TENDER NUMBER :HOAC-HO-49439: FOR SUPPLY, DELIVERY, INSTALLATION OF HOT BEARING EVALUATOR DETECTOR SYSTEMS (HBEDS) FOR PILOT TESTING IN ORDER TO FRAME SUCH SYSTEMS TO AN APPROVED LIST OF CONDITION ASSESSMENT TECHNOLOGIES. THE TESTING WILL TAKE PLACE AT TRANSNET'S NORTH CORRIDOR AND ORE CORRIDOR OVER A PERIOD OF 18 MONTHS.

ANNEXURE B: TECHNOLOGY MANAGEMENT CONDITION ASSESSMENT SYSTEMS (CAS) PROJECT SCOPE OF WORK

Supply, Deliver, Install, integrate with ITCMS as well as Testing and Commissioning of Hot Bearing Evaluator Detector Systems (HBEDS) for the purpose of piloting new technologies.

BBH 6717 version 2

Contents

1. BACKGROUND

1.1. The existing TFR (Transnet Freight Rail) HBEDS i.e. scanners and PC's which were installed in the TFR rail corridors are now obsolete, hence they are no longer manufactured by the OEM's.

1.2. There are many HBEDS which are completely vandalised.

1.3. The existing hot bearing detectors are no longer compliant to the new requirements mandated by the Locomotive and Wagon maintenance departments.

1.4. The HBEDS (Hot Bearing Evaluator Detector System) specification was updated in August 2020 to include a Radio Frequency Identification reader to provide a vehicle number with an alarm. There are no approved HBEDS that comply to the latest system specification BBB0493 version 7.

1.5. The new HBEDS technologies that will be piloted will undergo a 12-month evaluation period, only upon successful approval the system will be recommend to be added to the new TFR Framed List of Suppliers.

1.6. This scope of work is applicable to each individual system supplied in this procurement event.

2. SCOPE OVERVIEW

The purpose of this document is to provide a detailed scope of work for the supply, delivery and installation of the HBEDS within TFR's rail network.. The scope of work comprises of the following:

2.1. Contractor shall supply, deliver, install, integrate with ITCMS as well as test and commission a fully functional HBEDS system as per system specification BBB0493 version 7.

2.2. The new HBEDS technologies that will be piloted will undergo a 12-month evaluation period, only upon successful approval the system will be recommend to be added to the new TFR Framed List of Suppliers.

3. SPECIFICATIONS, DRAWINGS AND STANDARDS

3.1. All equipment supplied shall be of Transnet Freight Rail (TFR) approved specifications and standards.

3.2. The installation, test and commissioning must be done as per specified specification on Annexure A.

4. DETAILED SCOPE OF WORK

4.1. DESIGN WORKS

4.1.1. All design work performed shall be done according to Transnet standards and specification, refer to **Annexure A.**

4.2. MAIN INCOMING SUPPLY AND COMMUNICATIONS

4.2.1. TFR shall provide the main incoming supply of 230V AC to the existing equipment enclosure.

4.2.2. TFR shall provide the telecommunication infrastructure at the site as per HBEDS specification BBB0493 version 7.

4.3. HOT BEARING EVALUATOR DETECTOR SYSTEM

4.3.1. The contractor shall supply, deliver and install the HBEDS as per specifications BBB0493 version 7 and BBB4207 version 2. This scope of work supersedes the mentioned specifications with regards to the UPS and Battery Backup requirements.

4.3.2. The contractor shall test and commission the HBEDS as per specifications BBB0493 version 7.

4.3.3. Each HBEDS will be a single line installation. The sites selected for installation are on the North Corridor and Ore Corridor. The North Corridor is from Lephalale to Richards Bay. The Ore Corridor is from Sishen to Saldanha.

4.4. ITCMS Integration

4.4.1. The contractor shall ensure that the Hot Bearing Evaluator Detector System is fully integrated into the ITCMS as per BBH1870. Any works that needs to be done on the ITCMS shall be done by the OEM of the ITCMS at the supplier's cost.

4.5. EXCLUSIONS FROM SCOPE WORK

4.5.1. Not Applicable.

4.6. MATERIAL, TRANSPORT AND LABOUR TO BE SUPPLIED BY THE CONTRACTOR

4.6.1. The contractor shall be responsible for the supply of all equipment and material required unless specified within this document.

4.6.2. All material and systems shall comply with relevant Transnet Freight Rail specifications and standards.

4.6.3. The contractor shall be responsible for the safekeeping, proper staging and handling of all material supplied.

4.6.4. Removed and redundant CAS material shall be carefully stripped out, documented and issued to the relevant TFR maintenance depot.

