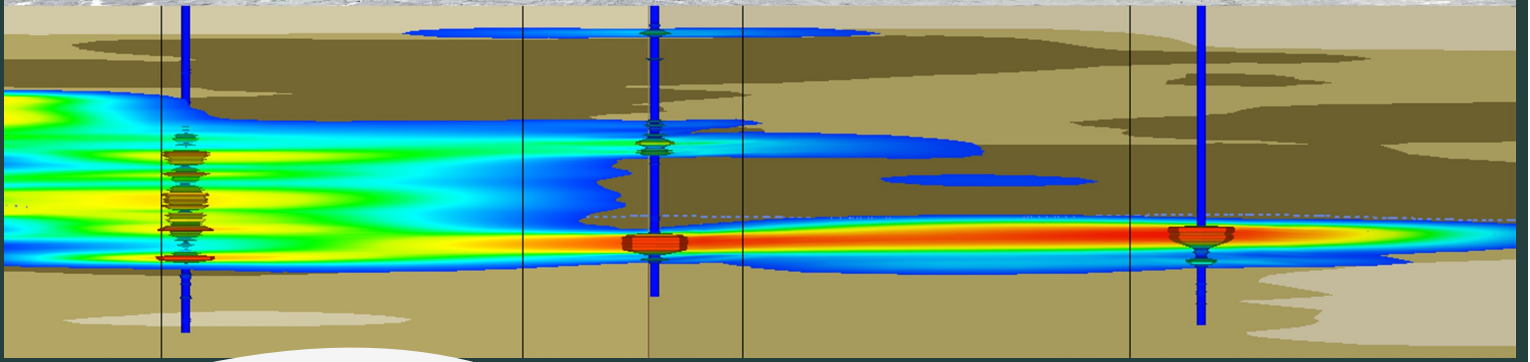


# Hydraulic Profiling Tool

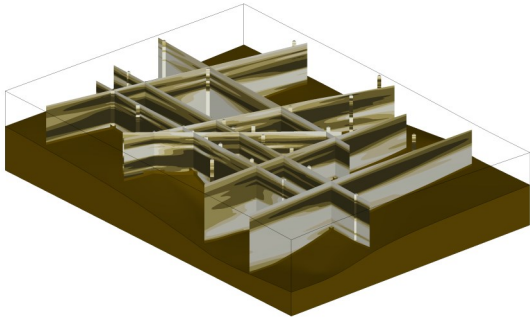


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## Advantages of the HPT

- Is standard on all of Geoprobe®'s direct-sensing probes
- Provides unbiased, real-time graphical representation of soil lithology from HPT pressure and EC data
- Can provide estimated water table depth and estimated K
- Can be used to determine migration pathways for contaminants
- Lithologic information for targeting remedial injection design
- High productivity rates that can exceed 200 ft/day

**S2C2**  
HRSC Specialists

S2C2 is an environmental services firm that focuses on providing High Resolution Site Characterization (HRSC) support. At S2C2, we stand committed to excellence in environmental services, setting a benchmark that elevates us above our competition. Our team comprises top environmental specialists and experts who possess a deep understanding of the industry's latest advancements and best practices, enabling us to provide innovative, customized solutions that outpace traditional approaches. S2C2 has been providing direct-sensing services throughout the United States since 2005 and has been a Geoprobe® Certified Direct-Image Contractor since 2008. S2C2 is a full service High Resolution Site Characterization (HRSC) company with Geoprobe® direct-push units and custom direct-sensing systems. S2C2 has the experience and personnel to handle even the most complex site characterization programs.

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**Gain invaluable insights into complex subsurface conditions, enabling smarter decision-making and more effective remediation strategies**

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## Hydraulic Profiling Tool (HPT) with Electrical Conductivity (EC)

The Hydraulic Profiling Tool (HPT) is a percussion driven tool that provides continuous, real time profiles of soil hydraulic properties in both fine and coarse-grained material. The HPT system uses a sensitive downhole transducer to measure the pressure response of the sub-surface to a constant, monitored injection of clean water. As the probe is advanced at 20 mm/s, water is injected through a stainless-steel screen on the side of the probe at a flow rate of approximately 200-300 mL/min. Injection pressure is monitored and plotted with depth along with the injection flow rate. A low pressure is indicative of higher subsurface permeability while high pressure is indicative of lower permeability. Once the HPT probe has been advanced below the water table, dissipation testing can be performed to estimate the static water level and provide an estimate of hy-

## Groundwater Profiling

Depth discrete, vertical groundwater profiling has been a core investigation technique especially for low level diffuse groundwater plumes (e.g. PFAS/PFOA). When laboratory analytical data is required, collecting representative vertical profiling data is critical. We typically recommend advancing HPT borings to quickly determine the vertical hydrogeologic profile and then target specific intervals using traditional, depth discrete, groundwater sampling collected via a screen-point sampler.

