 Maintenance of railway track and the provision of on-track maintenance machinery and all accessory tools and equipment of the types and nature stipulated in the Project Specification and

2.1.2 The provision of all labour, supervisory personnel and specialised tradesman required to undertake the duties and functions required in terms of the Contract and everything, whether of a temporary or permanent nature, required for performance of the Work and services to be provided in terms of the Contract.

2.2 PRASA KZN shall, in the case of a breach of contract by the Contractor in terms of clause 15.1 (GCC), have a lien over the Contractor's machines and accessory tools and equipment and all temporary buildings of the Contractor used for carrying out the Work.

## **3 WORKMEN**

In addition to clause 21 of the GCC, the following will apply:

3.1 The Contractor shall ensure that all staff transported on on-track machines and PRASA KZN wagons or coaches, shall always be transported in a safe and responsible way. Only authorised staff shall be transported

The attention of the Contractor is directed to the requirements of safety legislation and regulations with regard to storage and transport of dangerous substances, accommodation and transport of people.

Staff shall only be allowed to travel on a train or machine in approved accommodation or cabin facilities

## **4 HOURS OF WORK**

In addition to clause 23.4 of the GCC, the following:

- 4.1 The Contractor shall conform to the hours of duty laid down by the Technical Officer.
- 4.2 When required, the Contractor shall work either overtime or shifts, on paid public holidays, Saturdays or Sundays. The machinery will not be required to work more than 6 shifts in any 7-day period or 11 shifts in any 14-day period.
- 4.3 Work shall not be suspended for rain or inclement weather unless otherwise agreed by the Technical Officer.
- 4.4 Before the end of each day's work the Contractor will be advised in writing of the commencement time and duration of the following day's occupation(s). The duration of the occupation will be subject to train operating conditions.
- 4.5 The Contractor may be required to work SPLIT occupations as defined in clause 1, when a 2 hours period will be allowed between occupation periods for servicing of the machines.
- 4.6 The Contractor will be allowed sufficient time on-track to calibrate and adjust the machine as part of the preventive maintenance of the machine. This time will be outside the scheduled occupation periods and will not be included in any of the contract measurements.

## **5 COMPLIANCE WITH STATUTES AND SAFETY RULES**

- 5.1 The Construction Regulations, 2014, and the Occupational Health and Safety Act, 1993, will be applicable to this contract. The contractor is to ensure familiarity with and compliance to the regulation. The regulation can be obtained from the Department of Labour. The contractor is to ensure that the prices tendered for this contract make allowance for all the requirements of the regulation. PRASA KZN will consider the prices tendered to include the requirements of the regulation.

Add the following sub-clause to clause 28 of the GCC.

- 5.2 The term "safety rules" in clauses 28.1 and 28.5 is used in a generic sense and refers to all Metrorail arrangements, procedures, and requirements, pertaining to safety, specified or incorporated by reference in the contract documents, such as the Specification for Work On, Over, Under or Adjacent to Railway Lines and near High Voltage Equipment, E7/1, the Electrical Safety Instructions - High Voltage Equipment. These documents will form part of tender document.
- 5.3 Contractor to supply all safety documentation (safety file) within two weeks of award.

## **6 PLACES OF WORK**

- 6.1 The Technical Officer shall determine where the Work shall be performed. The Technical Officer shall make the necessary arrangements to move the machinery by rail from one work site to another and shall give the Contractor written notice of the date and time of departure. Major movements will be planned, and the time allowed should be a minimum of 14 days or such shorter period as agreed.
- 6.2 Any delay to an announced move caused by the Contractor will render the machinery non-available for the period of such delay, excluding overnight stops.

## **7 RECORDS AND INSTRUCTION BOOKS**

The Contractor shall submit such returns as may be required by the Technical Officer. He shall also provide and keep on each machine a duplicate carbon copy book, A4 size, the Workbook, in which instructions and events concerning the contract work shall be recorded, signed and dated by the Technical Officer or his deputy, and the Contractor.

## **8. MACHINERY AND EQUIPMENT REQUIRED**

- 8.1 Mechanical and motive aspects

- 8.1.1 All machinery provided by the Contractor shall be in good mechanical condition and he shall maintain the machinery in good mechanical condition for the duration of the Contract.
- 8.1.2 Axle loads shall not exceed 20 tons.
- 8.1.3 The machine shall be self-propelled.
- 8.1.4 The machine shall have service brakes and independent emergency brakes capable of providing minimum retardation of 12.5% and 6% of gravitational acceleration respectively, on dry rail.
- 8.1.5 At the start of each occupation the Contractor shall, in the presence of the Technical Officer's deputy, perform the daily tests laid down by the Technical Officer. The brakes shall be briefly applied at low speed when travelling on level track or upgrade. If in the opinion of the Technical Officer's deputy the brakes do not function satisfactorily, the machinery shall be removed immediately to a staging point. Machinery staged due to defective brakes will be regarded as non-available.
- At approximately one-month intervals the Technical Officer's deputy will test the brakes with a brake efficiency test meter and record the results in the workbook.
- 8.1.6 The machine shall actuate all signalling equipment used by PRASA KZN for traffic control.
- 8.1.7 Regular checks shall be made for pressure loss on brake cylinders and circuits, wear and set of brake shoes, proper functioning of sirens and mechanical locks on hydraulic components.
- 8.1.8 The machine shall have an adequate lighting system for operation at night. Lights shall be provided for travelling in both forward and reverse directions. The trailing end headlights and leading end red lights shall not be switched on during motion.
- 8.1.9 The machine shall be capable of being hauled as the last vehicle of a train if required to clear the section after breakdown. The Contractor shall provide towing equipment.
- 8.1.10 Where specified, machinery shall have off-tracking equipment suitable for use on either of the off-track stand types shown in Annexure D. Should these stands not be suitable, PRASA KZN will construct stands to the Contractor's requirements and at his cost, subject to the particulars of such requirements being submitted with his tender.
- 8.2 Wheel flanges, tyres and axles
- 8.2.1 The condition of the flanges and treads of wheels of all machines shall be carefully examined. Should any appear to be excessively worn, they shall be tested by means of the wheel flange thickness and skid limit gauge and the tyre-wear limit gauge.
- 8.2.2 Wheels shall comply with the following requirements:
- The thickness of a flange shall not be less than the minimum indicated by the wheel flange thickness gauge.
  - Hollow wear on the tread shall not exceed 6mm.
  - The flange height shall not exceed 35mm.
  - The angle of the flange shall not be less than 15° and the radius at the tip of the flange not less than 6mm.
- 8.2.3 Axles shall comply with the following requirements:
- Ultrasonic testing: to specifications laid down by PRASA KZN, done for new axles and every time an axle is replaced after fitting new wheels.
  - Distance between wheel flanges: 988mm ± 2mm.

### 8.3 Fuelling and maintenance

- 8.3.1 The Contractor shall not re-fuel service or repair the machinery, during occupations, save as provided in 13.2.2.
- 8.3.2 The Contractor may repair and adjust the machinery during stoppages caused by PRASA KZN. The machinery will be regarded as available during such repairs or adjustments, provided that the required working of the machine is not delayed thereby.

### 8.4 Recording instruments

- 8.4.1 Each machine shall be fitted with an approved tachograph, a mechanically operated event recorder and a speedometer.
- 8.4.2 The Contractor shall be responsible for inserting recording cards in the tachograph and event recorders, and for synchronising these instruments.
- 8.4.3 The Technical Officer's deputy will be responsible for setting the event recorder.
- 8.4.4 The Technical Officer's deputy will test the tachometric graph and event recorders at least once a week in the presence of the Contractor. The Contractor shall either repair or replace any device, which is inaccurate by more than 1 %. Failure to repair or replace an inaccurate device within 72 hours of the test will render the machinery non-available.
- 8.4.5 Should the tachometric graph or the event recorder break down, the Technical Officer's deputy will keep a complete written record of the starting and ending times of all events occurring during a track occupation. The Contractor shall sign this record if he agrees, and if he disagrees he shall indicate on the record the reasons for the disagreement and then sign the document. Such disagreement shall be settled by negotiation between the Technical Officer and the Contractor.

### 8.5 Radio equipment

- 8.5.1 During track occupations the Contractor shall provide a cellular telephone for communication between the Work place and the controlling office on either side of the Work place or the area CTC office.

The cell-phone for the official use of PRASA KZN shall be provided with a talk time contract of not less than 500 talk minutes per month. If this allowed talk time is exceeded, PRASA KZN shall pay the excess. This excess shall only be paid after all previous monthly account credits have been brought into consideration. The Technical officer shall certify detail account excess.

This Cell-phone shall also be available for the use of the PRASA KZN signal's or electrical technician involved if required for work directly related to the tamping work. Use of this phone by any other PRASA KZN official than the Track inspector with the machine, may only be with his permission. The Track inspector with the machine shall be responsible for controlling the number of calls on this phone.

- 8.5.2 The Contractor shall provide and maintain walkie-talkie radio transceivers with a minimum range of 5 km in open country.

The Technical Officer, in consultation with the Contractor, will allocate suitable frequencies within the 450 MHz to 470 MHz band for configuration of the radio equipment.

The Contractor will be given seven day's written notice when additional radios are required.

- 8.5.3 All of the above-mentioned radio equipment shall operate on 12.5 kHz channel spacing, and shall comply with specification SABS-1069.
- 8.5.4 The Contractor may operate the radio equipment only for trackside protection. The use of the allocated frequencies must be terminated when the contract expires.

- 8.5.5 When walkie-talkie communication fails due to faulty equipment, the machinery will be deemed as non-available.
- 8.5.6 When radio and or cellular telephone communication between the place of Work and the controlling stations or the protection flagmen fails, the Contractor shall remove the machinery from the track as soon as possible.
- 8.5.7 PRASA KZN will provide, install and maintain a radio in the cab of the machine for train control purposes. The Contractor shall indicate the position in which the radio shall be installed and provide a suitable power supply point for the radio equipment when requested. The machine will not be allowed to operate without this radio.
- 8.6 Warning devices
- 8.6.1 The machine shall be fitted with a hooter for use during travelling.
- 8.6.2 The machine shall be fitted with a separate warning system used solely for and on the approach of a train. The pitch and intensity shall make it discernible from other sounding devices and easily heard above the working of the machine anywhere within 100m from the machine. The warning system shall be activated by an appointed employee of the Contractor.
- The Contractor's appointed employee shall be in continuous radio communication with PRASA KZN's protection flagmen who will warn the Contractor's employee of approaching trains on adjacent lines
- 8.6.3 A rotating amber flashing light shall be fitted to the top of the machine's cab, for use during travel.
- 8.7 Machinery Specifications
- Machinery shall be suitable for use under the following conditions and dimensional limitations: -
- 8.7.1 Vehicle gauge: 1 065mm gauge track shown in Annexure 2 (Sht 1 of 2). Should the machinery exceed the vehicle gauge in any respect, this shall be clearly indicated by the Contractor by means of suitable drawings.
- 8.7.2 Track gauge: nominal 1 065mm, with a range of - 10mm to + 45mm.
- 8.7.3 Minimum structure gauges: as shown in Annexure 1 (Sheet 1,2 and 5 of 5).
- 8.7.4 Single lines or multiple lines with a minimum distance of 4m between track centres.
- 8.7.5 Maximum track gradient: 1 in 30.
- 8.7.6 Minimum curve radius: 125m.
- 8.7.7 Work place altitude range: 0 to 2 000m above sea level.
- 8.7.8 Ambient temperature range: - 5°C to + 50°C.
- 8.7.9 Mass of rail: 60 kg/m, 57 kg/m, 48 kg/m, 40 kg/m, 30 kg/m or 22 kg/m.
- 8.7.10 Maximum mass per sleeper: Sets - 750 kg; other - 300 kg.
- 8.7.11 Types of sleepers in track: timber, steel, monolithic or tie-bar concrete.
- 8.7.12 Sleeper spacing: 500mm to 900mm.
- 8.8 Unknown / Alternative / Substitute Machines

PRASA KZN will, in the case where alternative or substitute machines or machines with characteristics which are

unknown to PRASA KZN are offered by Tenderers or the Contractor, require that such machines, before they are accepted, be subjected to trials under the prevailing working conditions of the contract area(s) to demonstrate their compliance with the contract specifications. Machines that do not comply with the specifications will not be accepted.

