SPECIFICATION / SCOPE OF WORK	
DESCRIPTION OF GOODS / SERVICES / WORK	Provision of ultrasonic measuring car services in the Metrorail Gauteng province on an “as and when” required basis for a period of 12 months
DIVISION	Metrorail Gauteng Province
USER DEPARTMENT	Infrastructure Perway

TABLE OF CONTENTS

1. *INTRODUCTION*

The works is for the provision of ultrasonic measuring car services in the Gauteng province on an “as and when” required basis for a period of 12 months

The Gauteng Region is a network of commuter rail services in Gauteng province in South Africa, servicing the Johannesburg and Tshwane metro areas. It is operated by Metrorail, a division of the Passenger Rail Agency of South Africa (PRASA).

Metrorail routes spread out across the province from three main hubs: Park Station in Johannesburg, Germiston Station on the East Rand, and Pretoria Station. Routes service central Johannesburg, the East Rand, Soweto, the Vaal Triangle, the West Rand, central Pretoria, and suburbs to the north, east and west of Pretoria.

Gauteng Region consists of the following corridors:

- Johannesburg – Leralla / Pretoria: services Johannesburg, Germiston, Kempton Park, Kaalfontein, Tembisa, Oakmoor – Olifantsfontein - Pretoria
- Johannesburg–Daveyton: services Johannesburg, Germiston, Boksburg, Dunswart, Avenue, Northmead and Daveyton.
- Johannesburg–Springs: services Johannesburg, Germiston, Boksburg, Benoni, Brakpan and Springs
- Germiston–Kwesine: services Elsburg, Wadevile, Katlehong, Lindela and Pilot
- Germiston–Kliprivier–Vereeniging: services Germiston, Natal Spruit, Meyerton and Vereeniging
- Germiston–New Canada: services Germiston and the Reef south of central Johannesburg
- Johannesburg–New Canada–Vereeniging: services Johannesburg, Orlando, Lenz, Stretford and Houtheuwel
- Johannesburg–Oberholzer: services Johannesburg, Orlando, Westonaria and Carletonville
- George Goch–Naledi: services Booysens, New Canada, Dube and Naledi

- Johannesburg–Randfontein: services Langlaagte, Westbury, Maraisburg, Florida, Roodepoort, Krugersdorp and Randfontein
- Pretoria–Saulsville: services Pretoria, Pretoria West and Atteridgeville
- Pretoria/Belle Ombre–De Wildt/Mabopane: services Pretoria, Pretoria North, Ga-Rankuwa and Soshanguve
- Pretoria–Pienaarspoort: services Pretoria, Hatfield and Mamelodi Hercules–Capital Park–Pienaarspoort: services Pretoria North and Mamelodi

2. BACKGROUND INFORMATION

2.1 STATUS QUO

The Permanent way department has been facing a significant challenge of maintenance due to lack of mechanized ultrasonic measuring car that can provide support for planning maintenance. Apart of maintenance, during change in temperature as evident in the past, rail breaks and misalignment occurs in most parts of the railway track resulting in major service disruption. The cause of rail breaks is as a result of poor track maintenance.

2.2 PROBLEM STATEMENT

These lines fall part of our super A corridor with a heavy traffic experienced daily. At present the railway line on these sections has a poor alignment which is caused by the lack of on-track maintenance machines.

With increased rail traffic at higher speeds and with heavier axle loads, critical crack sizes are shrinking, and rail inspection is becoming more important. Utilizing

ultrasonic measuring car can be used to inspect both rails, defects can be displayed, recorded and processed within the equipment; thorough inspection of both rails with complete inspection recording for later analysis.

TYPICAL DETECTED RAIL

The inspection of railway lines is carried out by using mechanized ultrasonic measuring car. The mechanism often used for inspecting the rail lines is by conducting trolley, footplate and visual inspection with the engineering teams and track inspectors. Prasa currently have no capacity to perform these functions due to various shortcomings like vacancies in our department. Production can be achieved by utilize the ultrasonic measuring car.