In highly permeable aquifers, Geoprobe's Groundwater Profilers allow for the collection of HPT data and groundwater samples in a single direct-push deployment. Two configurations are offered and include the GWP1.75 (1.75-inch) and the HPT-GWS (2.25-inch). The GWP1.75 allows for the recording of injection pressure at the surface only. The GPT-GWS includes the full HPT sensor configuration including electrical conductivity and downhole HPT pressure transducer.

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## HPT provides unparalleled, unbiased, hydro-geologic data for rapidly advancing conceptual site models

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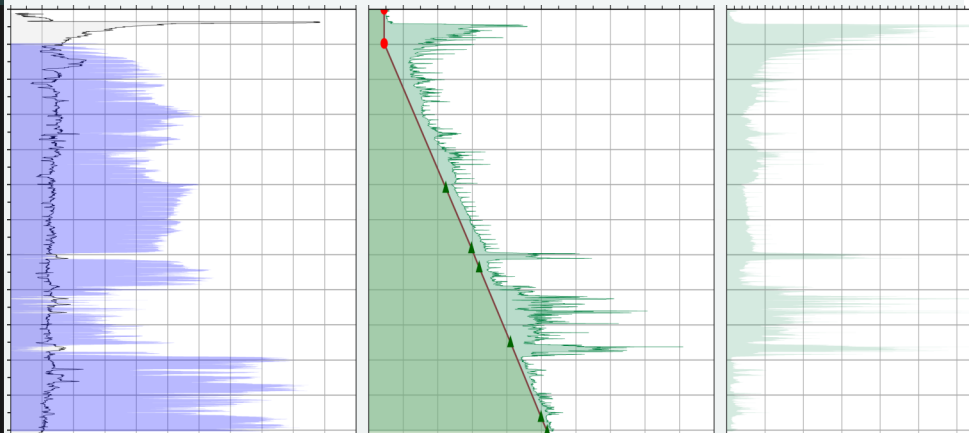
The operator will pause advancement of the probe and shut-off the flow of water to the HPT probe. The HPT pressure will then dissipate and once it has stabilized, the operator will return water flow to the HPT and continue advancement of the probe. Upon completion of the log, the operator can utilize equations integrated in the Geoprobe® Direct Image Viewer software to calculate static water level, depth of water table, and Est K. in feet per day (ft/day). To refine the precision of the calculations, multiple dissipation tests can be run in the same log. changes. It is important to note that EC reads the grain-size which is present at the greatest percentage. In general, coarse-grained soils such as gravel and coarse sands have the lowest values (typically 0-20 mS/m), and clay has the greatest values (typically greater than 80 mS/m).

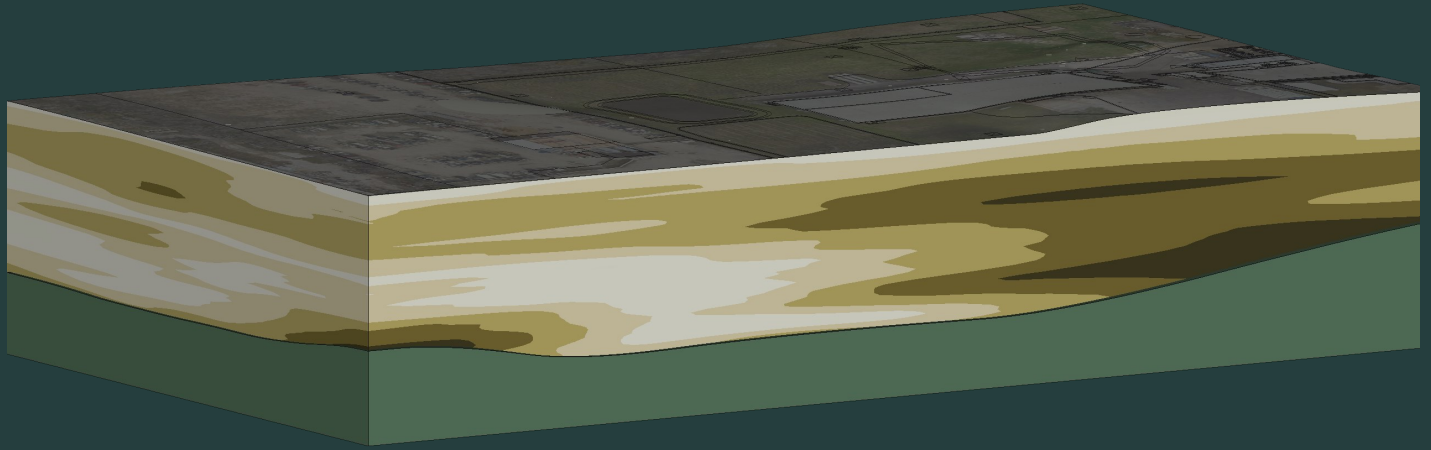
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## HPT data seamlessly integrates into our 3D visualization packages - Providing a comprehensive HRSC solution.

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**S2C2 is committed to working with our clients through all project phases—from initial proposal, through field implementation to project completion. Contact us to discuss how our services can help you solve complex environmental problems.**



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