## **9. AVAILABILITY**

- 9.1 The machinery shall be available, warmed up and at the place of Work on the date and at the time indicated by the Technical Officer's deputy.
- 9.2 Machinery will be regarded as available when moving from one Workplace to another.
- 9.3 Moving to effect initial delivery, and final removal after completion of the Work, as well as moving requested by the Contractor (i.e. for maintenance or temporary storage of the machine at locations other than the Work place) will not be included when determining availability.
- 9.4 The Technical Officer shall give the Contractor a minimum of 14 days written notice to stop work temporarily for a period exceeding 14 consecutive days and a minimum of 14 days written notice to resume work after such temporary stoppage. Such idle time shall not be included in measurements for availability.

## **10. NON-AVAILABILITY**

- 10.1 The Contractor shall advise the Technical Officer as soon as possible when any machinery is not available for work at its appointed place of Work and shall indicate the estimated time when it will be available for work.
- 10.2 Should any of the specified components or functions of the machine be non-available, the machine will be regarded as non-available.
- 10.3 Machinery will be regarded as available after breakdown when it is declared available and placed on the track for the purpose of testing, resetting or working, unless after the period of testing and resetting the machinery is still non-available. In the latter case, breakdown time will commence from the time that the machinery previously became non-available.
- 10.4 The provisions regarding productivity and standards of workmanship and accuracy shall apply during periods of testing or resetting.
- 10.5 When the machine is not available at all for Work on a day because of a breakdown on the previous day, occupation time and non-availability will both be equal to Tom hours.
- 10.6 Should a single stoppage of Work due to a breakdown of a machine exceed or be likely to exceed 60 minutes, the Technical Officer's deputy may require the machine to be removed to a staging point as soon as possible. Such travelling, whether from or returning to the point of breakdown, will not be included in Tt, but will be included in Tb.
- 10.7 If the Contractor is instructed to work either overtime or more than Twm, non-availability due to breakdown occurring in such time will not be penalised. Occupation time will also not be measured during such breakdown.

## **11. PROVIDED BY PRASA KZN**

PRASA KZN will provide the following free of charge: -

- 11.1 Water to operate the machinery, where available. The quality of water cannot be guaranteed.
- 11.2 Where available, at campsites as in clause 8.2, water for drinking and domestic purposes and hot water for ablutions.

- 11.3 Free traffic consignment notes for the conveyance by rail from one area of operation to another or from the Contractor's workshop or depot to the area of operation and vice versa will be issued for the machine (whether under own power, coupled to a train or loaded onto a railway truck), spares, caravans used with the machine and either of one spares trailer or one light delivery vehicle.
- 11.4 PRASA KZN will be responsible for the safety of the machinery in so far as train working is concerned and will provide a qualified employee for each machine or group of machines, who will be in charge and who will -
- travel in the cab of the machinery whenever it moves as a train outside occupation areas.
  - arrange protection for and supervise the operation of the machinery within the zone of protection, whether it is working, moving or standing idle.
  - supervise all on-tracking and off-tracking operations and ensure that the machinery is made secure when parked at the staging point.
- 11.5 Before work is commenced, the Technical Officer's deputy will enter in the work book the approximate positions of underground or hidden electrical conductors that may affect, or be affected by, the Work to be done under the Contract, or alternatively, endorse in the work book that no such conductors exist.
- 11.6 Nothing contained herein shall detract from the Contractor's obligation to exercise care in all respects in carrying out his duties under the Contract.
- 11.7 PRASA KZN will provide two or more DZ type rail wagons for use under drain cleaning operations. The number of wagons required can be agreed upon between the Technical Officer and the Contractor and it depends on availability of the wagons and the reasons for requesting it. These wagons will also be moved free on rail.

## **12. TO BE PROVIDED BY THE CONTRACTOR**

- 12.1 Except where otherwise specified the Contractor shall at his own cost provide all machinery, labour, transport, consumable stores, equipment, tools, services, materials, spare parts and ingredients of every description required for the performance and completion of his contractual obligations.
- 12.2 The Contractor shall provide and deliver to the place of Work all fuels and water required for the machine operations.
- 12.3 The Contractor shall maintain and operate the machinery, direct his own personnel, and perform all work required.
- 12.4 During track occupations, the Contractor shall ensure that sufficient mechanics, operators and labour are present to ensure efficient operation of the machinery.
- 12.5 At least one qualified and experienced mechanic shall be in attendance at all times during track occupations and when the machinery travels as a train.
- 12.6 The Contractor shall appoint one suitably qualified person as his representative at each occupation.
- 12.7 The Contractor and the Technical Officer shall notify each other in writing of the names of their representatives who will be present during track occupations. These, as well as any changes in the personnel, shall be recorded in the workbook.
- 12.8 Failure to comply with the provisions of 17.2 to 17.7 shall render the machinery non-available.

## **13. MACHINE MOVEMENTS**

- 13.1 The Contractor shall deliver the machinery in full operational condition, with all operatives, to the initial place of Work, as directed by the Technical Officer.
- 13.2 The Contractor shall not place the machinery onto the track or remove it there from, or use it in any way, except when authorised to do so by the Technical Officer or his deputy.

- 13.3 The Contractor is responsible for movement of his machines in the occupation area.
- 13.4 Machinery shall not be operated as a train unless a representative of PRASA KZN, appointed by the Technical Officer, who is authorised to give instructions regarding the movement of the machinery, travels on the machinery to its destination. The Contractor shall, subject to the provisions of clause 10, assist PRASA KZN in all matters concerning the safety of trains, persons and the machinery.
- 13.5 The Contractor shall ensure that the off-tracking rails are correctly placed and fastened before lowering or moving the machinery onto them.
- 13.6 The Contractor shall point out to the Technical Officer any part of the track or off-track stand where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the workbook. The Contractor shall however repair off-track platforms where work can reasonably be expected to be done by the labour provided with the machine as per the schedule of labour.
- 13.7 The Contractor shall load and unload all machinery to be transported by rail truck (see clause 16.3) and shall be responsible to properly secure all machinery to be so transported.

#### **14. CARE OF MATERIAL SUPPLIED BY PRASA KZN**

Any material supplied by PRASA KZN shall be used in the most economical way, and the Contractor shall take all reasonable care to prevent loss or damage thereof. Any material lost or damaged through negligence on the part of the Contractor or his employees shall either be made good by the Contractor or PRASA KZN will replace it. The value of the material replaced by PRASA KZN, including the cost of transport at normal tariffs applicable to the public, will be deducted from any money due to the Contractor or recovered in any other way.

#### **15. COMPLIANCE WITH STANDARDS OF WORKMANSHIP AND ACCURACY**

- 15.1 The Contractor shall work to the track dimensions required by the Technical Officer. These dimensions will be given in writing to the Contractor or indicated by means of chalk marks on the sleepers.
- 15.2 The Contractor shall continuously monitor and evaluate measurements of the track and shall ensure compliance with the specified standards of workmanship and accuracy.
- 15.3 Where, in the opinion of the Contractor, the condition of the track or any site condition is such that the specified performance standards cannot be achieved, he should record all relevant information before and after working in conjunction with the Technical Officer's deputy. The Technical Officer may, if he concurs with the Contractor's contentions, adapt the specified standards of workmanship and conformance to suit the track and/or site conditions.

#### **16. UNSATISFACTORY PERFORMANCE OF THE MACHINERY**

- 16.1 The Technical Officer may terminate the Work and/or order the machinery to be moved to another place of Work and/or order the removal of mechanic(s) and/or operator(s), and/or order the temporary or permanent removal and replacement of a machine under the following conditions:  
When the output of the machinery is less than 70% of the required minimum **productivity** for a period of two consecutive months, or when the percentage **availability** of the machinery (as described in the Special Conditions of Contract and Specifications) is less than 75% for a period of two consecutive months.
- 16.2 The Contractor may substitute, either temporarily or for the duration of the Contract, other machinery in place of that listed in the Schedule of Machinery offered. The substitute machinery shall be subject to all the terms and conditions of the Contract and shall in no way be inferior to the original machinery. (See clause 13.8). The Technical Officer shall be advised of any proposed substitution, which shall be subject to his approval.
- 16.3 Should the Technical Officer, at any time, be of the opinion that the machinery provided by the Contractor is performing defectively or is incapable of achieving the specified output and availability the Technical Officer may notify the Contractor in writing, but the Contractor shall not be relieved of any of his contractual obligations if such notification

is not given. The Contractor shall there-upon take steps to improve the output and availability of the machinery to specified performance levels or to replace the machinery with machinery capable of achieving the specified performance, failing which the Executive Officer may act in terms of 24 of the GCC.

## 17. MEASUREMENT AND PAYMENT

17.1 The quantities in the Schedule of Quantities and/or Prices are estimated and may be more or less than stated. The Technical Officer will measure all the work done and certify payment therefore in accordance with the Schedule of Quantities and/or Prices. The absence of stated quantities is no guarantee that none will be required.

17.2 Payment for establishment of a machine at the commencement of the Contract will only be made after the machine has attained the required minimum availability over a period of one month.

Should the Contract not be completed for any reason whatsoever, due to the Contractor, he shall refund to PRASA KZN a percentage of the establishment cost. The refund shall be proportional to the uncompleted period of the Contract.

In the case of unknown, alternative or substitute machines, establishment payments will only be made after successful completion of the trials (see clause 13.8) and only for the initial machine establishment.

17.3 Measurement and payment for the hire and operation of the machinery will be made as specified in the Project Specification. The following general payment provisions shall apply;

17.3.1 A machine-hire rate per day for each production machine that is available and operational. The rate shall include for all accessory labour, tools, equipment, etc., and everything whatsoever pertaining to the operation and maintenance of the machine.

17.3.2 A production-rate for each unit of time worked or work produced by the machine during actual working time. The rate shall include for all labour, fuels, consumables, materials, etc. and everything whatsoever, pertaining to the production output of the machine. The rate shall apply to all work performed on a "normal working day" as defined and to all Double-Shift working.

17.3.3 An extra-over payment will be made for overtime worked or production units produced during overtime working, i.e. time worked in excess of the maximum daily occupation time (Tom) on a normal working day and on Saturdays, Sundays and statutory public holidays. The overtime payment will not apply to Double Shift working.

17.3.4 Contractor shall submit, with their tenders, full particulars of the labour task crews, allowed for in the rates tendered in respect of clause 22.3.1 and 22.3.2, to undertake the tasks and functions specified in the Special Conditions and Specifications. Such particulars shall include the details of crew strengths i.e. numbers of labourers and supervisors, etc.

17.4 Additional payment will be made when the machine is required to work outside the contract area described in the Special Conditions and Specifications.

17.5 No payment whatsoever will be made for periods of non-availability.

17.6 No payment will be made if a machine is unable to work as a result of an accident to the machine, regardless of the cause of such accident.

17.7 When two or more machines work in tandem and as an interdependent production system, the entire group of machines will be deemed to be non-available if the non-availability of one or more machines renders the entire production system substantially unproductive.

17.8 The Contractor shall be paid at the hourly rates in the Labour Payment Schedule when the Technical Officer approves a temporary increase in labour to perform the tasks and functions specified in the Special Conditions and Specification, at particular workplaces.

**18 INCREASE OR DECREASE IN COSTS**

No increase or decrease will be applicable for this contract.

**19 FOREIGN EXCHANGE RATE FLUCTUATIONS**

Not applicable for this contract

**20. PAYMENT CERTIFICATES**

20.1 On or about the last day of each month, the Technical Officer's deputy will make a progress measurement of the work done in conjunction with the Contractor.

20.2 Thereafter the Project Manager will issue a certificate authorising payment of such sum of money as he may consider represents the value of the work referred to in 25.1.

20.3 The Contractor shall be entitled to receive payment of the amount authorised in the said certificate within 30 days from the date of measurement or receipt of the Contractor's VAT-invoice, whichever is the later. Such payment will be regarded as an open payment, and both the certificate and payment will be subject to revision and adjustment by the Project Manager if at any time he is of the opinion that the certificate does not represent accurately the value of work completed or to correct previous over or under payments.

