Comprehensive HDD Design/Planning Software Introduced

A new software product for the horizontal directional drilling market, BoreAid, has been developed at the University of Waterloo located in Waterloo, Ontario, Canada, to assist industry professionals with the planning and design of HDD pipeline installation.

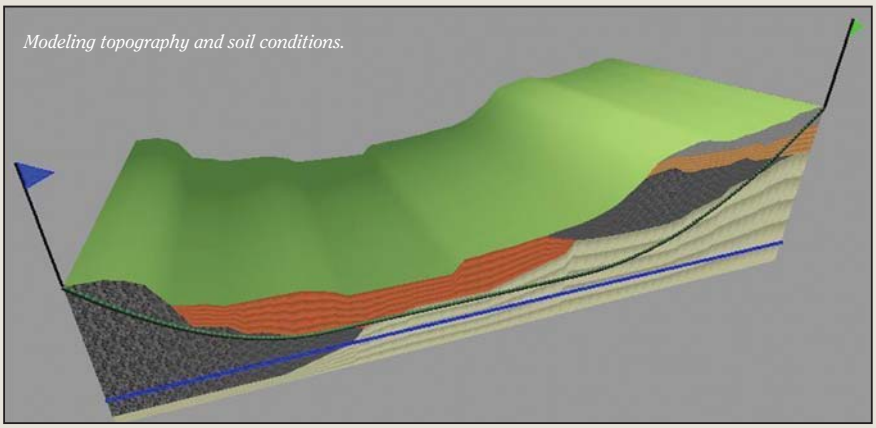
The software is user friendly, windows-based, manufacturer and supplier independent, and can easily produce project design or construction submission documents with the click of a button. For this reason, BoreAid is now being used in five countries as an effective HDD design tool (United Kingdom, Canada, United States, South Africa and Brazil).

The name BoreAid reflects the intention of the tool to aid the contractor, engineer, or project manager in the completion of simple and complex HDD projects using existing pipeline design and good practice guidelines (ASTM F1962, PPI, PRCI, NASTT and other industry best practice guidelines).

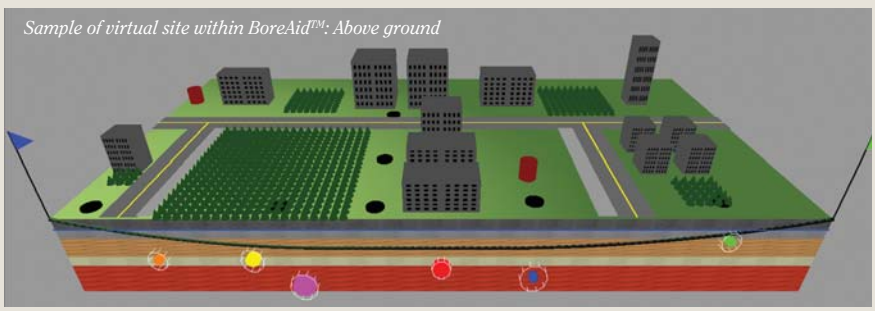
The software has been developed for use by pipeline and utility owners, contractors, and technicians/engineers. This comprehensive software takes the user through the complete design process in a sequential and user friendly manner. It is suitable for both novice and experienced HDD users. When design inputs are not known, typical and/or suggested (based on existing standards and good practice guidelines) properties are provided. It also contains impressive graphical representations that make it easy for users to check input and design values. It allows for the quick production of detailed contract or design submission documents as well as full access to all calculated values (via spreadsheet exporting).

The difficulties associated with HDD design have been simplified by the framework via a system of five interlinked sequential modules, each of which addresses a crucial aspect of the HDD pipeline design process:

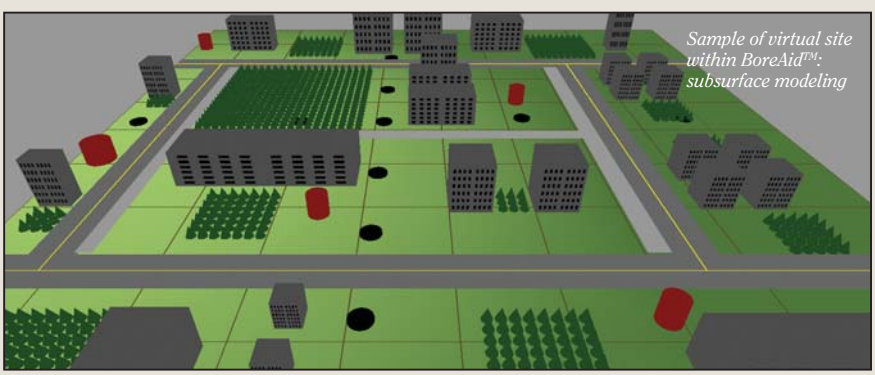
- Bore path design;
- Product pipe load verifier;
- Bore and pipeline construction planning;
- Bore pressure estimator; and
- Equipment/tooling selection.



