



memo

Date: May 4, 2020

To: Lindsay Tekler, Energy Project Liaison, WNDR

From: Cathryn Hanson, Supervisor, US Environment Projects

Re: **L5WSR Environment Updates**

Information Request # 1

The HDD method is a process that allows for trenchless construction by drilling a hole below the depth of a conventional lay and pulling a prefabricated section of pipe through the hole. The method minimizes disturbance to the surface of the right-of-way between the entry and exit points of the drill and is sometimes used to avoid direct impacts on sensitive environmental features or areas that otherwise present difficulties for standard pipeline construction. The HDD method can provide certain advantages over typical construction methods, such as avoidance of surface disturbance, riparian tree clearing, or in-stream construction where appropriate subsurface conditions exist.

Although the HDD method can minimize direct impacts to the feature being drilled (e.g., wetland, waterbody, road/highway, railroad), the method can have other temporary resource impacts based on the amount of workspace required for the drilling equipment. The distance between the HDD entrance and exit locations (minimum and maximum distance) is dependent on a number of factors including: pipeline diameter; pipeline wall thickness; elevation differences between the entry and exit sites; drill radius and depth of cover requirements; and, subsurface conditions (type of substrate(s) being drilled). These factors also determine the size and type of HDD rig and supporting equipment that is required.

For the proposed 30" pipe, an HDD alignment requires approximately 2000'-5000' of straight workspace to execute a drill. HDD operations will require the drilling rig, operator/controller trailer, portable power unit, drill stem/pipe trailers, drilling mud processing and recycling center (mud rig), supply trailers, water storage tanks, entry mud pit, and drilling fluid storage, and a backhoe (or similar) on the entry side of the HDD. A workspace of approximately 100' by 300' is typically required to accommodate the activities at the HDD entry. The exit side of the HDD will include a receiving pit, drilling fluid storage, drill stem/pipe trailer, and a backhoe (or similar). A workspace of 100' by 300' is typically required to accommodate the activities at the HDD exit. Additionally, the receiving side of the HDD will require workspace for assembly of the pipeline segment to be installed via HDD. This segment is assembled on site and hydrostatically tested prior to installation. This workspace must be aligned to allow for proper maneuvering the pipe into the drill hole during the pullback operations. The pipeline right-of-way can be used to assemble the pullback section where the right-of-way extends straight from the drill exit hole for the length of the drill segment. If the pipeline right-of-way is not straight, additional workspace is needed (false right-of-way) to assemble the drill pullback section.

A typical HDD workspace layout (plan view) is depicted in the attached construction drawings labeled as Attachment 1.

Information Request # 2

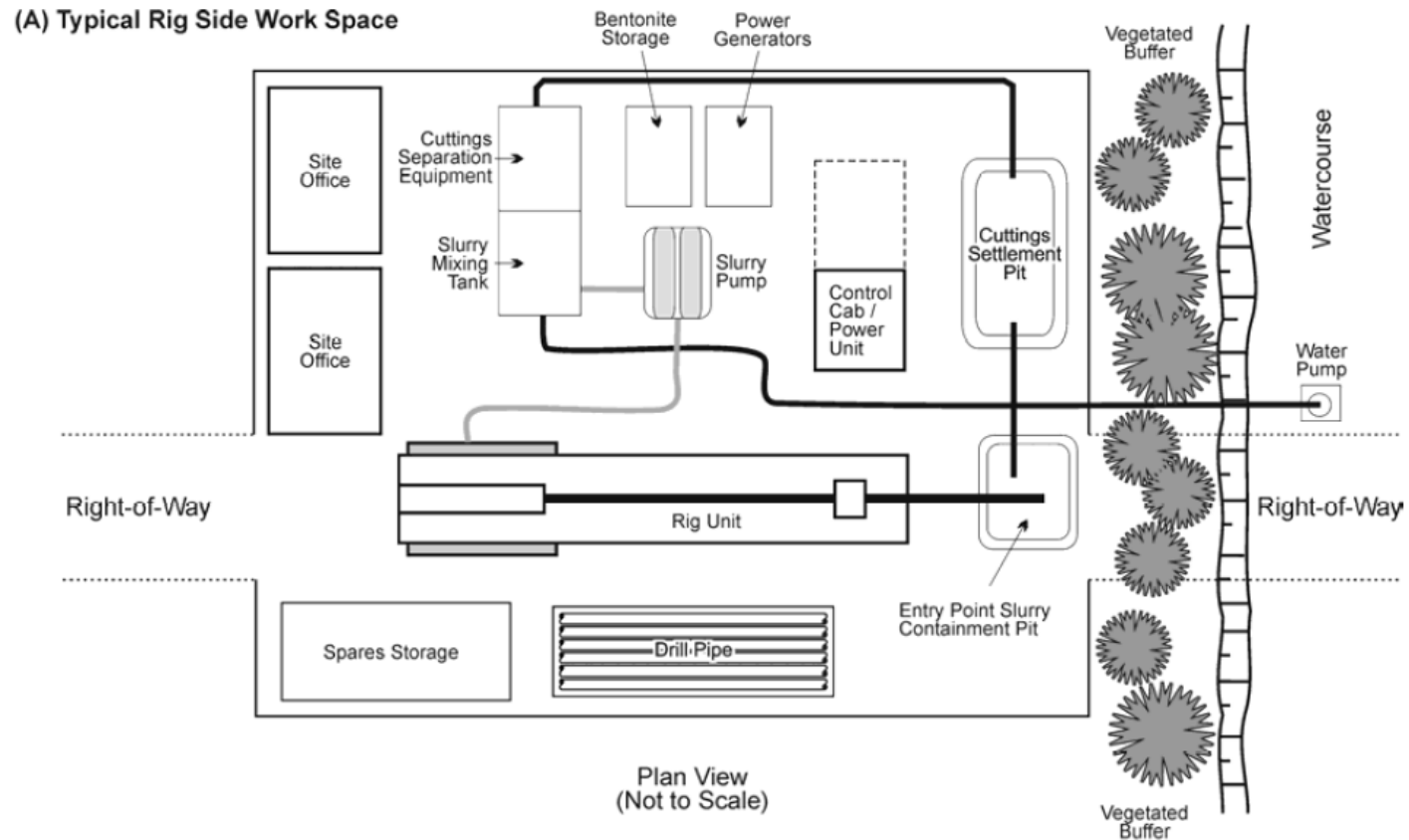
Enbridge has identified new valve locations for Valves 1, 2, and 5. Enbridge will be conducting field surveys in spring 2020 to verify site conditions.