ULTRASONIC MEASURING CAR DETECTING THE DEFECTS

High demands are placed on quality and availability when selecting the measuring Systems as follows:

Only measuring systems with the highest accuracy and availability can provide support for planning maintenance.

Measured data and exception reports can be retrievable immediately. Only this can eliminate the risk of derailments.

3. OBJECTIVE OF THE PROPOSED PROJECT

3.1 DESIRED OUTCOMES FOR CARRYING OUT THE PROPOSED PROJECT

The project aims to restore the Perway infrastructure to enable the running of the train service. The strategy will be to appoint a contractor/s for the provision of ultrasonic measuring car services on the identified sections. Sections which are critical will be addressed first and the rest will be attended to according to priority.

3.2 PROJECT BENEFITS TO PRASA

The Project will assist the organisation to reinstate the lines and reduce the number of speed restrictions that have been imposed due to the maintenance challenges on the Perway track system. This will therefore assist PRASA in achieving its primary mandate of providing a reliable rail transport service to Gauteng commuters and enable the business to collect fare revenue from those commuters. Ultrasonic measuring car reduces the time required to carry out maintenance, also reduces the number of train delays and the total cost of maintenance when all related costs are considered by providing support for maintenance planning thus restoring the Perway system to its design specification and train disruptions that are due to the Perway system failures will be reduced thus improving the service offering.

3.3 CURRENT MECHANISMS IN PLACE TO ADDRESS THE PROBLEM

In most of the sections, in-house teams are currently measuring ultrasonic rail defects by hand. The department do not have capacity to carry out these types of work and the current mechanism is not sustainable.

4. SCOPE OF WORK AND AREAS OF FOCUS

4.1 SCOPE WORK

The scope of work entails the provision of ultrasonic measuring car services in the Metrorail Gauteng Province. The contract will be valid for a period of twelve months for the contracted service provider to perform the measuring of ultrasonic rail defects using ultrasonic measuring car in line with the demand and Perway operational requirements, respectively. The Contractor shall do the work as directed by the Engineer or his representative and in accordance with the specifications set out in this tender/contract document.

4.1 SCOPE OF THE DESIRED SOLUTION

The scope of work required is for the service providers to provide Permanent way with the ultrasonic measuring car that meet the stated technical and maintenance team for maintenance planning in the Metrorail Gauteng Province. The contract will be valid for a period of three (3) years for the contracted service provider to fulfil the contract on an “as and when” required basis in line with the demand and Perway operational requirements, respectively

4.2 DETAILS ON THE PREFERRED SOLUTION

The preferred solution in addressing this challenge is by rehabilitation of the Perway system by procuring a service provider to render services of the provision of ultrasonic measuring car services for the Gauteng Province.

4.3 TARGETED AREA BY THIS PROJECT

The place of work shall be the Gauteng region (all corridors), the sequence of work shall be determined on an on-going basis based on operational requirements and availability of sites for outages. This will be communicated in time to the contractor/s.

4.4 EXTENT AND COVERAGE OF THE PROPOSED PROJECT

The project will be on an “as and when” required basis and will cover all the prioritised areas in the Gauteng South and North.

4.5 OTHER RELATED PROJECTS

- Replacement of rails.
- Maintenance of track with an on-track tamping machine
- Screener package (Stabilizer, Regulator, Screener, Tamper)

5. SPECIFICATION OF THE WORK OR PRODUCTS OR SERVICES REQUIRED

This specification covers the provision of ultrasonic measuring car services in the Metrorail Gauteng Province. The Contractor shall do the work as directed by the Engineer or his representative and in accordance with the specifications set out in this tender/contract document

5.1 SPECIFICATION OF THE SCOPE OF WORK

This specification covers the provision of ultrasonic measuring car services.

5.1.1 Contract area

The contract area will be the track owned or maintained by PRASA RAIL within the limits of METRORAIL GAUTENG PROVINCE.

