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Design and Construction of the Samuel De Champlain Bridge, Montreal, Canada

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1 Abstract

The deteriorating condition and associated high maintenance costs of the existing Champlain Bridge prompted the accelerated need for its replacement. Part of the largest infrastructure project currently underway in North America, the Samuel De Champlain Bridge is a viaduct with a signature cable-stayed bridge. This life-line structure was designed to ensure 125 years of service life. The design-build team employed innovative pre-casting, modular segments, and non-traditional erection techniques and sequencing to meet the fast-track project schedule.

Keywords: Cable-stayed bridge, composite girder, winter construction, fast-track schedule, durability

2 Introduction

The Samuel De Champlain Bridge replacement spans the St. Lawrence River between Île des Sœurs and the Brossard shore in Montreal, Quebec, and is a part of the larger Samuel De Champlain Bridge Corridor Project.

This paper explores topics related to the design and construction of the new structures including the approaches, the cable-stayed bridge (CSB), performance and design criteria, and erection techniques.

The new 3.4 km bridge is comprised of three independent superstructures supported by

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