



Reference Details

Owner City of Calgary, AB, Canada
+++ General Contractor Trevcon Construction, Calgary, AB, Canada
+++ Engineers

DSI Unit DSI Canada Ltd., Western Division, Surrey, Canada
DSI Scope Supply of 128 Double Corrosion Protected DYWIDAG Rock Anchors Ø36mm, 16t of DYWIDAG Multistrand Tendons 9x0.60"; rental of equipment; installation and post-tensioning



DYWIDAG Tendons Support Precast Segments for Stress Ribbon Concrete Bridges

Construction of 4 new Bridges in Fish Creek Park, Calgary, Alberta, Canada

Fish Creek Park is a provincial park located in the southern part of Calgary, in the Canadian Province of Alberta. With its total surface area of 13.5km², it is one of the largest urban parks in North America, stretching 19km from east to west.

A variety of paved and unpaved pedestrian and bicycle trails with a total length of approximately 80km stretches through the park. This allows visitors easy access to on-site day-camping facilities, stables and a swimmable lake, simultaneously giving them the opportunity to observe a large variety of natural wildlife such as deer, coyotes, owls, and beavers.

In June 2005, heavy rains caused extensive flooding throughout Alberta, including severe damage to Fish Creek Park. During the floods, half of the park's trails were washed away, and the other half was severely damaged. In addition, many bridges were destroyed or rendered unsafe.

In October 2006, replacement works were begun on four of the destroyed bridges. The new bridges had to be designed in such a way as to cause minimal environmental disturbance. Furthermore, the bridges had to be aesthetically pleasing structures, allowing them to blend in well with the surroundings. A unique stress ribbon concrete bridge design was chosen because of its robustness and longevity. The design was also considered suitable because the new bridges needed high load-bearing capacities to allow their being used by park maintenance and emergency vehicles.

To fulfill these requirements, the bridge decks of the four new stress ribbon concrete bridges consist of narrow precast elements. Strong CIP concrete abutments anchored in the ground guarantee tensile strength in the connection of the supporting stress ribbons. For anchoring the abutments, DSI Canada supplied a total of 128 pcs of the proven 36mm diameter Double Corrosion Protected (DCP) Rock Anchors. DYWIDAG Rock Anchors absorb horizontal forces from the stress ribbon superstructure, simultaneously countering the overturning moment.

For constructing the bridge deck, the precast panels were erected and assembled on temporary post-tensioning tendons. Afterwards, the permanent post-tensioning tendons were installed, stressed and grouted. All of the stress ribbons for the four new bridges were installed and post-tensioned using 0.6" DYWIDAG Multistrand Post-Tensioning Systems with 9 strands each that were supplied and installed by DSI Canada. Much of the work was completed during the demanding winter season and much care was required to meet the stringent environmental parameters of this project. Fish Creek Park officially reopened in September 2007.

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