5.1.2 Equipment

A single vehicle Test Car fitted with the state of the art RFAS 2100 Ultrasonic Rail Flaw Analysis System to execute the rail defect detection services. The vehicle is to be fitted with

a turntable to enable bi-directional testing of track and fast turning around in a track section.

The test carriage at the rear of the vehicle must have two (2) Roller Search Units (RSU's) on each rail providing a 10 probe channel configuration consisting of:

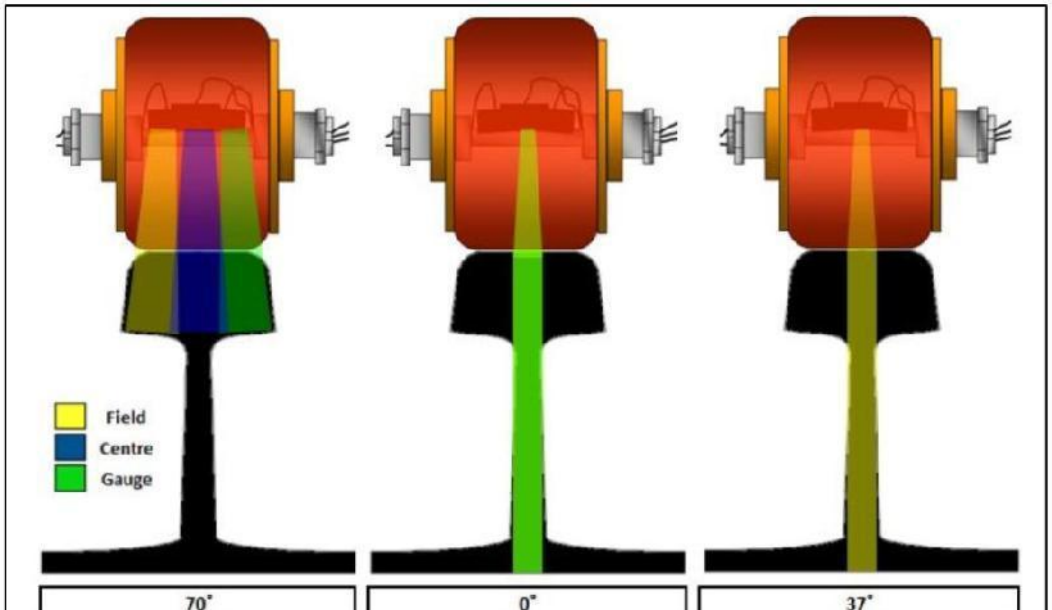
- 6 x 70 º crystals: Three (3) forward and three (3) reverse scanning to cover the full rail head
- 2 x 37 º crystals: One (1) forward and one (1) reverse scanning to cover centre of rail top to bottom).
- 2 x 0 º crystals: One (1) positive gated pulse echo zero and one negative gated geometry to cover centre of rail top to bottom).

The configuration allows for 12 probe channels per rail as two are allocated as spares.

The rack module layout must provide for 2 additional channels, although the probes are fixed in the RSU wheel. All the probes must be 2.25 MHz and the system should operate on a Pulse Repetition Frequency (PFR) of 4mm.

5.1.3 Scanning coverage of the Rail profile is as follows:

The 70° probes scan the field, centre and gauge sides up to 60mm deep. The 37° probes scan the central portion of the rail over the entire height. The 0° probes interrogate the central portion from the top to the bottom of the rail.



The sensitivity levels of all channels must operate between 6 and 10 dB higher than required level as the system is used as a search unit. All RSU wheel probes must be monitored on a test jig to ensure 4dB maximum difference in range.

5.1.4 Hand sizing equipment to be provided and used as follows:

- The OLYMPUS Epoch LT hand held flaw detector is used to verify exact location and size inside rail profile.
- OLYMPUS 20 x 22 AM2R – 2 MHz 70° probe
- OLYMPUS 20 x 22 AM2R – MHz 37° probe
- OLYMPUS PF2R – 10mm – 4 MHz 0° probe
- Soapy water couplant is to be used.