4.7. FREE ISSUED MATERIAL BY TFR

4.7.1. Not Applicable.

4.8. SCHEDULE

4.8.1. The contractor shall submit a schedule of work, detailing the project activities.

4.9. PLANT AND EQUIPMENT

4.9.1. The contractor shall supply all vehicles, machinery, small plant and any mechanised equipment for the proper execution of the work.

4.9.2. The maintenance, leasing, hiring and insurance of this equipment will solely rest with the contractor.

4.9.3. The contractor shall be responsible for his\her own arrangements with regards to the transport and safe staging of this equipment

4.10. QUALITY INSPECTION

4.10.1. During the progress of the contract, all work being undertaken by the contractor shall be subject to periodic inspection by the Technical Officer. All such workmanship shall be supplied and performed, respectively, to the entire satisfaction of the Technical Officer or his/her duly authorised representative.

4.10.2. Should at any stage in the progress of the work, or on completion, an inspection visit that reveals any defects in the construction or the quality of work, which are due to the Contractor, such defective workmanship shall immediately be remedied by the contractor at his/her own expense and to the satisfaction of the Technical Officer or his/her duly authorized representative.

4.11. GENERAL REQUIREMENTS

4.11.1. Brochures of the material offered must be submitted. (To verify if TFR approved).

4.11.2. The contractor must ensure that their quotation covers all costs to complete the specified work.

4.11.3. Except where otherwise specified, the contractor will provide labour, transportation for personnel and material, tools required for installation and testing, as well as lavatory facilities where TFR does not have permanent facilities installed. All the above mentioned, shall be at the Contractor's own cost.

4.11.4. The contractor shall dispose any scrap as per environmental laws and submit the disposal certificate.

4.11.5. The specifications (Annexure A) included in this document shall be strictly adhered to.

4.11.6. Power and communication requirements shall be provided by the supplier at the first site meeting. These requirements shall be documented and signed off by the responsible parties after the first site meeting.

4.12. SITE MEETINGS

4.12.1. Site meetings, when required, will be held for attendance by the Technical Officer or his/her duly authorized representative and the Contractor representative. Such meetings will be for discussing progress, delays, materials, conditions, problems and co-ordination of site activities. The minutes of the meetings shall be documented accordingly.

4.13. SUPERVISION

4.13.1. The contractor shall provide a competent person for the duration of the contract to supervise the execution of the work; the identified person shall at all times be able to provide reliable feedback on the progress and occurrences of the project.

4.13.2. The contractor shall provide a competent person for the duration of the contract to supervise the execution of the work; the identified person shall at all times be able to provide reliable feedback on the progress and occurrences of the project.

4.14. RECORDS AND INSTRUCTION BOOKS

4.14.1. The Contractor shall supply and have available at all times, at the worksite an A4 carbon copy books with detachable numbered sheets in duplicate, to be used as:

4.14.1.1. Site instruction book for receiving and recording instructions issued by the technical officer. All instructions recorded shall be signed by the technical officer and immediately acknowledged by the counter signature of the contractor or his/her agent.

4.14.1.2. Daily diary/record book with a page per day for recording all events affecting the progress of the works; breakdowns, delays, work done during the day etc. Entries shall be made by the Contractor daily. Those days on which no events take place must be ruled out and "nil" entered.

4.15. SECURITY

4.15.1. The contractor shall be responsible for sourcing out security and shall form part of the scope of work.

4.15.2. The security contracted to the contractor shall be responsible for safeguarding the site for the duration of the project.

4.15.3. The cost for security remains the responsibility of the contractor.

4.16. SAFETY REQUIREMENTS

4.16.1. The Contractor shall provide a safety file to the project manager for approval incorporating the following elements:

- Scope of work
- Roles and responsibilities of Contractor personnel.
- Hazard management plan.
- Contract induction and safety training.
- Safe work practices and procedures.
- Emergency procedures.

- Incident recording and investigation.
- Health and safety performance monitoring.
- Dangerous goods/hazardous substances.
- Management of sub-Contractor's (where applicable)

4.16.2. Upon approval of the safety file, the contractor will be issued with a site access certificate authorised by the depot engineer. All personnel who will be working on site shall attend the safety induction prior to the commencement of installation. The replacement team shall have the safety file with them at all times when on site.

4.16.3. The work will be performed under normal operating conditions (i.e. between trains). The contractor will be responsible to safeguard the work area i.e. Protect its workforce when working close to electrical high voltage; protection from passing trains and keeping the line free from any obstructions.

