

## Design of the A1-M1 link road extradosed bridge in Mauritius

Paul-Emile Durand, Georges Mauris, Sergio Ramirez, Sanad Shamsan

Systra International Bridge Technologies, Dubai, UAE

Lucas Wise

VSL International, Dubai, UAE

Contact: [pedurand@ibtengineers.com](mailto:pedurand@ibtengineers.com)

### Abstract

The A1-M1 Link Road is a 1 km highway project, currently under construction in Mauritius. The project will cross the Grand River North West Valley, a 90 m deep gorge, with a 3-span extradosed bridge.

The island of Mauritius is subject to major cyclonic winds and the gorge being crossed needed to be adequately accounted for when assessing the wind effect on the bridge. A detailed wind climate study of the project site was conducted to derive wind buffeting loads for the design of the bridge.

In addition, particular geotechnical stability issues encountered at the cliffs on either side of the gorge, dictated a non-optimum span distribution which required a complex arrangement of temporary stay cables.

When complete, the bridge will be a key component of the A1-M1 Link Road Project and will link the existing A1 Road and M1 Motorway, improving connectivity on the West Coast of the Island.

**Keywords:** Mauritius; post-tensioning; extradosed; cyclones; tall pylons; cliff stability; balanced cantilever; segmental; form traveller; Eurocodes; Setra; temporary stays

## 1 Introduction

### 1.1 Project Presentation

The A1-M1 Link Road is a Highway Project of approximately 1 km, currently under construction in Mauritius. On the 11th of April 2018, the Government of Mauritius, and the Road Development Authority (RDA) launched the construction of the project as part of the national "Road Decongestion Program" which consists of a few strategic projects to ease road traffic on the island.

The purpose of the A1-M1 Link Road is to provide connection between the A1 Road and the M1 Motorway at the level of Chebel and Sorèze and to provide an alternative access to the city of Port Louis for traffic originating from Rose Hill, Beau Basin, Chebel, Chapman Hill, upper Coromandel.

