

**Annexure 2.1:**

**Particular Technical Requirements**

**Rosburgh to Pinetown**

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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 Pinetown to Rossburgh 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:
- Rossburgh to Pinetown.
  - Durban Centralised Train Control (“CTCC”).
  - Rossburgh CTCC.
- 1.3.2 The extent of the Site is approximately 30km and includes at least:
- 7 Crossing places.
  - 6 Halts.
  - 1 Interface to the Transnet Freight Rail (“TFR”) Network.
  - 3 Substations.
  - 5 Global System for Mobile Communications – Railway (“GSM-R”) Sites.
  - 2 Level Crossings (“LX”).
- 1.3.3 Figure 1.3.1 below shows the section Rossburgh to Pinetown:

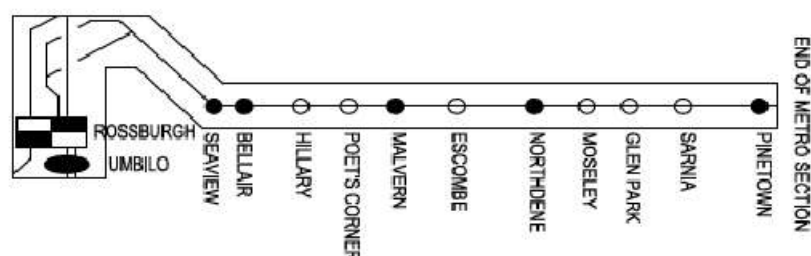


Figure 1.3.1: Rossburgh to Pinetown

- 1.3.4 The Site(s) includes at least the following crossing places:
- a) Bellair.
  - b) Malvern.
  - c) Northdene.
  - d) Pinetown.
  - e) Rosburgh.
  - f) Umbilo.
- 1.3.5 The Site(s) includes at least the following halts:
- a) Escombe.
  - b) Glen Park.
  - c) Hillary.
  - d) Moseley.
  - e) Poet's Corner.
  - f) Sarnia.
  - g) Seaview.
- 1.3.6 The Site(s) includes at least the following interfaces to the TFR Network:
- a) Bayhead.
- 1.3.7 The Site(s) includes at least the following substations:
- a) Northdene.
  - b) Pinetown.
  - c) Umbilo.
- 1.3.8 The Site(s) includes at least the following GSM-R sites:
- a) Bellair.
  - b) Escombe.
  - c) Pinetown.
  - d) Sarnia.
  - e) Umbilo.
- 1.3.9 The Site includes at least the following LXs:
- a) Fairfield Road LX near Moseley.
  - b) Hillary (Berwyn Rd)
- 1.3.10 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 Rossburgh to Pinetown

- 2.1.1 Implement 10-minute headways according to the requirements and specifications stated throughout the RFP.
- 2.1.2 The following installed track-side Equipment may be re-used, providing the complete offered solution is still compliant with the requirements and specifications stated throughout the RFP:
  - a) Bombardier Ebilock interlocking.
  - b) 380V AC B1 Switchmatic points machines.
  - c) Signal assemblies, including LED clusters.
  - d) Bombardier ELS-95 Axle counter assemblies.
- 2.1.3 The Bidder shall, as part of the bid, propose two options, inclusive of all cost to deliver a fully integrated, complete and future-proof PTCS in KZN:
  - a) Option 1: Re-use Bombardier Ebilock interlocking and create required interfaces.
  - b) Option 2: Replace Bombardier Ebilock interlocking with a new electronic interlocking.
- 2.1.4 Provide a new 6,6/11kV Supply point, feeding into the existing transmission line.
- 2.1.5 Dismantle and dispose of identified indoor and outdoor semaphore-Signalling as described throughout the RFP.
- 2.1.6 Assess identified semaphore Signalling structures against safety standards
- 2.1.7 Implement required measures to bring semaphore-Signalling structures to the required safety standard level.

### 2.2 Umbilo

- 2.2.1 Civils:
  - a) The existing SER building has significant drainage problems. The Bidder shall Design and implement a permanent solution to fix the drainage or construct a new building at a suitable location.
  - b) Provide drainage solution to address flooding of trackside Equipment.
- 2.2.2 Electrical:
  - a) Provide for an additional unit of the same size with all the associated Equipment to convert the substation into a fully functional double unit traction substation.

## 2.3 Rossburgh

### 2.3.1 General:

- a) Interface to the TFR Network at Bayhead.

## 2.4 Bellair

### 2.4.1 Signals:

- a) Improve the visibility of 5840G signal currently obstructed by the station building.

### 2.4.2 General:

- a) Classify and upgrade the Berwyn road LX at Hillary.

## 2.5 Northdene

### 2.5.1 General:

- b) Classify and upgrade the Fairfield road LX at Moseley.

## 2.6 Pinetown

### 2.6.1 General:

- a) Provide a new fully functional platform as shown in **Figure 2.6.1: Proposed Pinetown Design**. (Figure given for clarification purposes only):
- b) No interface required to the old TFR line beyond Pinetown.

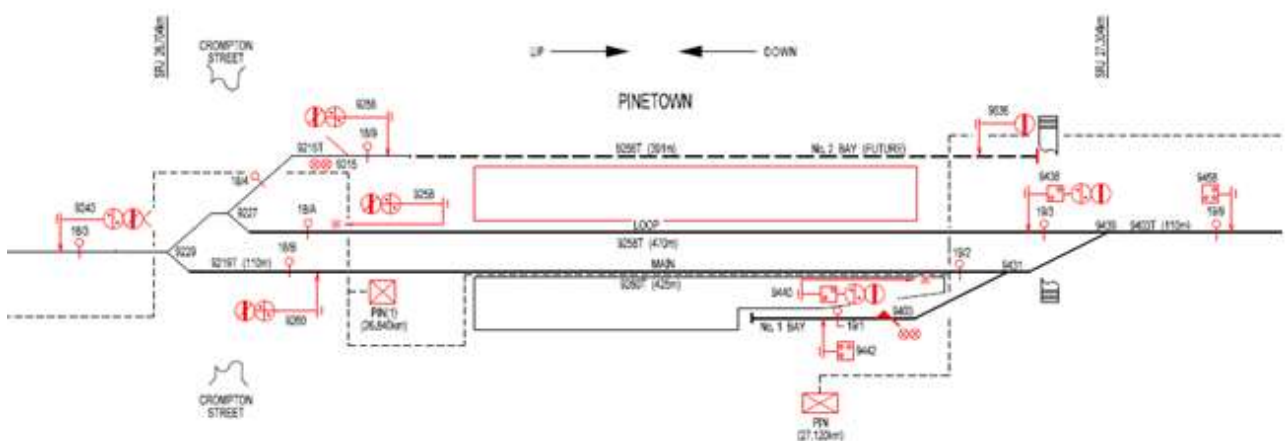


Figure 2.6.1: Proposed Pinetown Design

### 2.6.2 Signals:

- a) Provide track down shunting capabilities for signal 9240G.

2.6.3 Perway:

- a) Build the No.2 Bay line shown in Figure 2.6.1 (Figure given for clarification purposes only).

2.6.4 Electrical:

- a) Design and upgrade the capacity of the existing unit and add another unit with all the associated Equipment to convert the substation into a fully functional double unit traction substation in accordance with Network requirements.