

STRUCTURAL ASSESSMENT OF EXISTING SUSPENSION BRIDGE BETWEEN CAMEROON AND NIGERIA

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SUMMARY

Our firm performed an inspection and analysis of an existing suspension bridge crossing the 'Cross River' between Cameroon and Nigeria. The bridge was designed in the 1940s by a British company and was completed in the early 1950s. Once the original drawings were located in an archive in the U.K. a team was established to examine the existing bridge. The bridge was surveyed and all information collected in the field and archives was processed in the office for a detailed review report including the status of all the elements including ranking and identifying major defects. A full model of the bridge was computerized based on the findings and calculated for both the original and up to date loads in order to examine the capacity of the bridge members and the global stability. From the information collected and calculated, the recommendation was to preserve the bridge as a unique element in Nigeria's heritage.

Keywords: *Historical structure, Suspension bridge, Load rating, Structural assessment.*

1. INTRODUCTION

The consulting services for the Existing Bridge Assessment among the design of a two-lane bridge over the Cross River at the Cameroon-Nigeria Border (Ekok/Mfum) with approach roads was part of the consultancy services required for the implementation of the Program for Transport Facilitation along the Bamenda (Cameroon) – Enugu (Nigeria) Road Corridor. The Border Bridge at Ekok/Mfum is jointly owned by the Government of Republic Cameroon and Federal Republic of Nigeria. The procurement of the bridge project is the responsibility of Joint Technical Committee (JTC) comprising the Project Implementation Units in Nigeria and Cameroon, ECOWAS Commission, ECCAS Secretariat and CEMAC. The purpose of this research is to deliver an assessment of the existing 1950's suspension bridge at the Nigerian-Cameroon border and provide recommendation about its rehabilitation or dismantlement.

This research contains information such as methodology for the investigation, bridge age, location, type of structure, ground investigation plan, schedule, scope of work and assessment possess stages was generated in addition to a report of the existing bridge assessment including the Bridge geometric data, Results of the Bridge Investigation and Assessment of the bridge, Comments and analysis of the results, and Recommendation for rehabilitation or dismantling of the bridge including a Bill of quantities for corrective measures on the bridge.



Fig. 1. Existing Cross River Bridge