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## Directional Drilling With CEI



CEI is currently working with the Town of Hatfield on a critical water distribution improvement project. Utilizing a directional drilling technique, this project is part of a multi-phased effort to increase the resiliency of its water system and ensure reliable water supply to the center of Hatfield.



Directional drilling is the specific drilling practice of controlling the direction and angle of a wellbore to a specific location. This technique can be used to achieve a number of different goals including drilling multiple wells from one location, to reach inaccessible surface locations and multiple target zones, or to place pipeline beneath major roadways and even cross waterways with minimal disruption.

This project involved a minimal disturbance method to install a large diameter water main beneath and across Interstate 91. CEI worked closely with MassDOT to develop a design that satisfied their requirements. A 30" HDPE sleeve was utilized as a casing pipe with an 18" HDPE that serves as the carrier pipe. The directional drill rig bored a pilot hole under the highway, checking progress with an underground locator every 30-40 feet and steering the drill head to ensure that the alignment was over 20 feet deep in the median of the highway. A bentonite sand slurry is pumped into the bore hole through the cutting head to stabilize the soil around the hole and prevent collapse. Once the pilot hole was drilled, the hole was reamed out numerous times with progressively larger cutting heads until ultimately the 30" casing pipe could be pulled through the hole followed by the 18" carrier pipe.

The directional drilling technique provided a cost-effective solution to this difficult highway crossing challenge.

CEI is a civil engineering and environmental services firm with experience in water supply planning, distribution and treatment engineering and design. For more information on CEI's water supply services please contact Mike Ohl, P.E. at [mohl@ceiengineers.com](mailto:mohl@ceiengineers.com) or 800-725-2550.

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