Horizontal Directional Drilling with Ductile Iron Pipe

Horizontal directional drilling (HDD) presents several advantages over traditional open-cut construction methods. Installation of underground utilities in congested urban areas using open trenching can prove to be rather expensive, as the contractor must dig around existing utilities in order to achieve the required depth for the new pipeline installation.

The number of potable water system and sanitary sewer projects that include the installation of ductile iron pipe made by horizontal directional drilling (HDD) is steadily increasing. Restraint joints ductile iron pipe providing ease of assembly and positive thrust restraint, can easily withstand the unique rigors and demands of HDD.

Ductile Iron pipe can also be installed by conventional pipe bursting methods. During this procedure, a bursting tool is winched through a section of host pipe, breaking it into pieces in the process. New pipe connected to the rear of the bursting tool is pulled into place behind it. One of the benefits of pipe bursting application is the replacement of an old pipe with a larger diameter pipe.

Drilling fluids containing bentonite may have a low electrical resistivity and may make the pipe susceptible to corrosion if not protected. Therefore, polyethylene encasement is installed on ductile iron pipe during the horizontal directional drilling process, which must meet the material specifications of standard ANSI/AWWA C105/A21.5. In case of severe soil formations such as stone-laden soils, the pipe is usually encased in a double layer of polyethylene.

In this presentation, we will discuss the strength and durability of ductile iron pipe, and describe the horizontal directional drilling installation methods of ductile iron pipe using restraint joint systems. We will present several case studies of HDD projects where ductile iron pipe was applied. Finally, we will conclude with the environmental advantages of ductile iron pipe, such as the energy saving through better pumping performance which result in lower life cycle costs.