Modeling topography and soil conditions.



Sample of virtual site within BoreAid™: Above ground



Sample of virtual site within BoreAid™: subsurface modeling

Modeling a project

BoreAid input tools allow the construction of very simple to complex site conditions. Multiple soil layers, above and below ground obstacles, buildings, utilities, etc. are all integrated into the framework. The 3D visualization capabilities provide the user with the option to change scale/zoom and the flexibility to view the output in a variety of formats – essentially creating a virtual site and project location which the user may navigate through.

Using multiple calculation methodologies, pipe design operation and installation loads are determined quickly and easily for steel and polyethylene pipes. With a click of a mouse, the influence of using rollers or adding ballast to the pipe can be determined. Automated good practice warnings are implemented in all BoreAid modules when input or design values are outside good practice values.

Drill fluid requirements and bore pressure estimations can be calculated with BoreAid based upon the path already constructed. Slurry and drill fluid volumes per rod and per pass are used to ensure a safe drill project using equipment dependent properties. Drill equipment, tooling and fluids are recommended based on information gathered from other modules and current HDD practices.

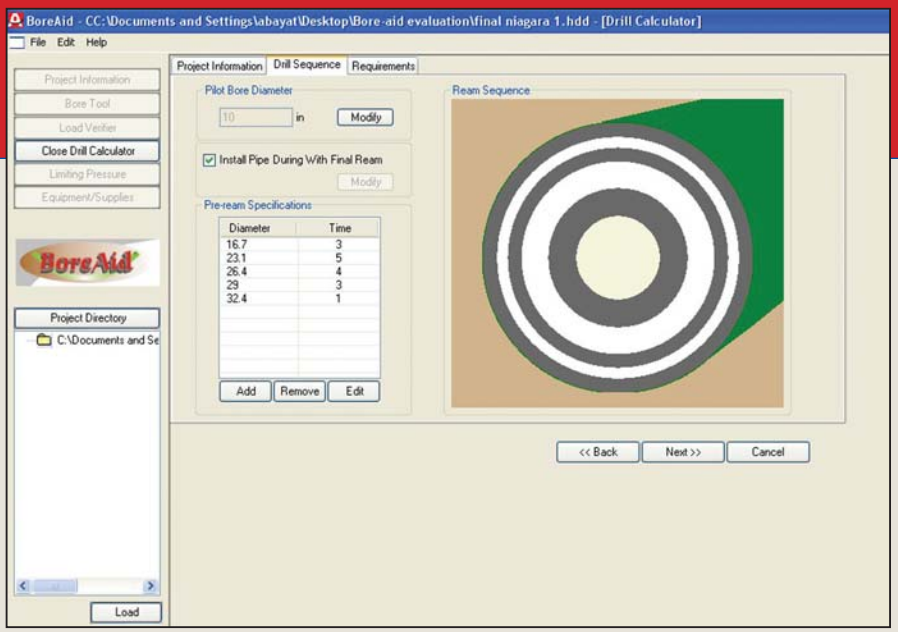
Obtaining professional results

BoreAid is equipped with full export and print controls which allow the user to ex-

port graphics, project summaries, and design calculations that may be used for construction and/or project approvals. The use of BoreAid during the design phase of the projects can greatly reduce overall project costs, increase the probability of a successful project and ensure the use of HDD good practice guidelines.

Reasons to consider using BoreAid:

- Easily complete simple or complex HDD pipeline designs;
- Easily determine an acceptable bore path location in sites with complex site conditions and buried utilities;
- Reduce the risk of utility hits;
- No need to build complex spreadsheets that have limited graph capabilities and design/as-built construction submission documents;
- Ensure that all good practices are followed;
- Quickly determine pipeline installation loads/stress and required pull back force using a variety of industry accepted methods;
- Quickly estimate the drill time and quantity of drill fluid required to complete a HDD pipeline installation;
- Reduce the risk of HDD project cost overruns and construction problems;
- Faster and better HDD pipeline designs;
- Quickly develop high quality design or as constructed submission documents; and
- Lower project design and tender submission costs.



Utility to Enter Pilot Bore and Reaming Sequence

FOR MORE INFORMATION:

BoreAid: www.boreaid.com, or contact the BoreAid Development Team, Centre for Advancement of Trenchless Technologies, University of Waterloo, (519) 888-4770, fax (519) 746-6556, e-mail: info@boreaid.com