5.1.5 Calibration certificates and procedures:

The calibration procedure must be made available and could be audited at any time. Calibration certificate for hand held Flaw detector must be valid for 12 months from date of calibration and a copy thereof to be kept on the Ultrasonic Test Vehicle.

5.2 Test results

Rail defects must be marked according to Annexure 17 sheet 5 of the Manual for Track Maintenance 2000, with yellow oil based paint and the unique number and size marked on the sleeper. Defects, all movements and surface conditions will be logged as per Annexure A.

5.3 To be provided by Metrorail

The severity of defects to be determined by the Client's representative and thus will be responsible for the decision on the remedial action to be taken.

5.4 Speed in Track:

The vehicle is capable of travelling up to 60km/h running free and a maximum testing speed of 35km/h. Local conditions allow for a preferred test speed of 27km/h on tangent track and at 22km/h in curved track. Restricted track as experienced at turnouts and crossings can be done at approximately 7km/h to allow the Operator sufficient time to analyse the digital display of data. Prasa/Metrorail lines and Yard testing are done at a speed of between 7 and 10km/h due to the number of turnouts encountered.

5.5 Fuel and Water Ranges

The fuel tank capacity should be more than 80 litre allowing a minimum of 200km testing inclusive of testing. The water tank capacity must be more than 1200 litres allowing up to 220km or 8hour of testing at one time.

5.6 Track to be tested

The automated Rail Testing of track will be done on the main lines as required and turnouts will be covered only in the position it is set for travelling. No hand testing will be done on

sections not covered by the ultrasonic vehicle, such as blades and frogs between multiple lines.

5.7 Night time testing

The vehicle must be fully equipped to test safely at night with sufficient illumination inside the machine and around the working area.

5.8 Staff assigned to this project is as follows:

The operator of the Rail Flaw Analysis system (RFAS2100) should be in possession of an ASNT Level 2 qualification. Copies of competency certificates to be made available on request.

5.9 RESPONSIBILITY OF PRASA RAIL IRO ULTRASONIC MEASURING CAR

5.9.1 PRASA RAIL will endeavour to arrange occupations, measuring will take place during the night under total or between trains from 21:00 to 03:00 where practically possible on weekdays and weekends.

5.9.2 In the event of any occurrence giving rise to a claim under the Contractor's policy of insurance, advise the Contractor within forty-eight (48) hours of the occurrence thereof.

5.10 MAINTENANCE OF PLANT/ VEHICLE

5.10.1 Maintenance, servicing and mechanical repairs (hereinafter referred to as maintenance), of the machines, including all adjustments necessary to keep the machines in a roadworthy and operational condition are included in the agreement and shall be provided by the Contractor at his own cost.

5.10.2 Should any machine provided by the Contractor break down or be involved in an accident while working on the prescribed sections of railway line in terms of this agreement, the Contractor shall, if that machine cannot be repaired within two (2) hours or is unable to proceed with its duties within two (2) hours, at his own cost, forthwith provide another vehicle in a roadworthy and operational condition to continue with its duty.

5.10.3 The Contractor shall inform Prasa Rail as soon as practically possible of any of his machine working in terms of this agreement which has broken down or has been involved in an accident.

5.10.4 The Contractor shall submit a monthly log sheet IRO all hours worked during the course of each machine duty. In the absence of a certified log sheet no payment shall be effected for any hours worked.

5.11 SAFETY

5.11.1 The Contractor shall comply with requirements of safety legislation and regulations in all respects.

5.11.2 The Contractor shall prepare and submit to PRASA RAIL at the start of the contract, a comprehensive safety plan which shall also cover the following heading:

- Transportation of flammable or explosive materials.
- Transportation and/or equipment.
- Transportation of personnel.
- Storing flammable/explosive materials and/or equipment.
- The accommodation of staff to comply with health and public regulations.

5.11.3 The contractor is responsible to appoint the safety representative fulltime on the machine whose sole responsibility will be to manage and monitor safety

related issues on site.

