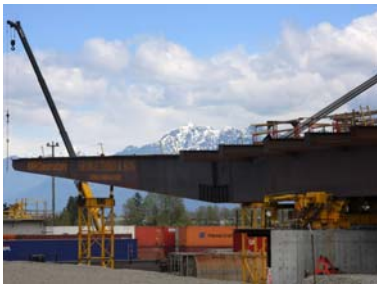
Coast Meridian Overpass Project

With an average weight of 85 tons each, 44 girders were used in the bridge construction



Hydraulic jacks of the 'launch system' push the girders with the 40m 'launching nose' at the front.

Temporary stay-cable systems for the launching stage were used for the first time in North America

The launch of Coast Meridian Overpass nearing its final location

Project Description

The Coast Meridian Overpass is a 580m long, 6-span cable-stay bridge located in the City of Port Coquitlam (a suburb about 20km east of downtown Vancouver) in British Columbia, Canada. The bridge is designed to carry a total of: 4 lanes vehicle traffic, 2 bicycle lanes, and 1 pedestrian lane. The deck width is 24m and the span layout is 101m -125m -110m -125m - 73m - 47m. The project was procured as a design-build contract by the City of Port Coquitlam.

The bridge crosses a large rail yard owned by Canadian Pacific Railway (CP Rail) with over 50 parallel sets of tracks at the location of the bridge crossing. Prior to this project the rail yard divided much of the City in half and made local north-south travel very difficult. Because of the rail yard density and congestion, the locations available to place piers were limited and therefore long spans were needed. Due to rail yard activity, temporary supports for construction would not be permitted and construction activity within the rail yard was severely restricted. Because of these challenges, the City of Port Coquitlam identified in the tendering documents that the construction method base concept was a launched structure. A steel superstructure was determined as the only feasible option due to its lighter weight in comparison to concrete, as there was limited vertical pier capacity.

The steel superstructure option was suitable for launching, but the chosen box girders were constrained to not more that 3.0m deep for the profile of the final bridge. The only way to free cantilever the spans for these box girders was to use: temporary stay-cables connected to the leading permanent pylon, and a 40m long temporary launching nose. All four of the permanent pylons for the cable-stay system were erected in the assembly bed (at the appropriate stage) and then launched with the Superstructure. The total weight of the launched structure was over 4,600 metric tons.

It is believed for North America that this structure is both: the longest one direction free cantilever length launched (125m), and the first use of temporary stay-cable systems for launching. This innovative construction method has overcome many constraints holding back this needed structure, and allowed a divided city to come together.

Owner
City of Port Coquitlam

Design Engineers
International Bridge Technologies

General Contractor
SNC Lavalin Constructors Pacific

Steel Fabricator & Detailer
Dynamic Structures Ltd.

Steel Erector
KWH Constructors

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