

Independent Design Checking of Brahmaputra Bridge, Guwahati - Sharing Experience & Lessons Learnt

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Abstract

The new bridge over river Brahmaputra connecting Guwahati and North Guwahati is currently in the advanced stages of construction. Designed to be an iconic bridge with state-of-the-art aesthetic features, it is being built at a cost of INR 26 billion (USD 316 million). This mega project includes not only the river bridge over the mighty river Brahmaputra but also long elevated viaducts and approaches on both sides. The project is being executed in EPC mode. The paper brings to the fore the culture of proof checking generally performed in infrastructure projects in the country and describes the unique feature of IDC performed in this specific project. The author draws on his own experience as well as published information to illustrate the importance of establishing a culture of independent checking everywhere to add confidence and mitigate the risk of failures.

Keywords: Extradosed Bridge, Stay Cables, Well Foundation, Pile Foundation, Segmental Box Girder, Proof Checking.

1 Introduction

Proof checking of structural design may not be as glamorous and as exciting a job as detailed design, but it is a task, which is vital and necessary for our profession of structural engineering. This is particularly so for mega projects like this bridge across the river Brahmaputra at Guwahati. For a project of this significance, the Client has rightly included the services of an independent design checker (IDC) for which the author was associated. IDC in this case is employed by the contractor with the approval of the Employer. The scope of IDC included structural and geotechnical verification of the entire project, and providing certification of the construction design pack which includes technical drawings, work specifications, working drawings,

and all other associated documents. IDC certification includes the commitment that the work has been independently checked and verified and complies with the Employer's Requirements.

2 Project Highlights

2.1 Location & Background

Guwahati, earlier known as Pragjyotishpur, is the capital of Assam. It is a very ancient city that dates back thousands of years. The epics and the Puranas witness the mention of Guwahati in their historical scriptures and compositions. There are a few temples that have existed in this place for ages such as the Kamakhya Temple, Basistha Temple, and Navagraha Temple. Guwahati, with its cardinal points at 26°10' North latitude and 92°49' East