5.11.4 The Contractor will be responsible for all protective clothing and equipment for his employees.

5.11.5 Normal protection measures in accordance with the Protection Manual shall apply.

5.11.6 The contractor shall appoint at each work site a person whose sole task shall be to be on the lookout for approaching rail and road traffic. This employee shall operate an audible warning device to timorously warn all people on the work site of approaching rail and road traffic.

5.11.7 The warning device shall be such that its sound can be clearly and effectively heard above the noise on the work site by all personnel within a radius of 100m around the centre of each work site. The cost to the contractor of providing the lookout as well as the warning device shall be deemed to be included in the rates tendered and no separate payment shall be made.

5.12 PROTECTION OF WORKPLACES AND SECURITY ON SITE

5.12.1 It is the responsibility of the contractor to provide security on site for equipment, material and personnel for the duration of the contract.

5.13 PENALTIES AND REMEDIAL WORK

5.13.1 The provisions in the contract, pertaining to “penalties for delayed / cancelled occupations by the contractor while on site” shall apply to this contract. Where the Contractor fails to honour occupation while on site within the run period a penalty amount of R10 000.00 per hour will be applied. When the contractor is off site a one

month cancellation notification to be submitted to the Technical Officer in writing.

5.14 MEASUREMENT AND PAYMENT

5.14.1 The unit of measurement for site establishment will be sum and cost to be paid once to cover all the machine runs for the entire duration of contract.

5.14.2 The unit of measurement for both working and standing time will be per hour. Payment will only be made:

5.14.3 For actual hours worked, at the prices quoted in the Schedule of Rates, for working time.

5.14.4 For inclement weather, as indicated in the Schedule of Rates, this forms part of these documents

5.14.5 For certified travelling time, at prices quoted in the Schedule of Rates, for travelling time between sites. (Movement by road)

5.15 PAYMENT CERTIFICATES

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

5.15.2 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 5.15.1

5.15.3 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.

5.15.4 In the event of failure by PRASA to make payment within the time stipulated in clause 5.24.3, 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

5.15.5 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 under the Contract, and for such provisions for the resolution of any disputes which may at the time exist between the Contractor and PRASA, as is deemed necessary by him.

5.15.6 The Project Manager shall, within 14 days after approval by the Executive Officer, and subject to clause 5.24.5, 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.

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

5.15.8 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 will deem the Contractor to be in agreement with the Final Certificate and will effect payment in terms thereof.

PRASA 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 of responsibility for such claim.

5.15.9 Neither the issue of the Final Certificate nor any payment made there under shall release the Contractor from any liability to indemnify PRASA 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.

5.16 GUARANTEES

5.16.1 Government or approved Municipal stocks in negotiable form, or

5.16.2 A deed of suretyship furnished by an approved bank, insurance or guarantee corporation in such form as may be prescribed by PRASA, provided however that the Project Manager may, upon written application by the Contractor, return to the Contractor the whole or part of such security held by PRASA.

5.16.3 All work done shall be guaranteed for a period of 24 month after the successful handover

5.16.4 All defects as a result of poor workmanship and poor-quality material will be rectified by the contractor on his/her account.

5.16.5 Formal completion certificate will be given in writing after all contract obligations are met and approved by PRASA Project Manager.

5.16.6 Corrective action to be taken by the Contractor during the guarantee period at his/her own cost and expense:

Project manager will, where practicable be entitled to take corrective action of its own should the Contractor not be able to give immediate attention at the time a fault occurs and recover from the contractor any costs and expenses reasonably incurred by it in doing so as per penalty clauses

5.17 PENALTIES

5.17.1 If the Contractor fails to complete the work within the time a stipulated in this contract for completion of services or a part or portion of services, the Contractor shall be liable to the Employer for an amount calculated at 0.05% of the Contract Price per delayed Day per order, which shall be paid for every day which shall elapse between the time for due completion and completion of the relevant Services. However, the total amount due under this sub-clause shall not exceed the maximum of 10% of the Contract Price.