4.16.4. The TFR technical officer/TFR Site Supervisor will communicate with the TCO at the relevant CTC before commencing with the work and after the completion of work on each day when working in the relay room.

4.16.5. Personal Protective Equipment (PPE) must be worn at all the time (i.e Safety boots, safety vest, gloves etc).

4.16.6. No making of fires will be permitted on site. Any claims arising from the making of such fires will be for the cost of the Contractor.

4.16.7. The workplace must be cleaned of scrap material (i.e. Papers, cable offcuts, tins etc.) After every workday.

4.17. OCCUPATIONS

4.17.1. Work shall be executed under an approved occupation between trains (OBT). The technical officer will be responsible for arranging occupations 60 days before the commencement of the works.

4.17.2. Transnet reserves the right to cancel an authorised occupation or work permit at any time, even during the period of such occupation or work permit.

4.17.3. The Contractor must provide protection of his/her personnel where they would be subjected to danger of passing trains.

4.17.4. The wearing of reflective clothing and PPE is compulsory while working on or near railway lines.

4.17.5. No red or green clothing shall be worn on or near railway lines.

4.17.6. Before disconnecting or working on any live equipment, the TCO should be informed on what is going to happen and he/she must endorse and initial the entry.

4.17.7. At all times cooperation with the CTC operating staff is essential. This is essential for safe working and for a quick completion of the works to be carried out.

4.17.8. All safety precautions according to the train working regulations must be adhered to. When the work has been completed and tested to the satisfaction of the operator as well as the countersigned by the operator, to acknowledge that he/she is aware that the work has been completed.

4.18. PRE-TESTING AND COMMISSIONING

4.18.1. Upon completion of installation, the contractor will be responsible for pre-testing of the system within the prescribed time as per the project schedule.

4.18.2. The testing and commissioning will be conducted by the project manager or his/hers duly authorised personnel. See specification BB0493 version 7.

4.18.3. The Contractor shall be responsible for providing all tools and equipment required to conduct the process of testing and commissioning.

4.18.4. The Contractor shall be liable for any damages to Transnet Freight Rail's property caused by the Contractor, in the event that equipment is damaged, it must be repaired, reported and tested by the Contractor at their own cost.

4.19. SPARES

4.19.1. The Contractor shall provide spares as per specification BBB0493 version 7. At least 10% (ten percent) recommended spares shall be provided for on the contract.

4.19.2. The contractor shall provide a list of recommended spares. It must be possible to determine spares prices from the material schedules' unit rates.

4.19.3. The contractor shall provide a list of recommended or required test equipment, configuration devices etc. utilised for maintenance with unit rates clearly indicated.

4.20. TRAINING

4.20.1. The contractor shall provide training as per specifications BBH2201 and BBH 2202.

4.21. COMPLETION OF WORK

4.21.1. Work shall be completed within the projected timelines, i.e. from the PO/ Letter of award once it has been issued by Transnet Freight Rail.

Key Milestone / Deliverables:	Latest End Date
Contract Award	November 2024
Site Establishment	April 2025
Installation	April 2025
Testing and Commissioning	April 2025
System Evaluation Period (12 Months)	April 2026

END OF SPECIFICATION

TENDER NUMBER :HOAC-HO-49439: FOR SUPPLY, DELIVERY, INSTALLATION OF HOT BEARING EVALUATOR DETECTOR SYSTEMS (HBEDS) FOR PILOT TESTING IN ORDER TO FRAME SUCH SYSTEMS TO AN APPROVED LIST OF CONDITION ASSESSMENT TECHNOLOGIES. THE TESTING WILL TAKE PLACE AT TRANSNET'S NORTH CORRIDOR AND ORE CORRIDOR OVER A PERIOD OF 18 MONTHS.

Annexure A

APPLICABLE TRANSNET SPECIFICATIONS AND STANDARDS

DESCRIPTION	DOC. No.	CAT.	ISSUE/ VER/Model type	DATE
Hot Bearing Evaluator System				
HBEDS specification	BBB0493		Version 7	Aug 2020
HBEDS site specification	BBB4207		Version 2	April 2018
Integrated Train Condition Monitoring System				
Interface requirement between the ITCMS and Condition Monitoring System (ICD Document)	BBH1870			
Lightning protection:				
Lightning protection for CAS	BBC1040		1	
Cabling:				
Trenching and outdoor cable installation	CSE-516		1	Jan 1988
General:				
Environmental specification for Spoornet railway signalling systems	CSE-1154-001	E48	2	
Procedure for Testing, Commissioning and Handing Over.	BBB3609		1	
E7/1- Specification for general work and works on , over, under or adjacent to the railway line near high voltage equipment	BBD8210			