20.4 In the event of failure by PRASA KZN to make payment within the time stipulated in clause 25.3, he shall pay to the Contractor interest at prime overdraft rate as certified by the Contractor's bankers upon all overdue payments of such certified amounts, from the date on which such payments should have been made. Interest payments shall not be applicable to corrections made in respect of previous over- or underpayments.

20.5 The Project Manager shall, within 28 days after completion of the Contract, authorise the release of surety, and submit for approval by the Executive Officer a Final Certificate which, after approval by the latter, shall be issued to the Contractor, thereby certifying both the final completion of the Contract Work and the amount due to the Contractor. The Project Manager may deduct from the Final Payment Certificate any money then due by the Contractor to PRASA KZN under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and PRASA KZN, as is deemed necessary by him.

20.6 The Project Manager shall, within 14 days after approval by the Executive Officer, and subject to clause 25.5, send the Final Certificate to the Contractor who, by countersigning thereof, shall certify his acceptance of the amount shown due to him as being full and final payment, subject only to the resolution of outstanding disputes.

20.7 Within 30 days after the receipt of the Contractor's certification, PRASA KZN will remit to the Contractor the balance of all money so due under the Contract in terms of the Final Certificate.

20.8 Where the Contractor fails to certify the Final Certificate or has not disputed the correctness thereof within three months after its receipt by him, PRASA KZN will deem the Contractor to be in agreement with the Final Certificate and will effect payment in terms thereof.

PRASA KZN will not consider or admit any claim arising from the Final Certificate or in connection with the Contract, which has not been lodged with the Project Manager within a period of three months after receipt by the Contractor of the Final Certificate, and the Contractor accepts and acknowledges that by his failure to lodge a claim within the above-stipulated period of three months, he waives such claim and relieves PRASA KZN of responsibility for such claim.

20.9 Neither the issue of the Final Certificate nor any payment made there under shall release the Contractor from any liability to indemnify PRASA KZN against, and to reimburse it in respect of, any claim made or to be made against it by a third party for damage or loss sustained by such third party in consequence of any wrongful act or omission of the Contractor, or his employees or agents.

**21. GUARANTEE**

PRASA KZN requires a Bank Guarantee or Deed of Surety ship of 5% of the total value of the Contract as security for the due and faithful performance by the Contractor of all the duties and obligations resting upon and assumed by him in terms of the Contract.

The bank guarantee or Deed of Suretyship is to be returned to the Contractor upon completion of the contract after certification from the Project Manager that all contract requirements have been met.

## **22. ANNEXURES**

The following annexures are applicable to this contract:

Annexure 1 (Sheet 1 of 5); Horizontal clearances: 1065mm track gauge

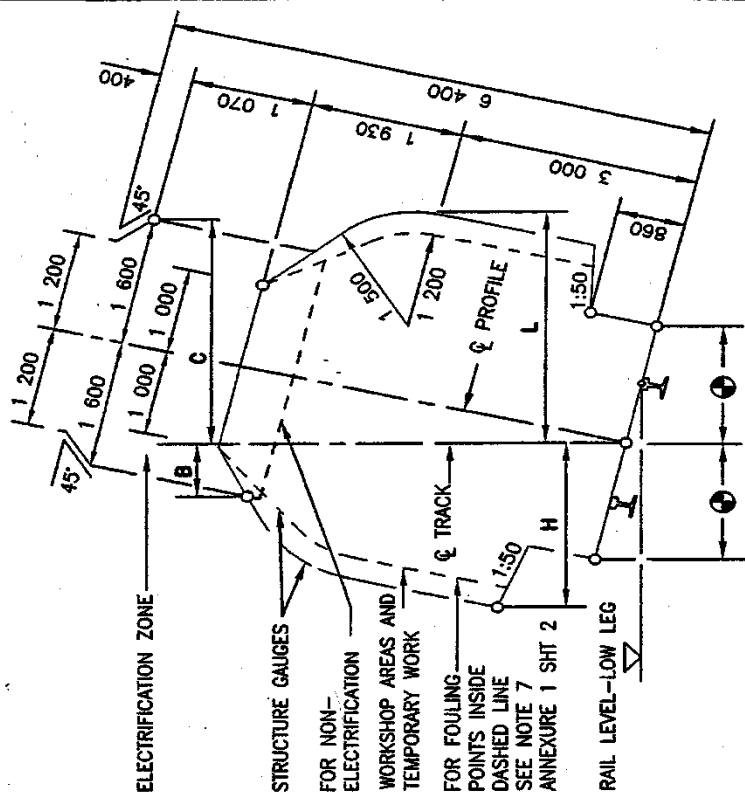
Annexure 1(Sheet 2 of 5); Vertical clearances: 1065mm track gauge

Annexure 2 (Sheet 1 of 2); Vehicle gauge: 1065mm track gauge

Annexure 4 (Sheet 1 of 1); Formation and Ballast minimum requirements

ANNEXURE 1  
SHEET 1 of 5  
AMENDMENT

HORIZONTAL CLEARANCES :  
1 065mm TRACK GAUGE



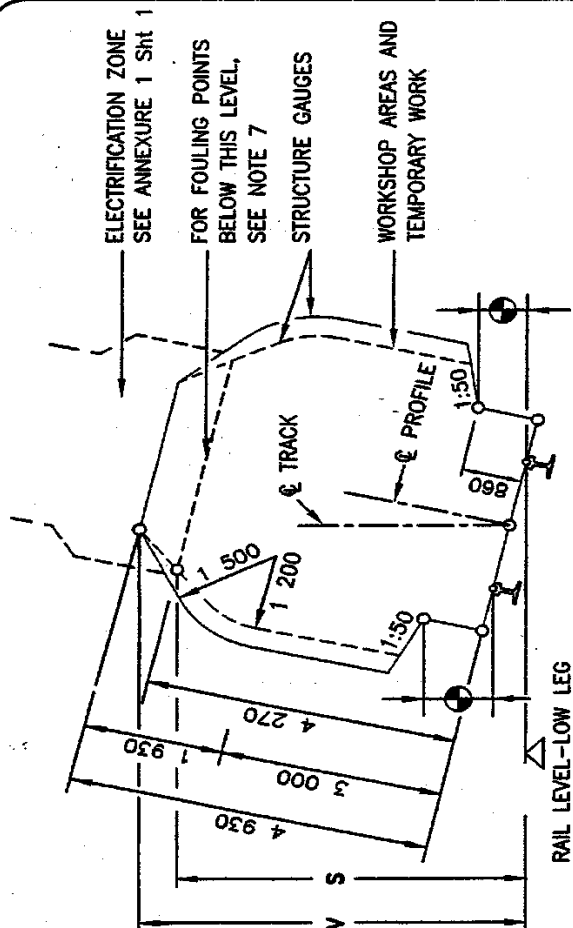
| RADIUS<br>(m) | WITH CANT |        | NO CANT |  | WITH CANT |        |
|---------------|-----------|--------|---------|--|-----------|--------|
|               | H (mm)    | L (mm) | H & L   |  | B (mm)    | C (mm) |
| 90            | 2 730     | 3 090  | 2 780   |  | 1 130     | 2 100  |
| 100           | 2 700     | 3 030  | 2 750   |  | 1 140     | 2 050  |
| 120           | 2 650     | 2 970  | 2 700   |  | 1 160     | 2 010  |
| 140           | 2 620     | 2 920  | 2 660   |  | 1 175     | 1 990  |
| 170           | 2 590     | 2 870  | 2 630   |  | 1 190     | 1 970  |
| 200           | 2 570     | 2 820  | 2 600   |  | 1 205     | 1 950  |
| 250           | 2 550     | 2 790  | 2 580   |  | 1 230     | 1 920  |
| 300           | 2 540     | 2 760  | 2 560   |  | 1 250     | 1 900  |
| 350           | 2 530     | 2 730  | 2 540   |  | 1 270     | 1 890  |
| 400           | 2 520     | 2 710  | 2 530   |  | 1 290     | 1 875  |
| 500           | 2 510     | 2 680  | 2 520   |  | 1 320     | 1 850  |
| 600           | 2 500     | 2 660  | 2 510   |  | 1 340     | 1 830  |
| 800           | 2 490     | 2 620  | 2 500   |  | 1 365     | 1 790  |
| 1 000         | 2 480     | 2 600  | 2 490   |  | 1 380     | 1 760  |
| 1 200         | 2 480     | 2 580  | 2 490   |  | 1 200     | 1 730  |
| 1 500         | 2 480     | 2 550  | 2 480   |  | 1 415     | 1 700  |
| 2 000         | 2 480     | 2 500  | 2 480   |  | 1 440     | 1 660  |
| 3 000         | 2 470     | 2 470  | 2 470   |  | 1 500     | 1 600  |
| >5 000        | 2 460     | 2 460  | 2 460   |  | 1 600     | 1 600  |

REMARKS:

1. H AND B IS THE REQUIRED HORIZONTAL CLEARANCE ON THE OUTSIDE OF THE CURVE BASED ON MINIMUM CANT.
2. L AND C IS THE REQUIRED HORIZONTAL CLEARANCE ON THE INSIDE OF THE CURVE BASED ON MAXIMUM CANT.
3. INTERMEDIATE VALUES MAY BE INTERPOLATED BY THE ENGINEER IN CHARGE.
4. FOR WORKSHOP AREAS AND TEMPORARY WORK, CLEARANCES H AND L MAY BE REDUCED BY 300mm.
5. ⚡ SEE ANNEXURE 1 SHEET 3 FOR PLATFORM CLEARANCES.
6. ALSO REFER TO REMARKS 4 TO 6 OF ANNEXURE 1 SHEET 2.

