

ATCO 7L65 Line Rebuild

Vegreville, Alberta, Canada

Keller successfully installs deep foundations for a multi-phase transmission line overcoming harsh weather and meeting environmental restrictions.



The project

ATCO Electric constructed a new 60-mile (97km) transmission line connecting Vegreville and Vermillion substations to replace the existing line, originally built in 1958. The project was divided into multiple phases: the first was approximately 23.1 mi (37.2) km long and included the construction of 724 structures; the second was approximately 18.0 mi (28.9 km) long. A deep foundations solution was required to increase bearing capacity and support the load increase from the structures.

The challenge

- Work was performed during extreme winter weather, including snow and a -31°F to -40°F (-35°C to -40°C) windchill.
- Several restrictions were in place to reduce the environmental impact
- Scheduling constraints due to planned outages

The solution

Large-diameter drilled shafts were specified as the deep foundations system. Keller installed ten shafts up to 7.5 ft (2290mm) in diameter and up to 33 ft (10m) deep. Temporary casing was used to provide water cutoff during installation and reduce sloughing. Due to the winter weather, Keller performed heating and hoarding of piles for concrete curing in cold weather and temperature monitoring as part of the quality control measures. To limit environmental impact, Keller thoroughly cleaned equipment between pile locations to restrict soil-borne disease, limited on-site washouts to protect wetlands, and carefully removed and replaced topsoil after shaft installation.

After successfully performing the foundation work for Phase 1, Keller was awarded the contract for the second phase. Keller installed ten large-diameter drilled shafts up to 33 ft (10m) deep along the proposed route, following similar procedures for weather and environmental impact. A planned outage was scheduled to accommodate shaft construction underneath the live power line. Before work began, the outage time was shortened; however, Keller completed the job within the timeframe and allowed the owner to continue to the next construction phase.

Project facts

Owner(s)

ATCO

Keller business unit(s)

Keller

Main contractor(s)

Keller

Engineer(s)

ATCO Design, WSP Canada Geotechnical

Solutions

Deep foundations

Markets

Power

Techniques

Drilled shafts

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