



Key Achievements

- Keller completed a challenging scope of work requiring multiple rigs in a small footprint within a restricted schedule.
- Full turn-key services included an initial feasibility study, design-build solution, and monitoring.

The project

Syncrude is one of the largest producers of crude oil from oil sands with the capacity to produce ~15% of Canada's total oil requirements. Syncrude's large-scale oil production facility adjacent to Mildred Lake in Alberta needed a new raw water intake (RWI) system. This required an 8 m excavation in the lake to construct an intake weir and additional weir to facilitate the large pumps and new piping to connect to the existing facility.

The challenge

Unique site conditions included extremely soft soils, which made stabilising rigs on site difficult. Shoring was a challenge because it needed to be removable while retaining very soft, saturated, flowing sands with the water table at the surface. In addition, the work within the lake required heavy monitoring to ensure strict environmental restrictions were met.

The solution

Keller selected sheet piles to facilitate excavation and help hold back the heavy water ingress. Shoring needed to be installed from a working platform, extended into the water, and driven through a continuous hard rock formation located above the oil sands. This required three levels of rig mats to provide sufficient stability for the work to be completed safely. Multiple rows of anchors were required to hold back the saturated flowing sands.

Application

Earth Retention & Shoring

Technique

Anchors
Sheet Piles

Market sector

Oil, Gas & Chemical

Owner

Syncrude Canada Ltd.

Main contractor

Aecon Mining Construction
Management Inc.

Engineer

WorleyParsons Limited
Keller Foundations Ltd.

Keller business unit (s)

Keller Foundations Ltd.