ANNEXURE 1  
SHEET 2 of 5  
AMENDMENT

VERTICAL CLEARANCES :  
1 065mm TRACK GAUGE



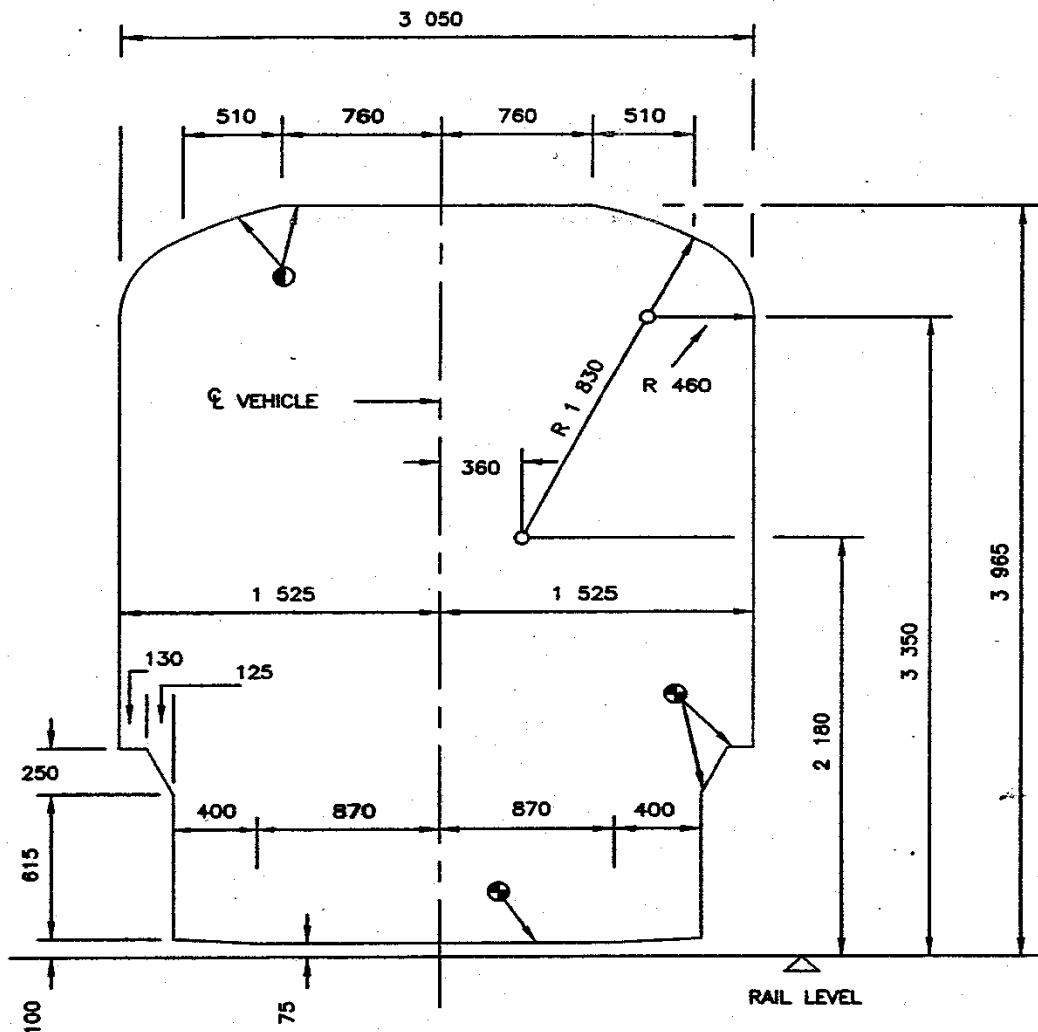
| LOCATION                                                                                     | RADIUS (mm) | NOT ELECTRIFIED<br>S (mm) | ELECTRIFIED<br>(PRESENT OR FUTURE) |                |
|----------------------------------------------------------------------------------------------|-------------|---------------------------|------------------------------------|----------------|
|                                                                                              |             |                           | 3kV & 25kV<br>V (mm)               | 50kV<br>V (mm) |
| * BELOW<br>THOSE INDICATED BY<br>ALL AREAS OTHER THAN                                        | 100         | 4 470                     | 5 050                              | 5 400          |
|                                                                                              | 300         | 4 410                     | 5 020                              | 5 370          |
|                                                                                              | 600         | 4 370                     | 5 000                              | 5 350          |
|                                                                                              | 1 000       | 4 350                     | 4 990                              | 5 340          |
|                                                                                              | 1 500       | 4 310                     | 4 960                              | 5 310          |
|                                                                                              | 2 000       | 4 290                     | 4 940                              | 5 290          |
|                                                                                              | >3 000      | 4 270                     | 4 930                              | 5 280          |
| * OVER OR NEAR POINTS<br>AND CROSSING IF REQUIRED<br>BY ELECTRICAL<br>IRRESPECTIVE OF RADIUS |             |                           | 5 650                              | 6 000          |

REMARKS:

1. V IS THE REQUIRED VERTICAL CLEARANCE EXCEPT WHERE REDUCED CLEARANCE S APPLIES.
2. S IS THE MINIMUM VERTICAL CLEARANCE FOR STRUCTURES AND TEMPORARY WORK OVER NON-ELECTRIFIED LINES.
3. INTERMEDIATE VALUES MAY BE INTERPOLATED BY THE ENGINEER IN CHARGE.
4. FOR APPLICATION AT CURVES
  - 4.1 APPLY INCREASED CLEARANCES FOR CURVES TO POINTS 3m BEYOND THE ENDS OF THE CIRCULAR CURVE.
  - 4.2 REDUCE CLEARANCES AT A UNIFORM RATE OVER THE REMAINDER OF THE TRANSITION CURVE.
  - 4.3 FOR NON-TRANSITIONED CURVES REDUCE AT A UNIFORM RATE OVER A LENGTH OF 15m ALONG STRAIGHTS.
5. NEW STRUCTURES: SEE BRIDGE CODE.
6. TUNNELS: SEE DRAWING BE 82-35.
7. FOULING POINTS: SEE CLAUSE 8.1.
8. CLEARANCES ARE BASED ON 15m BOGIE CENTRES AND 21.2m VEHICLE BODY LENGTH.
9. SEE ANNEXURE 1 SHEET 3 FOR PLATFORM CLEARANCES.

ANNEXURE 2  
SHEET 1 of 2  
AMENDMENT

VEHICLE GAUGE :  
1 065mm TRACK GAUGE

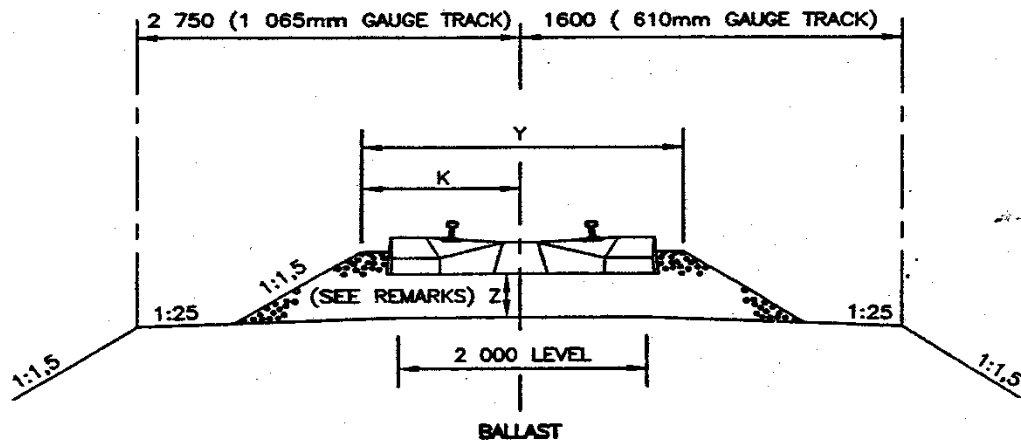
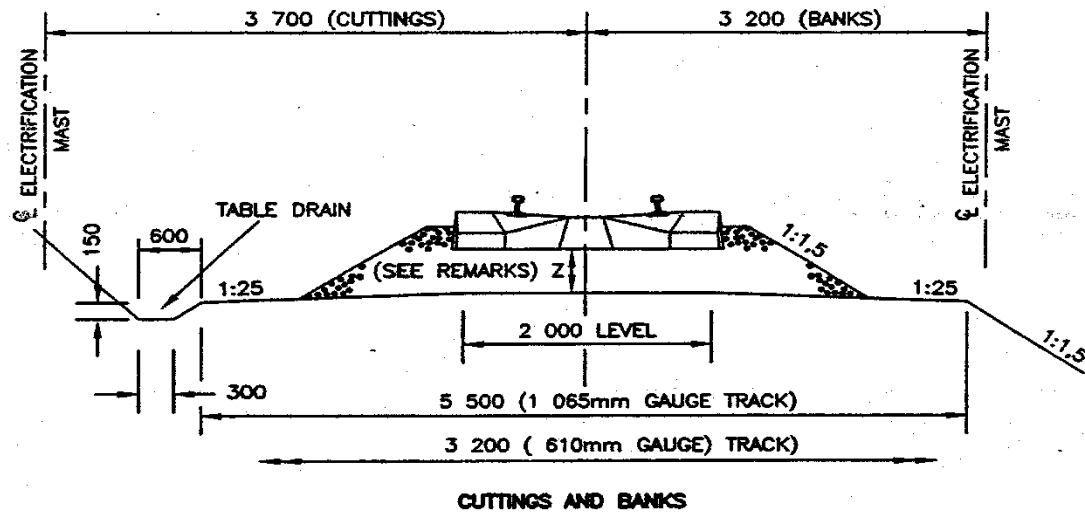


REMARKS:

1. ⦿ WITHOUT LOAD AND WITH NEW TYRES, VEHICLE MUST NOT BE HIGHER THAN THIS OUTLINE.
2. ⦿ WITH FULL LOAD AND WORN TYRES, VEHICLE MUST NOT BE LOWER THAN THIS OUTLINE.

ANNEXURE 4  
SHEET 1 of 1  
AMENDMENT

FORMATION AND BALLAST :  
MINIMUM REQUIREMENTS



| CLASS OF LINE | Z (mm) | Y (mm) | K (mm) | QUANTITY (m <sup>2</sup> /km) |       |       |
|---------------|--------|--------|--------|-------------------------------|-------|-------|
|               |        |        |        | PY/FY                         | P2/F4 | WOOD  |
| S             | 300    | 2 800  | 1 400  | 1 600                         | —     | —     |
| N1            | 280    | 2 700  | 1 350  | 1 500                         | 1 400 | —     |
| N2            | 200    | 2 700  | 1 350  | —                             | 1 200 | 1 100 |

REMARKS:

1. Z TO BE MEASURED UNDER THE LOW LEG RAIL ON CURVES.
2. DEPTH OF BALLAST (Z) ARE TO BE MEASURED IN THE CONSOLIDATED STATE, THAT IS AFTER 100 000 GROSS TON TRAIN TRAFFIC.

ANNEXURE 16  
SHEET 3 of 5  
AMENDMENT

DESTRESSING AND WORKING  
TEMPERATURE RANGES

| SECTION                         | DESTRESSING RANGES |             | WORKING RANGES FOR RAIL LAYING |         |
|---------------------------------|--------------------|-------------|--------------------------------|---------|
|                                 | THROUGH LINES      | YARD TRACKS | B                              | C       |
| CAPE TOWN - BELLVILLE           | 20 - 50            | 25 - 45     | 15 - 55                        | 15 - 60 |
| * BELLVILLE - WORCESTER         | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * WORCESTER - DE AAR            | 25 - 40            | 25 - 35     | 20 - 50                        | 20 - 55 |
| HUTCHINSON - CALVINIA           | 25 - 35            | 25 - 30     | 20 - 40                        | 20 - 50 |
| KOOTJIESKOLK - SAKRMER          | 25 - 35            | 25 - 30     | 20 - 40                        | 20 - 50 |
| KRAAIFONTEIN - BITTERFONTEIN    | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| KALBASKRAAL - SALDANHA          | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| HERMON - PORTERVILLE            | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| WOLSELEY - PRINCE ALFRED HAMLET | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| PAARL - FRANCHHOEK              | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| EERSTERVIER - BREDASDORP        | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| VAN DER STEL - STRAND           | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| KLIPDALE - PROTEM               | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| EERSTERVIER - MULDERSVLEI       | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * WORCESTER - RIVERSDALE        | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| KENTEMADE - ATLANTIS            | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| TABLE BAY HARBOUR - SIMONSTOWN  | 20 - 50            | 25 - 45     | 15 - 55                        | 15 - 60 |
| CAPE TOWN CENTRAL METRO AREA    | 20 - 50            | 25 - 45     | 15 - 55                        | 15 - 60 |
| * DE AAR - * KIMBERLEY          | 25 - 35            | 25 - 30     | 20 - 40                        | 20 - 50 |
| * KIMBERLEY - MAKWASSIE         | 25 - 40            | 30 - 40     | 20 - 50                        | 20 - 55 |
| * MAKWASSIE - * KLERKSDORP      | 20 - 40            | 25 - 35     | 15 - 50                        | 15 - 55 |
| * KIMBERLEY - * POSTMASBURG     | 25 - 35            | 25 - 30     | 20 - 40                        | 20 - 50 |
| POSTMASBURG - HOTAZEL           | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| DE AAR - NAKOP                  | 25 - 40            | 30 - 35     | 25 - 45                        | 25 - 55 |
| GROVEPUT - COPPERTON            | 25 - 40            | 30 - 35     | 25 - 45                        | 20 - 55 |
| UPINGTON - KAKEMAS              | 25 - 40            | 30 - 35     | 25 - 45                        | 20 - 55 |
| BELMONT - DOUGLAS               | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| VEERTIENSTROME - MAFIKENG       | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| PUDIMOE - COLIGNE               | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * MAKWASSIE - VERMAAS           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| OTTOSDAL - * KLERKSDORP         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| LICHTENBURG - WELVERDIEND       | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| PORT ELIZABETH - ALICEDALE      | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * ALICEDALE - NOUPOORT          | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| NOUPOORT - DE AAR               | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| SWARTKOPS - KLIPPLAAT           | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| KLIPPLAAT - ROSMEAD             | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| ADDO - KIRKWOOD                 | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| RIVERSDALE - * MOSSELBAAI       | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| MOSSELBAAI - GEORGE             | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| * GEORGE - OUDTSHOORN           | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * OUDTSHOORN - * KLIPPLAAT      | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| ODTSHOORN - CALITZDORP          | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * GEORGE - KNYSNA               | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * PORT ELIZABETH - AVONTUUR     | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| GAMTOOS - PATENSIE              | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| COOKHOUSE - SOMERSET EAST       | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * ALICEDALE - PORT ALFRED       | 30 - 40            | 30 - 35     | 25 - 45                        | 25 - 55 |
| BARKLEY BRIDGE - ALEXANDRIA     | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| EAST LONDON - DOHNE             | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| * DOHNE - QUEENSTOWN            | 25 - 40            | 30 - 35     | 20 - 50                        | 20 - 55 |
| * QUEENSTOWN - BURGERSDORP      | 20 - 35            | 25 - 30     | 15 - 45                        | 15 - 50 |
| * BURGERSDORP - SPRINGFONTEIN   | 20 - 40            | 25 - 40     | 15 - 50                        | 15 - 55 |
| COOKHOUSE - BLANEY              | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| AMABELE - UMTATA                | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| IMVANI - QAMATA                 | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * ROSMEAD - STORMBERG           | 20 - 30            | 20 - 25     | 15 - 35                        | 15 - 45 |
| SCHOOMBEE - HOFMEYR             | 20 - 30            | 20 - 25     | 15 - 35                        | 15 - 45 |
| STERKSTROOM - MACLAER           | 20 - 30            | 20 - 25     | 15 - 35                        | 15 - 45 |
| MOLTENO - JAMESTOWN             | 20 - 30            | 20 - 25     | 15 - 35                        | 15 - 45 |
| BURGERSDORP - BARKLEY EAST      | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |

