

# Horizontal Directional Drilling PowerTool

## What the HDD PowerTool Does:

- Provides HDD design plans for in-field implementation
- Mud management, inadvertent return, and borehole stability calculations
- Validates 3rd-party and subcontractor design plans and reports
- Calculates Steel and PE pipe pull force and post-installation stress analyses
- Cables in conduits calculations for utility and other use cases

## HDD PowerTool Benefits:

- Reduces the risk of drilling inaccuracies, frac-outs, and fines
- Accelerates project schedules through intuitive HDD analyses
- Provides a shared platform that aligns team activities for higher productivity while increasing engineering performance
- Validates HDD designs to lower OpEx and CapEx of construction

## How the Pipeline HUB (HUB<sup>PL</sup>) Leverages Data:

- Multiplies the power of your team with the Integrated Data Environment
- Centralizes & leverages data to eliminate repetitive manual input
- Shares data with other modules via an intuitive Hierarchy panel or GIS map integration
- Automation of analysis iterations

## How the HDD PowerTool Modules Do it:

- Provides drilling fluid quantity tool for mud management calculations
- Duplex and Triplex pump and pressure calculations
- Creates pilot hole bore stability profile through single and multi-point geotechnical analyses
- Performs pull load/maximum allowable pull force and installation calculations for steel and PE pipe
- Specifies custom curvature and compound bend radii through a start to end borehole profile build-out program
- Implements 2D elevation profiling with aerial GIS mapping
- Installation of cables and conduits design validation build-out
- Comprehensive design-validation tool that simplifies drill path/borehole-design modeling from complex AutoCAD files
- Creates custom reports with integrated borehole schematics validating HDD designs
- Leverages asset data integration with the HUB<sup>PL</sup>

### Borehole Design Oil and Gas Pipeline Validation



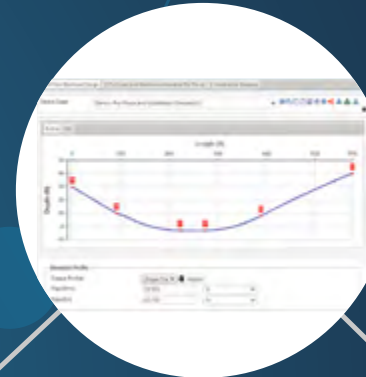
### Pull Force Installation Stress Analysis

Applicable For Steel and PE Pipes



### Steel & PE Pipe Stress Analysis

Pull Force & Post-installation Stress Analysis



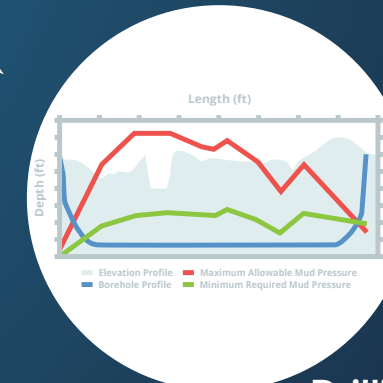
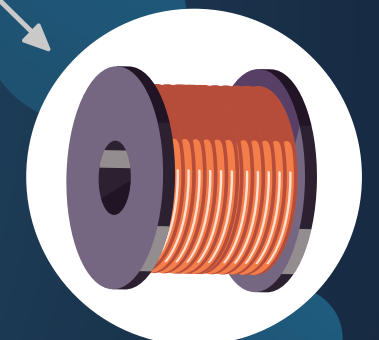
### GIS Integration

2D Elevation Profile Creation and Aerial GIS Overlay



### Installation of Cables in Conduits

Determines Jam Ratios, Clearances, and Pressures



### Drilling Path Planning

Models Pilot Holes, Pull-Back, Frac-Out, and Mud Management

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