Northeast Supply Enhancement

CROSSING RIVERS AND STREAMS

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Crossing of waterbodies is conducted in accordance with applicable state and federal permits. Williams utilizes various methods for installation of pipeline across waterbodies, depending on waterbody classifications and flow conditions at the time of crossing.

WATERBODY CROSSINGS

WATERBODY CATEGORIES

Bodies of water such as streams and rivers are classified by the Federal Energy Regulatory Commission (FERC) into three categories:

Minor

Includes all streams less than or equal to 10-feet wide at the water's edge at the time of construction.

Intermediate

Constitutes perennial stream crossings greater than 10-feet wide, but less than 100-feet wide at the water's edge at the time of construction.

Major

Includes crossings of more than 100 feet wide at the water's edge at the time of construction.

METHODS OF CROSSING

Trenchless Construction Methods

Conventional Horizontal Bore

The conventional horizontal bore allows for trenchless construction across an area by excavating a pit on either side of the waterbody to provide a working area for the equipment. A boring machine is lowered into one pit, and a horizontal hole will be bored to a diameter equal to the diameter of the pipe (or casing, if required) at the depth of pipeline installation. The pipeline section will then be pushed through the bore to the opposite pit.

Horizontal-Directional Drilling (HDD) Method

The HDD method allows for trenchless construction across an area by drilling a hole significantly below conventional pipeline depth, and pulling the pipeline through the pre-drilled hole. HDD is typically used to install pipeline in areas where traditional open-cut excavations are not feasible due to sensitive resource areas or logistical reasons. While overall disturbance within a sensitive area may be minimized by HDD, a greater amount of equipment staging is typically required. The amount of workspace at the drill entry and exit locations can vary significantly based on site-specific conditions.

Dry-Ditch Methods

Flume Crossing

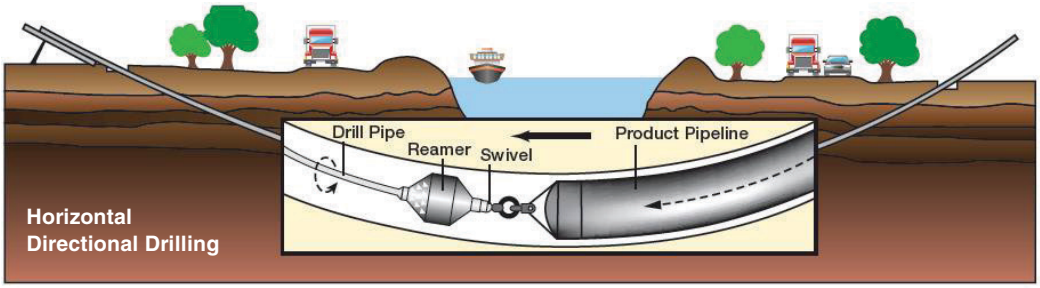
Flume pipe(s) are installed over the trench prior to trenching (or during trenching should an unforeseen event create flow), which remain in place and are maintained until restoration of the waterbody is complete. The size and number of flumes is sufficient for maximum anticipated flows. Excavation equipment located on the stream banks work around the flume pipe during excavation. The pipe is threaded under the flume pipe and the ditch is backfilled while flows are maintained through the flume pipe(s) and downstream.

Dam and Pump Crossing

This method for crossing streams and waterbodies temporarily diverts stream flow around construction area activities. The dam and pump crossing method consists of diversion structures used to temporarily dam the waterbody, which can consist of one or more of the following: imported concrete jersey barriers, water bladder, port-a-dams, steel plates, and/or sand bags. The selection of the dam type or material depends on the stream or waterbody depth, flow velocity, channel width, and type.

Open-Cut Crossing Method

The open-cut construction method involves the excavation of the pipeline trench across the waterbody, installation of a prefabricated segment of pipeline, and backfilling of the trench with native material. Depending upon the width of the crossing and the reach of the excavating equipment, excavation and backfilling of the trench will generally be accomplished using backhoes or other excavation equipment operating from one or both banks of the waterbody. Flow is maintained at all times. Excavated material from the trench is placed on the bank above the ordinary high water mark for use as backfill.



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