REMARKS:

1. FOR REMARKS SEE ANNEXURE 16 SHEET 5.

ANNEXURE 16  
SHEET 4 of 5  
AMENDMENT

DESTRESSING AND WORKING  
TEMPERATURE RANGES

| SECTION                          | DESTRESSING RANGES |             | WORKING RANGES FOR RAIL LAYING |         |
|----------------------------------|--------------------|-------------|--------------------------------|---------|
|                                  | THROUGH LINES      | YARD TRACKS | B                              | C       |
| NOUPOORT - SPRINGFONTEIN         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| * SPRINGFONTEIN - BLOEMFONTEIN   | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| BLOEMFONTEIN - THEUNISSEN        | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| * THEUNISSEN - KROONSTAD         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| KROONSTAD - VEREENIGING          | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| BETHLEHEM - ARLINGTON            | 15 - 35            | 20 - 30     | 10 - 40                        | 10 - 50 |
| * ARLINGTON - * KROONSTAD        | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| KIMBERLEY - EMMAUS               | 25 - 40            | 25 - 35     | 20 - 45                        | 20 - 55 |
| * EMMAUS - BLOEMFONTEIN          | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| SPRINGFONTEIN - KOFFIEFONTEIN    | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| ALIWAAL NORTH - SANNASPOS        | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| GROOTVLEI - * BETHLEHEM          | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| * BETHLEHEM - BLOEMFONTEIN       | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| HARRISMITH - BETHLEHEM           | 15 - 35            | 20 - 30     | 10 - 40                        | 10 - 50 |
| VREDEFORT - DOVER                | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| WOLWEHOEK - ARLINGTON            | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| * ARLINGTON - MARQUARD           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| ORKNEY - WESLEIGH                | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| VIJFONTEIN - BULTFONTEIN         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| ANCONA - WHITES                  | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| THEUNISSEN - WINBURG             | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| WARDEN - * HARRISMITH            | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| MASERU - MARSAILLES              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| LADYBRAND - MODDERPOORT          | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| VIRGINIA - GLEN HARMONY          | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| WONDERFONTEIN - BROODSNYERSPLAAS | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| ERMELO - MACHADOORP              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| BUHRMANNSKOP - LOTHAR            | 15 - 35            | 20 - 30     | 10 - 40                        | 10 - 50 |
| ROSSBURG - * DASSENHOEK          | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| DASSENHOEK - CATO RIDGE          | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| CATO RIDGE - PIETERMARITZBURG    | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * PIETERMARITZBURG - * VOLKSRUST | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| ROSSBURG - HILLCREST             | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| * HILLCREST - CATO RIDGE         | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| DURBAN - PORT SHEPSTONE          | 20 - 50            | 25 - 45     | 15 - 60                        | 15 - 65 |
| KELSO - UMZINTO                  | 20 - 50            | 25 - 45     | 15 - 60                        | 15 - 65 |
| DURBAN - HLUHLUWE                | 20 - 50            | 25 - 45     | 15 - 60                        | 15 - 65 |
| * HLUHLUWE - GOLELA              | 25 - 45            | 30 - 40     | 20 - 55                        | 20 - 60 |
| EMPANGENI - NKWALINI             | 25 - 50            | 30 - 45     | 20 - 55                        | 20 - 60 |
| DUFFSROAD - KWAMASHU             | 25 - 50            | 30 - 45     | 20 - 55                        | 20 - 60 |
| THORNVILLE - RICHMOND            | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| THORNVILLE - PENTRICH            | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * PIETERMARITZBURG - KOKSTAD     | 25 - 35            | 25 - 30     | 20 - 40                        | 20 - 50 |
| DONNYBROOK - UNDERBERG           | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| FRANKLIN - MATATIELE             | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| PIETERMARITZBURG - DALTON        | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * DALTON - KRANSKOP              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| SCHROEDERS - BRUYNHILL           | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| * DALTON - GLENSIDE              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| GREYTOWN - MOUNT ALIDA           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| ENNERSDALE - BERGMILL            | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| GLENCOE - VRYHEID                | 20 - 40            | 20 - 35     | 15 - 50                        | 15 - 55 |
| NEWCASTLE - UTRECHT              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| LADYSMITH - HARRISMITH           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |

REMARKS:

1. FOR REMARKS SEE ANNEXURE 16 SHEET 5.

ANNEXURE 16  
SHEET 5 of 5  
AMENDMENT

DESTRESSING AND WORKING  
TEMPERATURE RANGES

| SECTION                         | DESTRESSING RANGES |             | WORKING RANGES FOR RAIL LAYING |         |
|---------------------------------|--------------------|-------------|--------------------------------|---------|
|                                 | THROUGH LINES      | YARD TRACKS | B                              | C       |
| KLERKSDORP - * POTCHEFSTROOM    | 20 - 35            | 25 - 30     | 20 - 40                        | 15 - 50 |
| POTCHEFSTROOM - * KRUGERSDORP   | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| KRUGERSDORP - JOHANNESBURG      | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| JOHANNESBURG - OLIFANTSFONTEIN  | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| POTCHEFSTROOM - VEREENIGING     | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| VEREENIGING - GERMISTON         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| VOLKSRUST - * STANDERTON        | 15 - 35            | 20 - 30     | 10 - 40                        | 10 - 50 |
| STANDERTON - * HEIDELBERG       | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| HEIDELBERG - GERMISTON          | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| BALFOUR NORTH - * GROOTVLEI     | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| GROOTVLEI - REDAN               | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| FIRHAM - VREDE                  | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| VOLKSRUST - BREYTON             | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| BETHAL - SPRINGS                | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| SPRINGS - KAYDALE               | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| MIDWAY - HOUTHEUWEL             | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| BANK - LANGLAAGTE               | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| MAFIKENG - * KRUGERSDORP        | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| APEX - WITBANK                  | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| DELMAS - HAMEKLIP               | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| SENTRARAND AREA                 | 15 - 35            | 20 - 30     | 10 - 40                        | 10 - 50 |
| JOHANNESBURG CENTRAL METRO AREA | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| OLIFANTSFONTEIN - * IRENE       | 15 - 40            | 20 - 35     | 10 - 45                        | 10 - 55 |
| IRENE - PRETORIA                | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| PRETORIA - * WARMBATHS          | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| WARMBATHS - * POTGIETERSRUS     | 20 - 45            | 25 - 40     | 15 - 55                        | 15 - 60 |
| POTGIETERSRUS - BEITBRIDGE      | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 50 |
| * PRETORIA - * WATERVAL BOVEN   | 20 - 40            | 25 - 35     | 15 - 50                        | 15 - 55 |
| WATERVAL BOVEN - * NELSPRUIT    | 20 - 45            | 25 - 40     | 15 - 55                        | 15 - 60 |
| NELSPRUIT - KOMATIPOORT         | 25 - 45            | 30 - 40     | 20 - 55                        | 20 - 60 |
| HERCULES - MAGALIESBURG         | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| PRETORIA - BRITS                | 20 - 40            | 20 - 35     | 15 - 45                        | 15 - 55 |
| BRITS - RUSTENBURG              | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| RUSTENBURG - * THABAZIMBI       | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| THABAZIMBI - ELLISRAS           | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| BRITS - ATLANTA                 | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| NYLSTROOM - VAALWATER           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| NABOOMSPRUIT - ZEBEDIELA        | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| PIENAARSRIVER - MARBLE HALL     | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| RAYTON - CULLINAN               | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| GROENBULT - KAAPMUIDEN          | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| HOEDSPRUIT - PHALABORWA         | 25 - 45            | 30 - 40     | 20 - 50                        | 20 - 60 |
| * KAAPMUIDEN - BARBERTON        | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| * NELSPRUIT - GRASKOP           | 20 - 35            | 25 - 30     | 15 - 40                        | 15 - 50 |
| CITRUS - PLASTON                | 20 - 45            | 25 - 40     | 15 - 50                        | 15 - 60 |
| BELFAST - STEELPOORT            | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| DERWENT - ROOSSENEKAL           | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| PRETORIA CENTRAL METRO AREA     | 20 - 40            | 25 - 35     | 15 - 45                        | 15 - 55 |
| SALDANHA - BAMBOESBAAI          | 20 - 50            | 25 - 45     | 15 - 55                        | 15 - 60 |
| * BAMBOESBAAI - SISHEN          | 25 - 40            | 30 - 35     | 20 - 45                        | 20 - 55 |
| RICHARDSBAY - ULUNDI            | 20 - 45            | -           | 20 - 55                        | -       |
| * ULUNDI - PIET RETIEF          | 20 - 40            | 25 - 35     | 20 - 50                        | 15 - 55 |
| PIET RETIEF - * SHEEPMORE       | 20 - 40            | 25 - 35     | 20 - 50                        | 15 - 55 |
| SHEEPMORE - ERMELO              | 15 - 35            | 20 - 30     | 15 - 45                        | 10 - 50 |
| * ERMELO - BROODSNYERSPLAAS     | 15 - 40            | 20 - 35     | 15 - 50                        | 10 - 55 |
| BROODSNYERSPLAAS - OGIES        | 15 - 40            | 20 - 35     | 15 - 50                        | 10 - 55 |

REMARKS:

1. RAIL TEMPERATURES IN DEGREE CELSIUS.
2. USE A RAIL TENSOR WHEN THE DIFFERENCE IN THE 'A' RANGE IS 10° CELSIUS OR SMALLER.
3. \* DENOTES "EXCLUDED".

## SECTION 8.1

### **PART B: PARTICULAR (PROJECT) CONDITIONS AND SPECIFICATIONS FOR THE ULTRASONIC RAIL FLAW DETECTION AND MEASUREMENT CONTENTS**

1. SCOPE
2. DEFINITIONS
3. CONTRACT AREA
4. DURATION OF CONTRACT
  - 4.1 STAGE ONE
  - 4.2 STAGE TWO
5. PLACE OF WORK
6. SUFFICIENCY OF TENDER
7. ULTRASONIC MEASURING CAR SYSTEM REQUIREMENT
8. SYSTEM OUTPUTS
9. TOLERANCES AND QUALITY CONTROL
10. TRAINING
11. UNSATISFACTORY PERFORMANCE OF THE MACHINERY
12. MEASUREMENT AND PAYMENT
13. PENALTIES
14. ADDITIONAL PAYMENT FOR WORK PERFORMED OUTSIDE CONTRACT AREA
15. QUALITY CONTROL OF DEFECTS LOCATED
16. SUMMARY OF INFORMATION TO BE SUPPLIED WITH TENDER

## 1. SCOPE

- 1.1 The contract covers the detection of internal and external rail flaws by ultrasonic sound or other approved technique by the Contractor with equipment installed on a road rail vehicle (RRV), which he shall provide, maintain and operate subject to the terms of the succeeding clauses, and the specifications and schedules embodied in the contract. The measuring shall be done with one road rail vehicle that will do the detection, verification and sizing of defects found.
- 1.2 Alternative methods of measurements offered will be considered.
- 1.3 The measurements shall cover the following:
  - 1.3.1 In situ ultrasonic rail flaw detection of plain track and turnouts, both rails simultaneously.
  - 1.3.2 Data processing.
  - 1.3.3 Analysis and reporting of measurements for rail maintenance purposes.