Enbridge is submitting under separate cover additional details regarding the siting considerations and location information for Valves 1, 2, and 5. Enbridge has designated this material as Critical Energy Infrastructure Information; Confidential Business Information; Not Subject to FOIA.

Information Request # 3

Enbridge will provide engineered crossing drawings as requested on 4/21/2020 for two waterbody crossings—Deer Creek at MP 6.3 and Tyler Forks at MP 33.9.

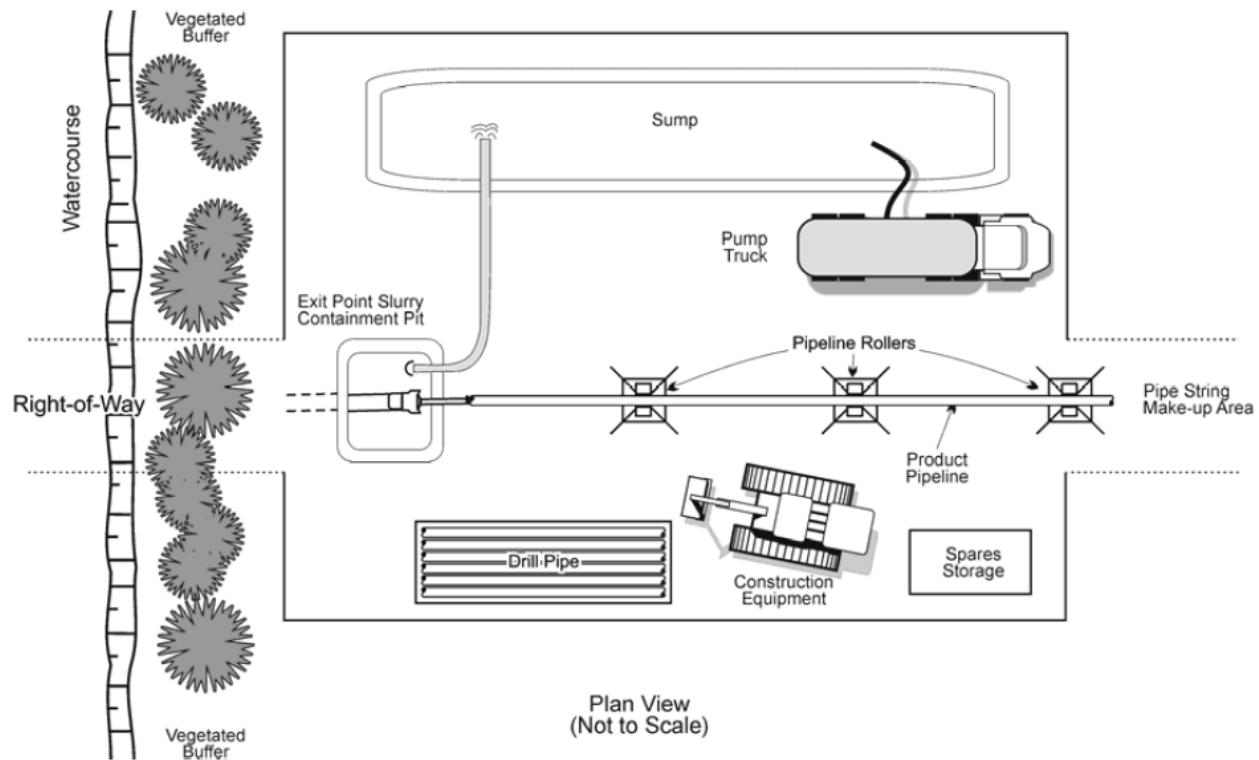
HDD Typical Workspace Configuration – Entry/Rig Side



Source: Canadian Association of Petroleum Producers, 2005. Pipeline Associated Watercourse Crossings, 3rd Edition.

HDD Typical Workspace Configuration – Exit/Pullback

(B) Typical Pipe Side Layout



Source: Canadian Association of Petroleum Producers, 2005. Pipeline Associated Watercourse Crossings, 3rd Edition.