

CASE STUDY

LAKE SAKAKAWEA

McKenzie & Williams Counties, North Dakota
Submar Project 14743

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EXISTING CONDITIONS

Seven pipelines crossing Lake Sakakawea in McKenzie & Williams Counties, North Dakota, experienced exposures, low depth of cover, and shoreline erosion. A multibeam bathymetry and magnetometer survey of the pipeline was completed to identify topographic features, and commercial divers were used to determine depth of cover and pipeline location. Roughly 1600 linear feet of the pipeline ROW had either exposures or low depth of cover on several of the pipelines over the 2.3-mile lake crossing.

SOLUTION

The following solution was implemented to achieve the required depth of cover over the pipeline. A temporary pier was erected over the water. A 100 ft x 70 ft modular barge was assembled, and a 150-ton crane was walked onto the barge. Support vessels included 1 equipment barge, 1 material barge, 4 pushboats, and 1 tugboat.

Concrete grout bags were placed under and around suspended sections of the pipeline for support. 340 (9-inch thick) articulated concrete mattresses were placed over the pipeline with a geotextile base layer for soil retention. A diving crew assisted in accurately placing mats and grout bags over the pipeline.

Upon completion of the project, the crane was walked off of the barge and the crane, barge, and vessels were demobilized. Finally, disturbed land at the jobsite was restored with seed and straw.

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