## 2. DEFINITIONS

- 2.1 **AQL** means acceptable quality level.
- 2.2 **GCC** means the Conditions of Contract and General Specifications for Maintenance of Railway Track with On Track Machinery.
- 2.3 **GPS** means Global Positioning System.
- 2.4 **DGPS** means Differential Global Positioning System.
- 2.5 EMPAC database (PRASA KZN Maintenance planning System).
- 2.6 **On- or off tracking facility** means a place where the machine could be put on the track or removed from the track. It will exclude an off-track platform constructed of rails or other material that is used for the off tracking of tamping machines.
- 2.7 **Road-rail vehicle (RRV)** means a vehicle capable of traveling by any road and on the railway track as required.
- 2.8 **ULTRASONIC MEASURING CAR (UMC)** means the RRV that is used for the ultrasonic detection of rail flaws.

## 3. CONTRACT AREA

- 3.1 The contract will cover track owned and/or maintained by PRASA KZN/PRASA.
- 3.2 The expected annual workload will be an estimated 602 km (i.e., 301 km per cycle). Payment will only be for actual kilometres measured.

## 4. DURATION OF CONTRACT

- 4.1 The contract shall commence within 4 weeks of its award and run for a period of 24 months. The Engineer reserves the right to decide.
- 4.2 The tenderer shall specify in their tender submission the earliest commencement date after award of the contract.
- 4.3 PRASA KZN requires two campaigns per annum for the Region, the first to be during first run will be September to October, and the second run will be January to February. The measurement program will vary with time and is dependent upon traffic volume and cumulative traffic carried. The estimated annual workload could be greater than:

| REGION                 | ESTIMATED ANNUAL KM |
|------------------------|---------------------|
| KZN (1 <sup>st</sup> ) | 301                 |
| KZN (2 <sup>nd</sup> ) | 301                 |
| <b>TOTAL</b>           | <b>602</b>          |

4.4 The expected average daily measuring time (Tw + Tb) will be 210 minutes.

4.4.1 A campaign with a rail/road vehicle is expected to take approximately 21 days each for the KZN, when measuring at an average speed of 5km/h. The guaranteed detection, measuring and reporting distance per annum is 601km, see item 2.1 of the Bill of Quantities and Prices.

4.4.2 The contractor will be required to contract the utility to any other railway company during the periods not utilized by PRASA KZN.

## 5. PLACE OF WORK

5.1 All movements between work sites shall be by road. Where this might not be practical, the Technical Officer or his deputy will authorize movement by rail. Movements by road will be the responsibility of the contractor. The contractor shall give the Technical Officer written notice of the date and time of arrival at a new work site.

5.2 Any delay to the date and time of arrival after movement by road will render the machinery non-available for the period of such delay, excluding overnight stops.

5.3 Access to the railway track will be at an on or off tracking facility.

5.4 An on- or off-tracking facility could be any of the following:

5.4.1 A level crossing with the following surface:

- 5.4.1.1 Concrete;
- 5.4.1.2 Bitumen;
- 5.4.1.3 Concrete blocks or
- 5.4.1.4 Gravel.

When a level crossing is used as an on or off tracking facility, there shall be no interference with road traffic.

5.4.2 In a yard.

5.4.3 In a yard where the ground surface is level or almost level with the crown of the rail.

5.4.4 Wooden blocks placed temporally between and adjacent to the rails.

5.5 It is the contractor's responsibility to ensure that a facility used for on- or off tracking conforms to his requirements and that is safe at all times for the machine as well as trains. Any temporary facility shall be removed before and after the machine has on- or off-tracked.

5.6 The Contractor shall point out to the Technical Officer any part of the track or off-tracking facility where conditions may constitute a danger to the machinery and its ancillary equipment, and record this in the workbook. The Contractor shall however repair the off-track facility under supervision of the licensed PRASA KZN employee, where work can reasonably be expected to be done by the labour provided with the machine as per the schedule of labour.

5.7 The machine may only be placed on the track when authorized by a licensed PRASA KZN employee.

## 6. SUFFICIENCY OF THE TENDER

6.1 The contractor will ensure that he has fully taken into account the condition of rails to be inspected. No claims for the non-execution of the work will be accepted where any rail - or other condition related to the rails are given as a reason for non-execution. Some of these rail or rail related conditions are inter alia:

6.1.1 Rail lubrication.

6.1.2 Pitting, cracking, spalling, shelling or corrosion of the rail crown.

6.1.3 Other rail surface defects.

6.1.4 Rails with side and or crown wear on the gauge and or field side or any combination thereof.

6.2 The contractor shall make adequate allowance in the tender for wear and tear to his equipment due any abnormal conditions being encountered.

6.3 Exceptions to the above will be where the contractor can prove that the testing could not be done due to limitations to ultrasonic sound generation and reception.

6.4 Any exceptions where the contractor's equipment cannot test rails shall be submitted with the tender.

## 7. ULTRASONIC MEASURING CAR SYSTEM REQUIREMENT

### 7.1 TEST VEHICLE

Over and above the conditions in the S160 the vehicle shall comply with the following requirements:

7.1.1 A road rail vehicle capable of on/off tracking at an on or off tracking facility. **The size and dimensions of the area required to on/off track shall be supplied when the tender is submitted.**

7.1.2 Fuel range of not less than 300 km.

7.1.3 Water coolant range of not less than 150 km of testing.

7.1.4 Speed

7.1.4.1 Running free – not less than 60 km/hr - on track.

7.1.4.2 Measuring – not less than 10 km/hr.

7.1.5 Must be capable of testing in reverse directions for limited distances.

7.1.6 Be of sufficient size and capacity to carry all necessary staff, equipment, spares and consumables to work in remote areas.

7.1.7 Over and above the contractor's staff complement the vehicle shall be capable of carrying two PRASA KZN employees: a licensed PRASA KZN employee (usually referred to as the Pilot) inside the vehicle with an unobstructed view of the track, wayside instructions and signaling in front of the vehicle and another employee inside the vehicle. If these requirements are not met, the machine will be non-available. Access in and from the machine will be with a minimum of effort.

7.1.8 All machinery and equipment shall be track worthy when moving on the track.

7.1.9 A plan of the floor layout of the measuring vehicle must be submitted with the tender. This plan must show all dimensions of compartments and will form part of the contract document.

7.1.10 The UMC shall be a self-propelled road-rail vehicle able to record and travel in either direction.

7.1.11 A rotating amber flashing light shall be fitted to the top of the vehicle for use when traveling on the track.

7.1.12 When the equipment installed on the machine locates a defect and manual verification does not agree with the result, the machine shall retest the section and the most dangerous scenario shall be reported with a comment on the report describing the situation.

## **7.2 ULTRASONIC FLAW DETECTION EQUIPMENT**

The detection equipment shall comply with the following requirements:

7.2.1 Real time measurement shall be carried out on both rails simultaneously by ultrasonic probes on the running surface of the rail. The area of the rail to be covered is indicated in appendix 2. The flaw types to be detected are indicated in annexure 17, Manual for Track Maintenance (extract attached to this specification). The blades and frogs of sets and crossovers between multiple lines shall be tested as far as possible with the equipment installed on the machine.

7.2.2 Wheel probes with the following transducers (minimum), per rail, are considered necessary:

7.2.2.1 1 x 0° transducer.

7.2.2.2 6 x 70° transducers (Three forward and three reverse).

7.2.2.3 2 x 37° transducers (One forward and one reverse).

7.2.2.4 Alternative configurations will also be considered. The tender must give a clear description of any alternative configurations.

7.2.3 Each probe shall perform a complete test at least every 5-mm of vehicle travel, independent of testing speed.

7.2.4 “A scan” presentation for calibration & operational checking of ultrasonic channels. At least one for each rail is required, although multiple presentations are preferred.

7.2.5 The system and equipment shall have the flexibility to quickly and easily change probes without additional payment.

7.2.6 High-resolution graphic video monitors shall indicate all probe parameters, status information and events.

7.2.7 The system shall allow the operator to enter messages and comments to record events and positions.

7.2.8 The system shall have multiple levels of detection logic and must be able to recognize defect signatures.

7.2.9 Amplification and detection levels of each probe shall be easily controllable.

7.2.10 All equipment shall be modular for ease of maintenance and replacement.

7.2.11 The system shall be capable of working in inclement weather conditions.

7.2.12 The contractor should take note of the fact that rubber, plastic or similar wheel probes are subject to damage by rail surface deficiencies and should allow for the replacement of these without any additional cost.

## **7.3 OPERATIONAL ENVIRONMENT**

7.3.1 The machine and associated equipment shall be capable of working over any track condition except on the frog of a switch and on components cast in 14% Mn-steel.

7.3.2 All ultrasonic probes shall remain fully functional on any rail and rail surface condition, inter alia: side worn, skidded, corrugated or corroded rail.

7.3.3 Detection shall be done between rail temperatures of – 10°C to 70°C.

7.3.4 DC traction is used on the PRASA KZN system with running rails used as the return conductors.

7.3.5 The signalling system also uses the rail for current at various frequencies.

7.3.6 The rails of all lines are lubricated. The tender shall make provision for the effect that lubrication will have on the measurements and the equipment. No allowances will be made when problems with the lubrication are experienced. Ample provision shall be made in cost and time estimates for the cleaning of equipment. No additional payment will be made for this. If any cleaning is carried out during occupation time, the machine will be taken as broken down (T<sub>b</sub>) for payment purposes.

## 7.4 OPERATOR REQUIREMENTS

7.4.1 The contractor shall provide the necessary drivers and operators for the machine.

7.4.2 Drivers and/or operators of machines shall be alert and vigilant at all times and any one may not operate the machine for more than 10 hours continuously in a day when travelling by road and/or on track. The total time for road and/or track travelling shall not exceed 10 hours. Any driver and/or operator shall have at least a 10-hour rest between shifts.

7.4.3 The rail-testing operator must have a minimum of 2 years in track rail testing experience. Operators must be in possession of the South African Ultrasonic Examination (Level 2) Certificate or equivalent.

## 8. SYSTEM OUTPUTS

8.1 Marking of the rail defect location by means of paint, both plain track and turnouts.

8.2 The results of the measurement campaign shall be provided as follows:

8.2.1 All data shall be logged in a database. This database shall be kept for the full period of the contract. A backup of the database shall be kept by the contractor and updated on an interval not exceeding one week.

8.2.2 The database shall be supplied to PRASA KZN as and when required.

8.2.3 In report format using the data in the database.

8.2.3.1 A hard copy report at the end of every day referred to as the **Daily Report**. This report shall be handed over to the PRASA KZN representative and a signature obtained.

8.2.3.2 An electronic report at the end of the day referred to as the **Daily Database Report**. This shall be provided to the PRASA KZN representative, will be e-mailed to the Regional Engineer or his nominated representative not later than 12h00 on the day following the measuring campaign.

8.2.3.3 An electronic report at the end of every Regional Campaign referred to as the **Regional Campaign Report**. This shall be handed over to the PRASA KZN Project Manager, as well as to the Regional Engineer.

If reports are not received on time a penalty will be applied as stated in clause 13.

PRASA KZN may change the formats and requirements of the reports during the contract period. If it requires a substantial change, the work should be done against the item for development in the Bill of Quantities.

8.3 The system shall log the following measured parameters in the database and it shall be reported in the Daily Report and the Daily Database Report:

8.3.1 The Daily Report:

8.3.1.1 Date measured.

8.3.1.2 Infrastructure Region/depot name.

8.3.1.3 A daily report number. This shall be a unique number per report that will contain the date as the last six characters, e.g. \*\*\*\*\*ddmmyy.

