



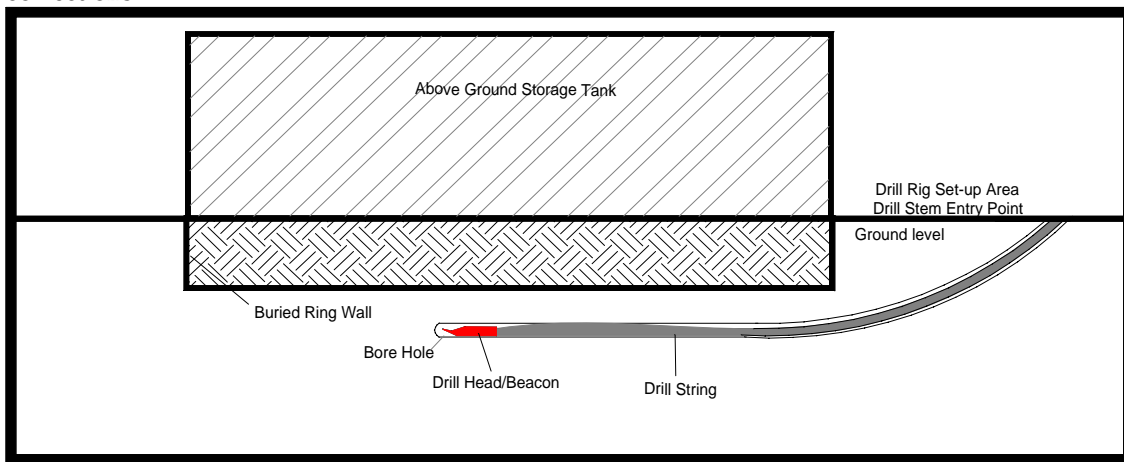
Horizontal Directional Drilling Specialists

Basic Horizontal Directional Drilling Project

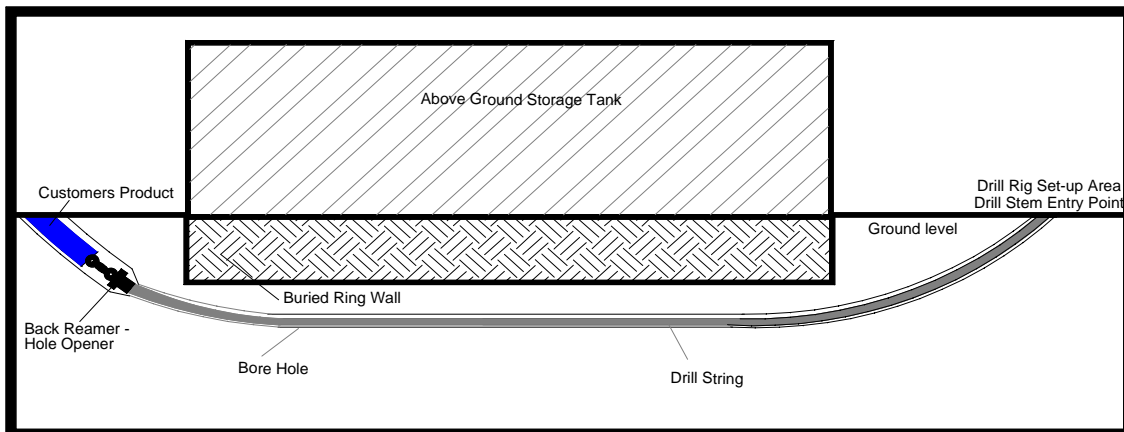
A drill path is determined based on site-specific conditions. These conditions include work area limitations, surface obstructions, underground obstructions, drill string and product bend radius limitations, etc.

The following example illustrates the placement of product under an above ground storage tank.

The pilot hole is drilled along a predetermined path using a jet bit or a downhole motor. The transmitter beacon located in the drill head sends position information to the surface for steering corrections.



After the pilot hole is drilled, a Back-Reamer/Hole Opener is fitted to the end of the drill string and pulled through the pilot hole. A swivel assembly fitted between the Back Reamer/Hole Opener and the final product prevents rotation and/or twisting of the final product. As the drill string is pulled back to the rig, the final product is placed in the bore hole.



The pilot hole can be drilled completely under the tank and exit on the opposite side, or can be terminated at any point along the drill path. If the pilot hole is terminated prior to exiting the ground on the opposite side of the tank, the drill string is removed and the customers product is placed in the bored hole from the drill rig set-up side of the tank.