

RFP for the enablement of the PRASA Train Control System (“PTCS”) phase 1 through the restoration, verification, testing, and commissioning of the existing original equipment manufacturer (“OEM”) electronic signalling interlocking system in PRASA’s Western Cape (“WC”) service region.



Annexure 2.2:
Particular Technical Requirements
Cape Town to Southfield (via Athlone)

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1 GENERAL

1.1 Purpose of the Document

1.1.1 The purpose of this document is to provide the Particular Technical Requirements (“PTR”) which forms part of the minimum Requirements of the Passenger Rail Agency of South Africa (“PRASA”) for the enablement of the PRASA Train Control System (“PTCS”) Phase 1 through the restoration, verification, testing, and commissioning of the existing original equipment manufacturer (“OEM”) Electronic Signalling Interlocking System in PRASA’s Western Cape (“WC”) service region (“the Project”) that the Bidder shall meet and deliver at the Bidder’s cost therefore within the Bid Price.

1.2 Executive Overview

1.2.1 Notwithstanding any other PRASA Requirements stated throughout the RFP, the Bidder shall uncompromisingly deliver the whole of the Works required to achieve successful delivery of the Project.

1.3 Location and Minimum Extent of the Works

1.3.1 The boundaries of the Site are Western Cape region rail servitude for the section:

- a) Salt River to Koeberg – Observatory
- b) Excl Maitland indoor and outdoor works
- c) Hazendal to Langa (Excl)
- d) Pinelands to Southfield
- e) Dieprivier (Communication Terminal)

1.3.2 The extent of the Site is approximately 18.4 km and includes at least:

- a) 6 Installations.

1.3.3 The Site(s) includes at least the following installations located in Signal Equipment Rooms (“SER”) and Apparatus Rooms (“AR”).

- a) Salt River
- b) Koeberg
- c) Hazendal
- d) Crawford
- e) Wetton
- f) Southfield

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1.3.4 Any other Site(s) and Works, activities and resources required to achieve a fully integrated, functional, complete, and future-proofed RSS and meet any other requirements and specifications as requested throughout the RFP or as otherwise instructed in writing by PRASA.

1.3.5 Below shows the section Cape Town to Southfield (via Athlone):



Figure 1 - Cape Town to Southfield (via Athlone)

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2 MINIMUM SYSTEM REQUIREMENTS

Restoration Scope summary. Site Detail below.

All quantities to be verified by the bidder

- Railway Signalling Systems
 - Restore the PRASA Railway Signalling System according to the approved As-built drawings provided by PRASA.
 - Restore OEM Axle counter systems with detection heads.
 - Free issue of OEM axle counter detection heads.
 - Restore BSG9i Point machines.
 - Restore Lineside Signals with LED clusters.
 - Restore Cable infrastructure inclusive of SCCA4, SCCA5 signalling cables and the Underground Signalling 48 Core Fibre Cable (OFC 2) between CTC, SERs and ARs to enable a fully functional RSS.
 - Replace UPS with battery back-up with Lithium type solution
 - All quantities to be verified by Bidders.
- Telecommunication
 - Restore the optical transmission network to achieve the full redundancy and functionality of the RSS to the required reliability and availability specifications.
 - Install / Replace, where required the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1) as per regional Fibre Optic Link Plans to enable a fully functional RSS, Transmission and Telephone System for operational applications.
 - All quantities to be verified by Bidders.
- Electrical
 - Install Electrical 11kV manual operated link switches.
 - Install connection point for mobile Generators at SERs/Ars
 - Restore, test and commission the alternative supply and associated feeder cable

2.1 Salt River

2.1.1 Signalling

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- (a) Restoration/Replacement of Lineside signalling equipment inclusive of SCCA4, SCCA5 signalling cables as per as-built cable plans.
- (b) Replace the Underground Signalling 48 Core Fibre Cable (OFC 2), including patch panels, between the Cape Town-Salt River interface junction point, through Salt River up to the interface junction point towards Koeberg.
- (c) Replace UPS and battery back-up system with Lithium type solution.

2.1.2 Telecommunication

- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, between Salt River to Koeberg.

2.1.3 Electrical

- (a) Install connection point at SER for mobile Generator.

2.2 Koeberg

2.2.1 Signalling

- (a) Restoration/Replacement of Lineside signalling equipment
- (b) Restore Cable infrastructure inclusive of SCCA4, SCCA5 signalling cables as per as-built cable plans.
- (c) Replace the Underground Signalling 48 Core Fibre Cable (OFC 2), including patch panels, between the Salt River - Koeberg interface junction point, through Koeberg up to the interface junction point towards Maitland.

2.2.2 Telecommunication

- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, between Koeberg to Maitland.

2.2.3 Electrical

- (a) Install connection point at AR for mobile Generator.
- (b) Install Electrical 11kV manual operated link switch.

2.3 Maitland

2.3.1 Signalling

- (a) N/A. Scope as per Annexure 2.5

2.3.2 Telecommunication

- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, from Maitland to Hazendal and from Maitland to Woltemade.

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- 2.3.3 Electrical
- (a) N/A.

2.4 Hazendal

- 2.4.1 Signalling
- (a) Restoration/Replacement of Lineside signalling equipment.
 - (b) Restore Cable infrastructure inclusive of SCCA4, SCCA5 signalling cables as per as-built cable plans.
 - (c) Replace the Underground Signalling 48 Core Fibre Cable (OFC 2), including patch panels, between the Maitland - Hazendal interface junction point, through Hazendal up to the interface junction point towards Crawford.
 - (d) Replace UPS and battery back-up system with Lithium type solution.
- 2.4.2 Telecommunication
- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, from Hazendal to Crawford.
- 2.4.3 Electrical
- (a) Install connection point at SER for mobile Generator.
 - (b) Restore, test and commission the alternative supply and associated feeder cable

2.5 Crawford

- 2.5.1 Signalling
- (a) Restoration/Replacement of Lineside signalling equipment.
 - (b) Restore Cable infrastructure inclusive of SCCA4, SCCA5 signalling cables as per as-built cable plans.
 - (c) Replace the Underground Signalling 48 Core Fibre Cable (OFC 2), including patch panels, between the Hazendal - Crawford interface junction point, through Crawford up to the interface junction point towards Wetton.
- 2.5.2 Telecommunication
- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, from Crawford to Wetton.
- 2.5.3 Electrical
- (a) Install connection point at AR for mobile Generator.
 - (b) Install Electrical 11kV manual operated link switch.

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2.6 Wetton

2.6.1 Signalling

- (a) Restoration/Replacement of Lineside signalling equipment.
- (b) Restore Cable infrastructure inclusive of SCCA4, SCCA5 signalling cables as per as-built cable plans.
- (c) Replace the Underground Signalling 48 Core Fibre Cable (OFC 2), including patch panels, between the Crawford - Wetton interface junction point, through Wetton up to the interface junction point towards Southfield.

2.6.2 Telecommunication

- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, from Wetton to Southfield.

2.6.3 Electrical

- (a) Install connection point at AR for mobile Generator.
- (b) Install Electrical 11kV manual operated link switch.

2.7 Southfield

2.7.1 Signalling

- (a) N/A.

2.7.2 Telecommunication

- (a) Install / Replace the Telecommunication 48 Core Aerial Optic Fibre Cable (OFC 1), including patch panels, from Southfield to Dieprivier.

2.7.3 Electrical

- (a) Install connection point at AR for mobile Generator.