5.17.2 The imposition of such penalty shall not relieve the Contractor from its obligation to complete Services or from any of its obligations and liabilities under the Contract,

5.17.3 PRASA may set off or deduct from the fees due to the Contractor any penalty amounts due and owing by the Contractor in terms of clause 5.17.1

5.18 CONSTRUCTION RELATED SECURITY

5.18.1 Background

5.18.1.1 The security situation within PRASA has changed significantly over the past five years resulting in PRASA being a constant target for of criminal elements. These incidents are also reflective of what transpires within the macro environment.

5.18.1.2 Since 1993 the theft of non-ferrous metals in South Africa has escalated to unprecedented levels with annual losses running into billions of rand. Researchers on this phenomenon indicated that the increases in cable theft in the past years were mostly due to the fact that the price of copper had tripled in recent years.

5.18.1.3 However, the price of copper is not the only driver of this crime as other research point to drug related behaviour as a contributing factor. In this regard in the Western Cape it was found that perpetrators, who had been arrested, were in 75%of the incidents, under the influence of drugs when committing cable theft.

5.18.1.4 Since the beginning of 2015 the price of copper increased from 4569 USA Dollar to 7207 USA Dollar at the end of 2017.The price of copper decreased marginally from the beginning of 2019 to April 2019 and traded at a price of 6000 USA Dollar in July 2019 (At an exchange rate of R 13.94 on 19 July 2019 this was equal to R 83 640 per metric ton.) In other words, in the period April to June 2019 the price of copper increased with an increased incentive to criminal activities.

5.18.1.5 During the period 2015 to 2019 PRASA have had several incidents of Crime involving assets. In this regard the number of incidents related to overhead cable theft increased remarkably since 2017 to 2019. In this regard a significant increase took place in the last two years. In April, May and June 2019 a record number of 76 incidents took place.

5.18.1.6 With regards to Infrastructure theft/MDTP several incidents of crime were recorded for the period 2015 to 2019. Since 2016 a sharp increase in these crimes were recorded. In 2018 a total number of 803 incidents were recorded. For the period 2019, a slight decrease in incidents took place. In this regard 304 incidents for the half year 2019 took place.

5.18.1.7 During the period November 2018 to date PRASA had a significant increase in the Disabling Injury Frequency Rate (DFIR) which is the index used to measure injuries on duty for personnel. These increases are a confirmation that the perpetrators involved in theft and malicious damage to property of PRASA Assets are armed and determined to exploit assets for their personal economic gain.

5.18.1.8 The areas for the recovery of assets where the project will be executed is considered to be a high-risk area where criminal elements have striped the entire overhead cable infrastructure, substations, high sites and relay rooms.

5.18.1.9 The background provided above is aimed at sensitizing the bidders on the potential threats that they will be confronted with during the execution of the project.

5.18.1.10 It shall be noted that physical security measures alone will not be sufficient to counter the prevailing security threats as criminal elements will again target the assets as soon as they have been reinstated, as the geographic location of the assets are ideally situated for them to target them.

5.18.1.11 It is imperative that bidders contract a suitably qualified security contractor that will be able to provide a fully integrated security service rendering.

5.18.1.12 It shall be noted that the proposed measures are the bare minimum and bidders shall conduct their own risk assessments for mitigation of the risks.

5.18.2 MANDATORY SECURITY REQUIREMENTS

5.18.2.1 All security companies used by the Contractor shall be PSIRA registered with valid letter of good standing.

5.18.2.2 Security personnel shall all be PSIRA registered with a clear criminal record no criminal pending cases and preferably be sourced from the local community.

5.18.2.3 All security officials utilised in this project shall be South African Citizens.

5.18.2.4 All personnel employed by the Contractor including sub-contractors shall have undergone a Health and Safety Induction.

5.18.2.5 Permits to work (in line with Covid-19 regulations) shall be issued at the cost of the contractor to all personnel on that shall be signed and stamped by the authorized PRASA Official responsible for Risk Management.

