

Annexure 2.4:
Particular Technical Requirements
Clairwood to Crossmoor

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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 form part of the minimum Requirements of the Passenger Rail Agency of South Africa ("PRASA") for the Crossmoor to Rosburgh related Works that form part of the planning, design, supply, construction, installation, testing, commissioning and maintenance of a new fully integrated, functional, complete and future-proofed PRASA Train Control System ("PTCS") in PRASA's KwaZulu-Natal ("KZN") 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 the Durban region rail servitude for the section:
- a) Clairwood to Crossmoor.
 - b) Durban Centralised Train Control ("CTCC").
 - c) Rosburgh CTCC.
- 1.3.2 The extent of the Site is approximately 30km and includes at least:
- a) 7 Crossing places.
 - b) 2 Halts.
 - c) 2 Interfaces to the Transnet Freight Rail ("TFR") Network.
 - d) 1 Substation.
 - e) 4 Global System for Mobile Communications – Railway ("GSM-R") Sites.

1.3.3 Figure 1.3.1 below shows the section Clairwood to Crossmoor:

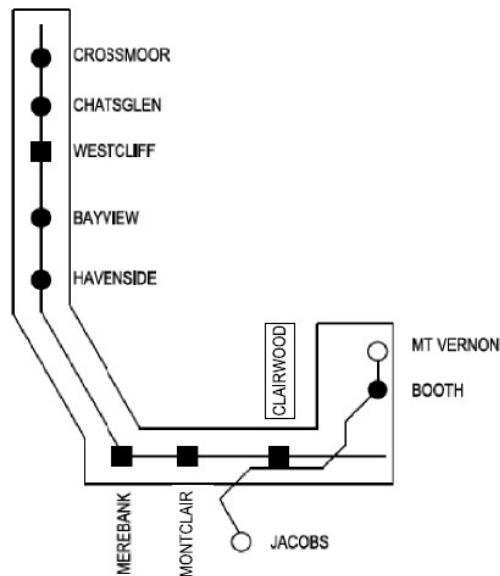


Figure 1.3.1: Clairwood to Crossmoor

1.3.4 The Site(s) includes at least the following crossing places:

- a) Booth.
- b) Clairwood.
- c) Montclair.
- d) Merebank.
- e) Havenside.
- f) Westcliff.

1.3.5 Crossmoor The Site(s) includes at least the following halts:

- a) Bayview.
- b) Chatsglen.

1.3.6 The Site(s) includes at least the following interfaces to the TFR Network:

- a) Jacobs.
- b) Mt Vernon.

1.3.7 The Site(s) includes at least the following traction substations:

- a) Crossmoor.

1.3.8 The Site(s) includes at least the following GSM-R sites:

- a) Clairwood.
- b) Merebank.
- c) Havenside.
- d) Chatsglen.

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

2 MINIMUM REQUIREMENTS

2.1 Clairwood to Merebank

2.1.1 Signals:

- a) Implement 2.5-minute headways according to the requirements and specifications stated provided the RFP.

2.2 Merebank to Crossmoor

2.2.1 Signals:

- a) Implement 10-minute headways according to the requirements and specifications stated provided the RFP.

2.3 Booth

2.3.1 Signals:

- a) Review signal Design between Booth and Mt Vernon to reduce the need for white lights at the interface to the TFR Network.

2.4 Clairwood

2.4.1 Signals:

- a) Review Design and implement required changes for TFR Vehicle Identification System (VIS) at Clairwood, to ensure:
 - All trains shall pass a VIS reader
 - Power to all VIS Equipment (Currently being fed from Apparatus cases)
- b) Interface to the TFR Network at Mt Vernon.
- c) Interface to the TFR Network at Jacobs.
- d) The planning of the signal layout at Clairwood should take the requirement to eliminate the double slips into consideration. Refer to 2.4.3 below.

2.4.2 Civils:

- a) Provide drainage solution to address flooding of trackside Equipment.
- b) Provide a suitable service road providing access to all Equipment Rooms and sites as defined throughout the RFP, by either upgrading the existing service road or constructing a new service road.

2.4.3 Perway:

- a) Review and update the Conceptual Perway Design for Clairwood Station to remove as many double slips and scissors as possible while retaining the required functionality and flexibility.
- b) Implement the Perway work according to the Design

- c) Refer to Clairwood Conceptual Design, drawing no PER_CWD_RNH_EN10_RA_0001

2.5 Montclair

2.5.1 Signals:

- a) Interface to the TFR Network at Jacobs.
- b) The planning of the signalling layout at Montclair should take the requirement to eliminate the double slips into consideration. Refer to 2.5.2 below

2.5.2 Perway:

- a) Review and update the Conceptual Perway Design for Montclair Station to remove as many double slips and scissors as possible while retaining the required functionality and flexibility.
- b) Implement the Perway work according to the Design
- c) Refer to Montclair Conceptual Design, drawing no PER_MNC_RNH_EN10_RA_0001

2.6 Merebank

2.6.1 Signals:

- a) Disconnect siding at points 4413W.
- b) Disconnect West service siding at points 4009W and 4439W.
- c) Disconnect Stanvac siding at points 3713W and 4023W.
- d) Review Design to remove as many double slips and scissors as possible considering the access to the above sidings no longer required.

2.6.2 Perway:

- a) Disconnect sidings from station layout.
- b) Disconnect and remove the scissor crossings feeding the Sidings.

2.6.3 Civils:

- a) Provide drainage solution to address flooding of trackside Equipment.
- b) Provide a suitable service road providing access to all Equipment Rooms and sites as defined throughout the RFP, by either upgrading the existing service road or constructing a new service road.

2.7 Westcliff

2.7.1 Perway:

2.7.2 Civils:

- a) Provide a suitable service road providing access to all Equipment Rooms and sites as defined in the GTR, by either upgrading the existing service road or constructing a new service road.

2.8 Crossmoor

2.8.1 Perway:

- a) Install stop blocks at the four ends of Track.
- b) Redesign layout to remove scissors or replace scissors (4 turnouts and crossing section) with new concrete layout if geometrically not possible

2.8.2 Civils:

- a) Provide a suitable service road providing access to all Equipment Rooms and sites as defined throughout the RFP, by either upgrading the existing service road or constructing a new service road.

2.8.3 Mains Supply and OHTE:

- a) Provide a new 6.6/11kV Supply point that shall feed into the existing transmission line.
- b) Upgrade the capacity of the current substation to 5MVA and add another unit to make it a double unit traction substation.