- 8.3.1.4 The route km name. This will be provided before each measuring campaign or shall be taken from the table that will be provided to the contractor electronically in a *Windows Excel* spreadsheet. Route km names shall always be stated in the order shown in the table. This is in the increasing kilometre direction.
- 8.3.1.5 The track section number.
- 8.3.1.6 The line number, i.e. 1, 2, 3, up, down, avoiding, etc.
- 8.3.1.7 The names of the contractor's operator, assistant and driver.
- 8.3.1.7 The name of the PRASA KZN representative.
- 8.3.1.9 The name of the measuring car.
- 8.3.1.10 The start km and meter point of the campaign.
- 8.3.1.11 The end km and meter point of the campaign.
- 8.3.1.12 The totals of the days contract activities, namely:
  - 8.3.1.12.1 Total occupation time in hours -To.
  - 8.3.1.12.2 Total break down time in hours – Tb.
  - 8.3.1.12.3 Total standing time due to PRASA KZN – Ts.
  - 8.3.1.12.4 Total time worked – Tw.
  - 8.3.1.12.5 The speed of measurement – V.
  - 8.3.1.12.6 The calculated average speed of measurement - Vc.
  - 8.3.1.12.7 Number of defects recorded during the campaign.
- 8.3.1.13 List the activities for the day showing the following per activity:
  - 8.3.1.13.1 Type of activity, e.g. To, Tb, Tw, Ts, etc.
  - 8.3.1.13.2 The exact start time of the activity.
  - 8.3.1.13.3 The exact end time of the activity.
  - 8.3.1.13.4 The total time taken by the activity.
  - 8.3.1.13.5 The line on which the activity took place.
  - 8.3.1.13.6 The direction of measurement, e.g. up, down, increase in km, etc.
  - 8.3.1.13.7 The start km plus meter of the activity where applicable.
  - 8.3.1.13.8 The end km plus meter of the activity where applicable.
  - 8.3.1.13.9 The total km for the activity where applicable. (Ts does not have a km distance.)
  - 8.3.1.13.10 Any relevant comments.
- 8.3.1.14 A table of defects located showing the following per defect:
  - 8.3.1.14.1 The track section number (line code).
  - 8.3.1.14.2 Flaw type according to the PRASA KZN classification. (See Annexure 17, Manual for Track Maintenance 2000 - attached to this specification).
  - 8.3.1.14.3 Size and position of the defect. Four measurements are required:
    - 8.3.1.14.3.1 A transverse defect:
      - 8.3.1.14.3.1.1 The head size.
      - 8.3.1.14.3.1.2 The web size.
    - 8.3.1.14.3.2 A horizontal/vertical defect:
      - 8.3.1.14.3.2.1 The length of the defect.
      - 8.3.1.14.3.2.2 The depth of the top of the defect below the rail surface.
  - 8.3.1.14.4 Threshold levels. (See Annexure 17, sheet 5, Manual for Track Maintenance attached to this specification).
  - 8.3.1.14.5 Amplification settings on detection levels.
  - 8.3.1.14.6 Rail mass (kg/m).
  - 8.3.1.14.7 The km plus meter location.
  - 8.3.1.14.8 GPS coordinates of the flaw as measured with a GPS receiver with sub meter accuracy. The tender shall clearly specify the model and make of GPS tendered for. The contractor must supply these instruments for his own use.
- It is important to note that DGPS data must be updated on a daily basis from an applicable web site to ensure continuous accuracy.***
- 8.3.1.14.9 High/Low legs in curves.
- 8.3.1.14.10 Left/Right rail.
- 8.3.1.14.11 Vehicle speed.
- 8.3.1.14.12 Areas not tested.
- 8.3.1.14.13 Tracks not tested due to ultrasonic sound limitations
- 8.3.1.14.14 Events - Level crossing, sets, splice joint, bridges, stations.

- 8.3.1.15.15 The type of weld where a defect was located in the weld. There shall be a clear distinction between faulty and fault free exothermic (TW), flash-butt (FB) and surface welds. Sound welds shall not be recorded.
- 8.3.1.14.16 Whether the defect was located during a previous campaign or by any other means of detection, e.g. handheld probe or visual.
- 8.3.1.14.17 A summary showing the total number of defects per type of defect located.

### 8.3.2 The Daily Database Report.

- 8.3.2.1 It shall contain all the outputs as described for the Daily Report.
- 8.3.2.2 It shall be in electronic format in approved software.
- 8.3.2.3 The report will be in the form of a database with records representing each defect located and the parameters as field names.

|                               | Fields representing the report parameters |  |  |  |  |
|-------------------------------|-------------------------------------------|--|--|--|--|
| One record per defect located |                                           |  |  |  |  |
|                               |                                           |  |  |  |  |
|                               |                                           |  |  |  |  |

- 8.3.2.4 It shall be compatible with the Empac system and in a format that the data may be imported directly into the Empac system.

### 8.3.3 Regional Campaign Report.

- 8.3.3.1 A detailed report shall be submitted in electronic format to PRASA KZN head office containing all outputs as described in the daily report.
- 8.3.3.2 Data must be compared to at least three previous campaigns to-
  - 8.3.3.2.1 Indicate reoccurrences,
  - 8.3.3.2.2 Growth in defect size.

- 8.4 There shall be a clear distinction between faulty and fault free bolt holes in assemblies such as fishplate joints, insulated joints, sets, bonds and splice joints. Sound bolt-holes shall not be recorded.

- 8.5 Daily exception report as agreed with the Technical Officer.

- 8.6 All data shall be provided in a format compatible to software used by PRASA KZN at the time of tendering.

- 8.7 Any hard copies shall be verified, accepted and signed by the Technical Officer or his deputy before payment will be authorized.

- 8.8 Penalties for the late submission of reports will be as specified under clause 13.

- 8.9 The defect data listed in the daily report shall be cut and a new page started at the following points:

- 8.9.1 Where a new km route is measured.

- 8.9.2 Where there is a change in track section measured.

- 8.9.3 At a zero km point.

- 8.10 Where a Region/depot boundary is crossed, a separate report will be produced per Region/depot. The defect numbering will however continue sequentially across the depot border. Defect numbering will only be allowed to change where the km starts at zero.

## 9. TOLERANCES AND QUALITY CONTROL

### 9.1 TOLERANCES

#### 9.1.1 Rail Defect Sizing

The size and position of all defects shall be reported with a resolution of at least 2 mm in the longitudinal direction and 2 mm in depth.

9.1.2 The system shall be capable of correct distance location measurement accurate to one percent, e.g.  $\pm 10$  m over 1000 m. If this is not achieved, the machine will be rendered Tb for the day until it is proved by the contractor that the required accuracy can be achieved.

9.1.3 Void.

9.1.4 Marking the exact location of the defect. Any defect detected shall be marked with yellow oil-based paint as per annexure 17, sheet 5, Manual for Track Maintenance (attached to this specification). The paint mark shall be of a permanent nature and not easily eroded by weather. The contractor shall ensure that the rail is clean so that the paint will adhere to the rail. The marking will be on the inside of the rail between the two rails and not on the field side of the rail.

### 9.2 QUALITY CONTROL

Calibration shall ensure that no ambiguity of signals can occur. Testing and calibration by the contractor during occupations will render the machine non-available for that time.

On-line testing of all recording functions by simulated impulse signals similar to those generated by the probes shall be possible.

9.2.1 Calibration with jigs and test pieces shall be carried out daily or as and when required by the contractor. All calibrating jigs, test pieces etc. shall be provided with and carried on the vehicle.

9.2.2 When the contractor is instructed, acceptance tests shall be made by recording over sections of track with known rail flaws. The equipment will be required to record all of these to within the stated degree of accuracy.

9.2.5 The accuracy of longitudinal paint marking of rail defects shall be verified during the calibration process.

9.2.6 Any time taken to do calibration of the machine will render the machine non-available.

### 10. TRAINING

Provision shall be made for the training of PRASA KZN personnel in the operation, calibration, and interpretation of results prior to the commencement of the works and as required thereafter for the duration of the contract. No additional payment will be made for training.

### 11. UNSATISFACTORY PERFORMANCE OF THE MACHINERY

11.1 Refer to clause 21 of the S160, which is applicable.

11.2 Should a single stoppage of work due to a breakdown of a machine exceed or is likely to exceed 30 minutes, the Technical Officer's deputy may require the machine to off track as soon as possible. Such travelling, whether from or returning to the point of breakdown, will render the machine non-available.

### 12. MEASUREMENT AND PAYMENT

#### 12.1 GENERAL

12.1.1 No payment will be made for periods of non-availability of the machine.

12.1.2 No payment will be made if the machine is unable to work as a result of an accident to the machine regardless of what the cause of the accident might have been.

12.1.3 If the machine is available but unable to work on a day due to any reason caused by PRASA KZN, that day will count as a day worked. The day's announced occupation time will however not be counted towards the monthly availability.

## 12.2 ESTABLISHMENT.

12.2.1 The unit of measurement is the item. No time related payments would be made. Item 1 of the Bill of Quantities refers.

12.2.2 Refer to clause 22.2 of the S160.

## 12.3 MONTHLY PAYMENT

12.3.1 The unit of measurement will be the month.

12.3.2 The rate shall cover the maintenance and operation of the machine and shall be sufficient to cover fixed costs.

## 12.4 PRODUCTION RATE.

**12.4.1 Monthly Payment (MP)** will be based on the **Monthly Payment Rate (MPR)** quoted in item 2 in the Bill of Quantities. *Foreign exchange, if applicable, will be applied **ONLY** to this item in the Bill of Quantities. The tender shall clearly indicate the percentages to be applied and also the allocation of these percentages to the relevant countries.*

**12.4.2 Productivity (P)** will be the actual average speed of measurement (**V**) divided by the calculated average speed (**V<sub>q</sub>**) of measurement in km per hour.

$$P = \frac{V}{V_q}$$

V<sub>q</sub> is derived from the following table:

| Number of defects per km (k) | Average speed of measurement |                                                              |
|------------------------------|------------------------------|--------------------------------------------------------------|
|                              | V <sub>q</sub>               | Value to be supplied when tender is submitted in km per hour |
| 0 < k ≤ 0,80                 | V <sub>1</sub>               |                                                              |
| 0,8 < k ≤ 1,25               | V <sub>2</sub>               |                                                              |
| 1,25 < k ≤ 1,50              | V <sub>3</sub>               |                                                              |
| 1,50 < k ≤ 2,00              | V <sub>4</sub>               |                                                              |
| 2,00 < k ≤ 2,50              | V <sub>5</sub>               |                                                              |
| 2,50 < k ≤ 3,00              | V <sub>6</sub>               |                                                              |
| 3,00 < k ≤ 4,00              | V <sub>7</sub>               |                                                              |
| k > 4,00                     | V <sub>8</sub>               |                                                              |

n is the number of defects detected and

$$k = \frac{\sum n}{\sum km_{measured}}$$

All values will be calculated per month.

12.4.3 Availability (**A**) is defined as follows:

$$A = \frac{(T_o - T_b)}{T_o}$$

All values shall be rounded off to 2 decimal figures.

#### 12.4.4 Monthly payment factor (**MPF**) = **A x P**

Where **P** shall be limited to a maximum value of 1,15.

12.4.5 The monthly payment shall be: **MP = MPF x MPR**. MP shall be rounded off to 2 decimal figures.

#### 12.5 EXTRA-OVER PAYMENT.

12.5.1 Machine overtime payment will be made for occupation time during week days (Monday to Friday) in excess of the hours of maximum occupation time (**T<sub>OM</sub>**) per day. Item 3.1 in the Bill of Quantities refers.

12.5.2 Overtime payment will be made for work performed on a Saturday when in excess of 5 consecutive days out of every 7 days or in excess of 10 consecutive days out of every 14 days. Item 3.2 in the Bill of Quantities refers.

12.5.3 Overtime payment will be made for work performed on a Sunday or Paid Public Holiday when in excess of 5 consecutive days out of every 7 days or in excess of 10 consecutive days out of every 14 days. Item 3.3 in the Bill of Quantities refers.