5.18.2.6 The security to be provided by the contractor shall be responsible for both the appointed contractor's assets and PRASA's assets on site until the site is handed over to PRASA. A list of all functioning equipment that do not form part of this scope of work will be shared with the successful bidder and shall be signed off by both the successful bidder and PRASA's representative.

5.18.2.7 PRASA assets that shall be guarded by the contracted security includes Permanent way assets, All Train Authorisation on track elements, all train stations (with all assets included) along the section and all functioning equipment along the corridor.

5.18.2.8 Any lost or stolen material shall be replaced by the contractor at his own cost.

5.18.2.9 The contractor shall provide on-site security for personnel and material stock and should ensure that patrols are in place at the section handed over to the contractor and until the completed work is handed over to PRASA. No claims of material or losses shall be lodged with the client for stolen goods during the construction before the completed work is handed over to PRASA.

5.18.2.10 Furthermore, it is the contractor's responsibility to ensure that valuable metal i.e. copper is adequately protected while in transit to and from site.

5.18.2.11 The contractor shall make sure that all material removed from site is quantified, counted, logged in the site diary and that it is co-signed by a PRASA representative on site before it is removed from site.

5.18.2.12 Scrap metal removed from the section shall be adequately protected until it is delivered to PRASA's stores.

5.18.2.13 PRASA reserves the right to conduct ad-hoc inspections to ensure Compliance

5.18.3 Risks

5.18.3.1 Tabulated below are the associated security Risks and proposed mitigation measures. It should be noted that this are minimum risks identified and bidders shall be responsible for conducting their own risk assessment that will influence their quotations.

Risk	Probability	Mitigation
Project Hi-jacking – Regulation 9 30% Subcontracting. This includes the provision of security.	High	Social Facilitation to ensure community involvement and buy in. PRASA recommends an approach that involves the local community. Failure to ensure local involvement can result in serious work stoppages.
Theft of Installed equipment	High	Fit for purpose security with an integrated plan for assets installed and physical security at site office. Ensure protective measures for site with a access gate.
Hi-jacking of site personnel vehicles	High	Armed Escorts to and from the site
Armed Robbery of personnel on site and Storage Facility at site	High	Armed Guarding at site and site office with an armed response for mobilisation

5.18.4 PROPOSED INTERVENTIONS

5.18.4.1 Minimum of 2 vehicles with armed response officers (2-4) per vehicle strategically deployed within the site. To supplement the vehicles, a suitable number of day and night visible officers on foot patrol is required.

5.18.4.2 Requisite equipment:

- Bullet proof vests;
- Spotlight;
- Night vision equipment;
- Torches;
- Tactical Radios (PTT with GPS and Panic Button). This should be the primary communication for all personnel on site.
- Handcuffs (disposable type) and other standard equipment;
- Firearms with extra magazine; and
- Any other equipment identified though the risk assessment.

5.19 OVERALL STAFFING AND KEY PROFESSIONAL STAFF

5.19.1 The contractor shall provide qualified and experienced professional staff with the following key professional expertise.

- Team Leader/Project Director
- Track Inspector/Track Master
- Operator
- Construction Health and Safety Officer

5.19.2 Minimum Qualification of Key Professional Staff

Team Leader/Project Engineer

- Civil Engineering qualification (Degree, Diploma or N-level certificate)
- Minimum 3 years post experience in the Perway railway industry.
- Project Management qualification with 3 years minimum experience

Track Inspector/Track Master

- All work shall be supervised by a fully qualified Trackmaster in possession of a valid Trackmaster certificate.
- Minimum 3 years' experience as a qualified Trackmaster.
- Minimum 3 years' experience in the Perway and Track work.

Operator

- Qualified Operator for the operation of UMC with valid accredited qualifications in possession of an ASNT Level 2 certificate.
- Minimum 3 years post experience in the Perway railway industry.

Health and Safety Officer

The desired minimum qualifications for the Construction Health and Safety Officer are as follows:

- Minimum of 3 years industry experience as a health and safety officer.

