



## THE CHALLENGE

A utility in Canada was planning to re-conductor an existing 69 kV transmission line to address clearance issues over a river. The required clearance over the river was 32.5 ft (9.9 m); however, the existing 203.2 kcmil 16/19 ACSR "Brahma" conductor only maintained an 11.8-ft (3.6-m) clearance over the water. The new conductor was required to sag less while maintaining the same tension and ampacity of the existing conductor.

## LINE REQUIREMENTS

- Continuous Rating: 342 amps
- Emergency Rating: 415 amps
- Maximum Sag at MOT: 36.0 ft (11.0 m)
- Maximum Horizontal Tension: 13,000 lb (5,900 kg)
- River Crossing Span Length: 1,752 ft (534 m)
- Loading: CSA Heavy
- Tension Limits: 60% RBS at CSA Heavy

30% RBS initial / 20% RBS final after creep at 15°C

## CONDUCTOR COMPARISON

Code Word/ Conductor Type	Size	Stranding/ Type No.	Outside Diameter	Weight	RBS	Evaluation Results				
	kcmil		in	lb/ft	lb	Max Tension lb	Loaded Weight lb/ft	Cond. Temp. °C	Current A	Final Sag ft
Brahma (Existing)	203.2	16/19	0.714	0.675	28,400	13,000	1.835	100.0	415	52.9
Fundy/ZTACCR/TW/C7-TS	203.2	43	0.585	0.241	21,600	10,000	1.415	200.0	667	26.2

## SOUTHWIRE'S CONDUCTOR SOLUTION

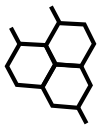
203.2 KCMIL TYPE 43 FUNDY/ZTACCR/TW/C7-TS



**635 Continuous  
amps at 180°C**

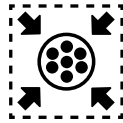


**667 Emergency  
amps at 200°C**

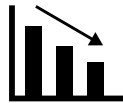


### Advanced Materials

Stranded Carbon Fiber  
thermoset core surrounded by  
fully annealed Aluminum  
Zirconium (ALZR) TW Strands



**18% Decrease  
in Conductor OD**



**50% Reduction  
in Sag**

## BENEFITS OF UTILIZING A C7-TS CORE



**5x LIGHTER** than steel



**20% STRONGER** than UHS steel



**OVER 10x** less thermal elongation compared to steel



**A GREAT FIT** for this re-conducting challenge

## C7® OVERHEAD CONDUCTOR REVIEW

Thanks to the unrivaled performance of C7® Overhead Conductor, a full line rebuild was avoided in this project. Utilities turn to Southwire not only for re-conducting needs but also to build new high capacity, low sag lines with C7® Overhead Conductor while reducing the costs on structures, foundations, and labor! With its unique stranded carbon fiber core construction, Southwire's C7® Overhead Conductor is the most durable, rugged, and reliable composite core conductor on the market. C7® Overhead Conductor is the only composite core conductor developed by a conductor manufacturer with full knowledge of utility needs and practices.