12.5.4 When repeated processing of any measured data is required as a result of additional requests by the Technical Officer, payment will be made per man-hour as per item 3.4 in the Bill of Quantities. For this payment to be effected, prior written approval must be obtained from the Technical Officer. No additional payment will be made for the re-processing of data not conforming to the specification.

12.5.5 A shift allowance payment will be made for work performed on a Saturday when working five days out of every seven days or ten days out of every fourteen days. Item 4.1 in the Bill of Quantities refers.

12.5.6 A shift allowance payment will be made for work performed on a Sunday or Paid Public Holiday when working five days out of every seven days or ten days out of every fourteen days. Item 4.2 in the Bill of Quantities refers.

12.5.7 A night shift allowance payment will be made when an 8-hour occupation or part thereof falls between 19h00 and 05h00 and will be paid in addition to any other shift or overtime payments. Item 4.3 of the Bill of Quantities refers.

12.5.8 Payment for planned temporary stoppage, idle time **T<sub>i</sub>**, as described in the S160, Clause 14.4 will be made for each calendar day. Item 5.1 of the Bill of Quantities refers.

12.5.9 Only when the machine cannot work due to adverse inclement weather, will payment be made under item 5.2, "inclement weather".

12.5.10 When technological advances dictate that development of computer programs on or off the machine should be done an assessment of the time and cost of the development shall be submitted to the Technical Officer. Work shall only be done on a written instruction from the Technical Officer. Item 6 in the Bill of Quantities refers.

12.5.11 When action or neglect of PRASA KZN staff cause minor damage to a machine, an assessment of the time and cost of repairs shall be submitted to the Technical Officer. Work shall only be done on instruction of the Technical Officer. Item 7 in the Bill of Quantities refers.

12.5.11.1 The labour rates shall apply to repairs in the field.

12.5.11.2 The mark-up on landed prices of imported parts or the delivered prices of locally manufactured parts will be 75% and will be excluded from price adjustment described in clause 24 of the S160.

12.5.12 No additional payment or adjustment in the calculated average speed of measurement will be made when testing track with deficiencies as described in clause 0.

## **12.6 PAYMENT FOR MOVEMENT BY ROAD.**

- 12.6.1 Movement by road will be paid for per km traveled along the shortest route between work sites.
- 12.6.2 Movement by road will be paid when the distance between two worksites is greater than or equal to 100km. The distance used in the payment calculation will be the total distance including the first 100km.
- 12.6.3 The movement to the first work site and from the last work site at the start and end of the contract period respectively is excluded from this payment.
- 12.6.4 The payment by road will be a separate item and will not form part of the payments for on track production.
- 12.6.5 The quoted average road speed in km per hour shall be supplied in the Bill of Quantities item 8.1 and this will be used to determine the time allowed for travel by road between any two points. The maximum time available for travel by road per day will be 10 hours. This time will be used in the calculation of the payment by road.
- 12.6.6 Any late arrival at a work site will render the machinery non-available.
- 12.6.7 **Payment by road = (Km traveled along the shortest route between two work sites) x (Rate quoted in the Bill of Quantities for travel by road Bill of Quantities item 8.2).**

## **13 PENALTIES**

- 13.1 A penalty of R1000 (one thousand rand) per calendar day per report will be payable for the late submission of any report, hard copy or electronic.
- 13.2 The monthly payment (MP) will be reduced by 50% when it is proved that a derailment was caused by a defect not located during a measurement campaign due to negligence by the contractor.
- 13.3 Void.

## **14 ADDITIONAL PAYMENT FOR WORK PERFORMED OUTSIDE THE CONTRACT AREA.**

For work outside the contract area, rates will be negotiated.

## **15. QUALITY CONTROL OF DEFECTS LOCATED**

- 15.1 The purpose of this quality control is to verify the accuracy and reliability of the flaws detected by the contractor. Quality control will be done on the number of defects found per day. The method used is the "Military Standard Sampling Procedure and Tables for inspection by Attribute" known as MIL-STD-105D and used by the USA department of defence. It is internationally known as ISO/DIS2859.
- 15.2 The AQL will be:
  - 15.2.1 2,5% (two and a half percent) for defects verified by PRASA KZN ultrasonic testing and
  - 15.2.2 1,0% (one percent) for defects verified in a testing centre or laboratory.
  - 15.2.3 The maximum number of rejected defects for the various numbers of defects found per day will be as in the following sampling table:

| Number of defects found per day | Verification in a test centre or laboratory (AQL 1,0%) |                                  |                                 | Verification when testing with ultrasonic equipment (AQL 2,5%) |                                  |                                 |
|---------------------------------|--------------------------------------------------------|----------------------------------|---------------------------------|----------------------------------------------------------------|----------------------------------|---------------------------------|
|                                 | Sample size                                            | Number of defects for acceptance | Number of defects for rejection | Sample size                                                    | Number of defects for acceptance | Number of defects for rejection |
| 2 - 8                           | 2                                                      | 0                                | 1                               | 2                                                              | 0                                | 1                               |
| 9 - 15                          | 2                                                      | 0                                | 1                               | 2                                                              | 0                                | 1                               |
| 16 - 25                         | 2                                                      | 0                                | 1                               | 3                                                              | 0                                | 1                               |
| 26 - 50                         | 2                                                      | 0                                | 1                               | 5                                                              | 0                                | 1                               |
| 51 - 90                         | 3                                                      | 0                                | 1                               | 5                                                              | 0                                | 1                               |
| 91 - 150                        | 3                                                      | 0                                | 1                               | 8                                                              | 0                                | 1                               |
| 151 - 280                       | 3                                                      | 0                                | 1                               | 13                                                             | 1                                | 2                               |
| 281 - 500                       | 3                                                      | 0                                | 1                               | 20                                                             | 1                                | 2                               |
| 501 - 1200                      | 5                                                      | 0                                | 1                               | 32                                                             | 2                                | 3                               |

15.2.4 If the number of defects rejected as a result of the verification is equal or greater than the value in the table,  $T_b$  will be equal to  $T_w$  for the day and the contractor will on approval of the Technical Officer be allowed to re-measure the section or sections.

15.2.5 The number of defects to be verified will be selected at random by the Technical Officer.

## 16. SUMMARY OF INFORMATION TO BE SUPPLIED WITH TENDER

16.1 Specification and layout of the testing vehicle.

16.2 Specification of the ultrasonic flaw detection equipment.

16.3 Limitations and exceptions where the contractor's equipment cannot test PRASA KZN rails.

16.4 Specification of the hardware and software for recording and logging and analysing data.

16.5 References of rail testing previously performed including dates.

16.6 Access requirements for on/off tracking. The dimensions of the area must be supplied.

16.7 A commissioning program.

16.8 Tolerance capabilities in respect of flaw detection.

Example of output reports.

16.9 A complete technical specification of the measuring equipment shall be supplied with the tender and these will form part of the contract document.

16.10 The distribution of foreign exchange percentages applicable to item 2 in the Bill of Quantities.

## 17.1 MEASUREMENT AND PAYMENT

## 17.2 BILL OF QUANTITIES AND PRICES

i) The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work (as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:

a) **Civil engineering work** has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardised Specifications for Civil Engineering Works.

- b) **Mechanical work** has been drawn up in accordance with the provisions of the Model Bills of Quantities for Mechanical Work, published by the South African Association of Quantity Surveyors, July 2005).
- c) **Electrical work** has been drawn up in accordance with the provisions of the Model Bills of Quantities for Electrical Work, published by the South African Association of Quantity Surveyors, (July, 2005).
- ii) The quantities in the bill are estimated and may be more or less than stated. The contractor shall submit with his tender a complete and detailed priced bill (prepared in black ink) for the Works. All work covered by the bill including work resulting from modifications or alterations to drawings shall be measured and paid for according to the completed bill.
- iii) The absence of stated quantities in the bill is no guarantee that none will be required. Reasonable and sufficient rates and/or prices shall therefore be inserted to every item, as such prices will be considered when awarding the contract
- iv) In the event that a tenderer leaves any item/s blank which are materially important for the award of the contract/business or fails to tender in an amount expressed or calculable in Rands and cents (e.g. total amount, unit price, and hourly rate), PRASA KZN reserves the right to disqualify such a tender.
- v) It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to [www.statssa.gov.za](http://www.statssa.gov.za) for information on standards).
- vi) The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor's risk.
- vii) Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted with the project manager's written approval.

#### **17.3. Advance payment for material and/or plant and/or equipment supplied by the contractor.**

No advance payment for material and/or plant and/or equipment supplied by the contractor for the purpose of incorporation/installation as part of the Works, will be made by PRASA KZN



## SECTION 9

### BILL OF QUANTITIES (BOQ)ULTRASONIC TESTING OF RAILS SCHEDULE OF QUANTITIES AND PRICES

| ITEM     | DESCRIPTION                                                                                                                                      | QUANTITY | UNIT | RATE |   | AMOUNT |   |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------|---|--------|---|
|          |                                                                                                                                                  |          |      | R    | c | R      | c |
| <b>1</b> | <b>ESTABLISHMENT COST</b>                                                                                                                        | 1        | Sum  |      |   |        |   |
| <b>2</b> | <b>PRODUCTION RELATED ITEMS</b>                                                                                                                  |          |      |      |   |        |   |
| 2.1      | Detection, measuring, and reporting of track defects ( $\pm 602\text{km/a}$ )                                                                    | 1        | km   |      |   |        |   |
| <b>3</b> | <b>OVERTIME (Provisional)</b>                                                                                                                    |          |      |      |   |        |   |
| 3.1      | Overtime hours outside Tom of 8 hours per day                                                                                                    | 1        | Hr   |      |   |        |   |
| 3.2      | Overtime payment for Saturdays when in excess of 5 out of 7 days or 10 out of 14 days are worked consecutively                                   | 1        | Hr   |      |   |        |   |
| 3.3      | Overtime payment for Sundays and PPH when in excess of 5 out of 7 days or 10 out of 14 days are worked consecutively                             | 1        | Hr   |      |   |        |   |
| <b>4</b> | <b>SHIFT ALLOWANCE (Provisional)</b>                                                                                                             |          |      |      |   |        |   |
| 4.1      | Shift payment for Saturdays when working 10 out of 14 days                                                                                       | 1        | Hr   |      |   |        |   |
| 4.2      | Shift payment for Sundays and PPH when working 10 out of 14 days                                                                                 | 1        | Hr   |      |   |        |   |
| 4.3      | Night shift payment for night shifts between 19:00 and 05:00 (This payment is in addition to shift payments in items 4.1 and 4.2, and 3.1 – 3.3) | 1        | Hr   |      |   |        |   |

|          |                                                                |   |      |                          |  |  |  |
|----------|----------------------------------------------------------------|---|------|--------------------------|--|--|--|
| <b>5</b> | <b>LOST TIME (During campaigns) (Provisional)</b>              |   |      |                          |  |  |  |
| 5.1      | Cancelled occupations                                          | 1 | days |                          |  |  |  |
| 5.2      | Inclement Weather                                              | 1 | days |                          |  |  |  |
| <b>6</b> | <b>LABOUR RATES (Provisional, Rates Only)</b>                  |   |      |                          |  |  |  |
| 6.1      | Senior Operator                                                | - | Hr   |                          |  |  |  |
| 6.2      | Operator                                                       | - | Hr   |                          |  |  |  |
| 6.3      | Skilled labour                                                 | - | Hr   |                          |  |  |  |
| 6.4      | Un-skilled labour                                              | - | Hr   |                          |  |  |  |
| <b>7</b> | <b>Enhancement for overtime (Extra-over for items 6.1-6.2)</b> |   |      |                          |  |  |  |
| 7.1      | Weekends and Saturdays                                         |   | %    |                          |  |  |  |
| 7.2      | Sundays and PPH                                                |   | %    |                          |  |  |  |
| <b>8</b> | <b>MOVEMENT BY ROAD (Provisional)</b>                          | 1 | km   |                          |  |  |  |
|          |                                                                |   |      | <b>TOTAL (VAT excl.)</b> |  |  |  |
|          |                                                                |   |      | <b>VAT @ 15%</b>         |  |  |  |
|          |                                                                |   |      | <b>TOTAL (VAT Incl.)</b> |  |  |  |