5.20 APPLICABLE SPECIFICATIONS

The documents forming the contract are to be taken as complimentary to each other. In case of any discrepancy or inconsistency between contract documents, the order of precedence will be:

a) SANS 3000-1 to 2, Railway Safety Management;
b) SABS 1200NB Railway Sidings (Track work);
c) EN13674-1, UIC 860-0, UIC 8610-1 or the latest equivalent standard;
d) EN13848 - Railway applications – Track geometry quality or the latest equivalent standard;
e) Standard specifications E7/1;
f) Safety Arrangements and Procedural Compliance with the Occupational Health and Safety Act (Act 85 of 1993) and Applicable Regulations (E4E); including any subsequent amendments;
g) E10: General Specifications for Railway Track work;
h) E10/1: Laying of Rails;
i) E10/2: Laying of sleepers;
j) E10/4: Ballasting and alignment;
k) Manual for Track Maintenance (2000); and
l) Railway Safety Regulator Act (Act 16 of 2004)
m) Infrastructure Perway Technical Specification for Rails

6. Is this a CIDB related Project? (Yes / No)
If YES, What is the applicable Class of Work & Grade?

Yes
Class of Work: CE

Minimum Grade: 4

7. Project specific terms and condition

E10: General specifications for Railway tracks Refers to Manual for Track Maintenance 2000

.

8. PROJECT SPECIFIC SAFETY RELATED REGULATIONS

9.1.1 The contractor shall comply with requirements of safety legislations and regulations in all respects.

9.1.2 All drivers shall be in possession of valid driver's licenses and Public Drivers Permits (PDP) where applicable. Crane operators will be required to have a valid Crane Operator's certificate. All vehicles shall be road worthy.

9.1.3 The supplier shall be responsible for all protective clothing and –equipment for his employees. All employees required to climb structures shall be issued with suitable harnesses.

9.1.4 All work shall at all times comply with the E7/1 Specification attached hereto.

9.1.5 Normal protection measures in accordance with the Protection Manual shall apply.

9.1.6 An effective safety procedure to be followed by all personnel on any work site in the case of approaching rail traffic shall be compiled by the Contractor and implemented before any work commences. This procedure shall be updated whenever the need arises, and any changes shall be communicated to all employees on a works site before work proceeds.

9.1.7 It is the requirement of this contract that the contractor should provide PRASA with a detailed safety plan prior to being issued with a site access certificate, in accordance with the latest version of the OHS Act and the SPK7 and the E4E.

9.1.8 Occupational Safety Act, 1993 (Act No: 85 of 1993)

9.1.9 National Environmental Management Act 107 of 1997

9.1.10 Construction regulation 2014

9.1.11 The contractor shall ensure that all Covid 19 protocols are adhered to.

9.1.12 The Contractor shall make necessary arrangements for sanitation, water, and electricity at these relevant sites during the installation of the equipment.

9.1.13 The safety file will be approved only after all the requirements on the checklist are met. **WITS_LIB/RISK_MGT/SHE** File Checklist (version 3) is attached in this regard.

9.1.14 The contractor shall be responsible for the safety of personnel on site. The following shall also form part of the safety plan:

9.1.15 Transportation of equipment and personnel.

9.1.16 Transportation, storage and handling of hazardous equipment

9.1.17 The site access certificate shall only be issued (to the successful bidder) after the evaluation and approval of the safety file.

10 THE NATIONAL INDUSTRIAL PARTICIPATION PROGRAMME

The National Industrial Participation Programme (NIPP), which is applicable to all government procurement contracts that have an imported content, became effective on the 1 September 1996. The NIP policy and guidelines were fully endorsed by Cabinet on 30 April 1997. In terms

of the Cabinet decision, all state and parastatal purchases / lease contracts (for goods, works and services) entered into after this date, are subject to the NIP requirements. NIP is obligatory and therefore must be complied with. The Industrial Participation Secretariat (IPS) of the Department of Trade and Industry (DTI) is charged with the responsibility of administering the programme.