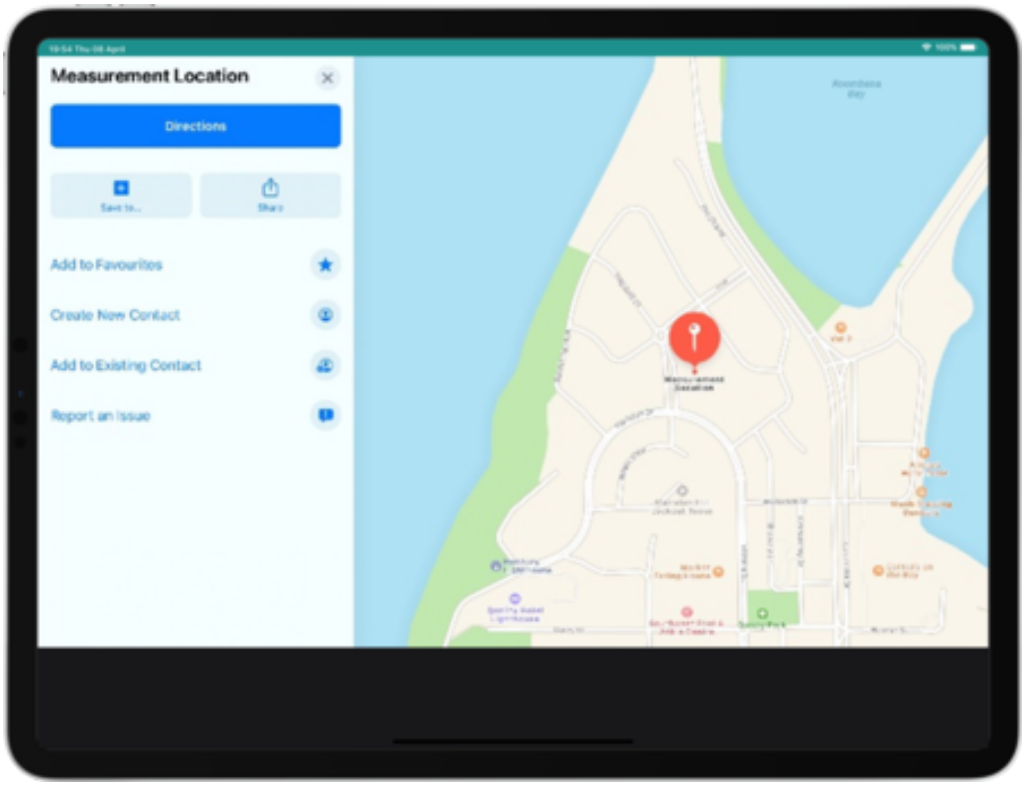
Locate and Map Subsurface Utilities at Different Depths

This application note describes subsurface mapping to locate utilities at a residential site in Perth, Australia.

The Stepped Frequency Continuous Wave (SFCW) Technology enabled the team to map with a **single** instrument and a **single** pass, both near-surface targets and deeper ones.

The area investigated was near the coast in Perth. Despite the high salinity of the subsurface, the SFCW technology can resolve targets at deeper depths compared to conventional pulsed systems.



Location of the utility survey very close to the coastal area of Perth, Australia. This location is captured in the GS8000 logbook on the iPad app. The user can also keep notes and photos in

Description of the investigation

The customer wanted to locate and map different services, including gas, sewer and water - all at different depths and made by different materials.

Location of the utility survey very close to the coastal area of Perth, Australia. This location is captured in the GS8000 logbook on the iPad app. The user can also keep notes and photos in the state-of-the-art app.

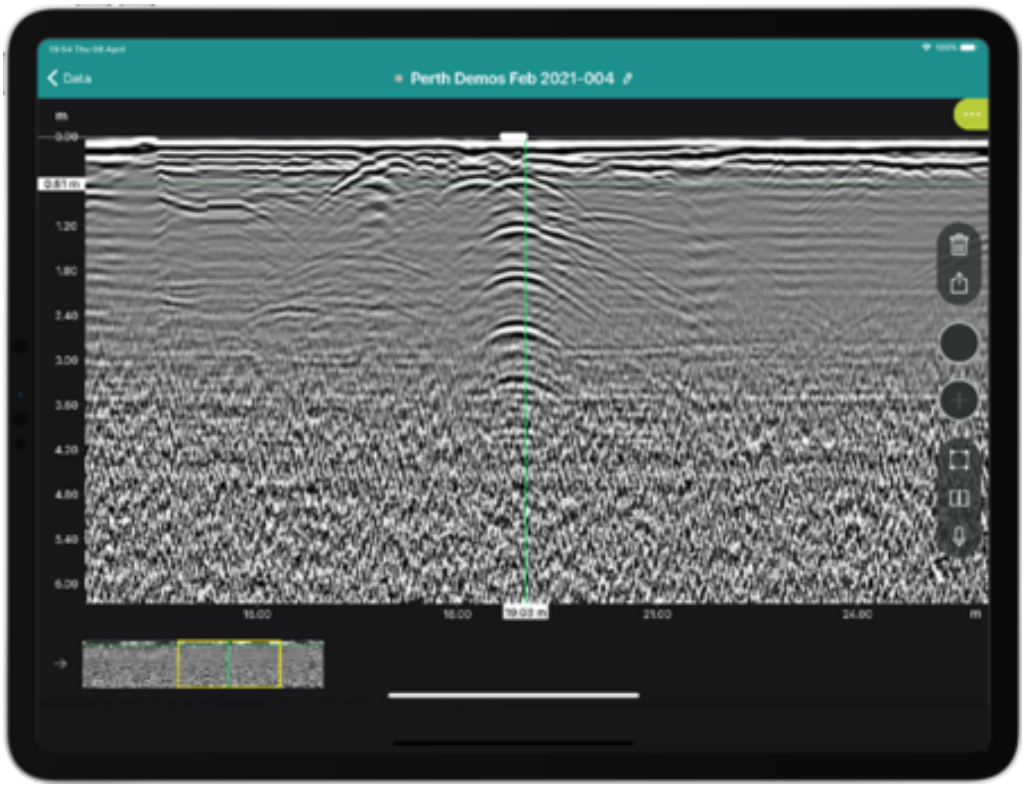
GPR data was collected in two directions, parallel and perpendicular to the traffic. The data was synchronized with the GNSS receiver (MA8000) connected to the GS8000, with no additional set-up.

A total of 10 lines was collected with varying lengths. All 2D lines were processed on the spot and report created in less than half an hour. Whereas other GPR devices need hours for collection and post processing, the GS8000 can deliver a full report to the customer without even going to the office.

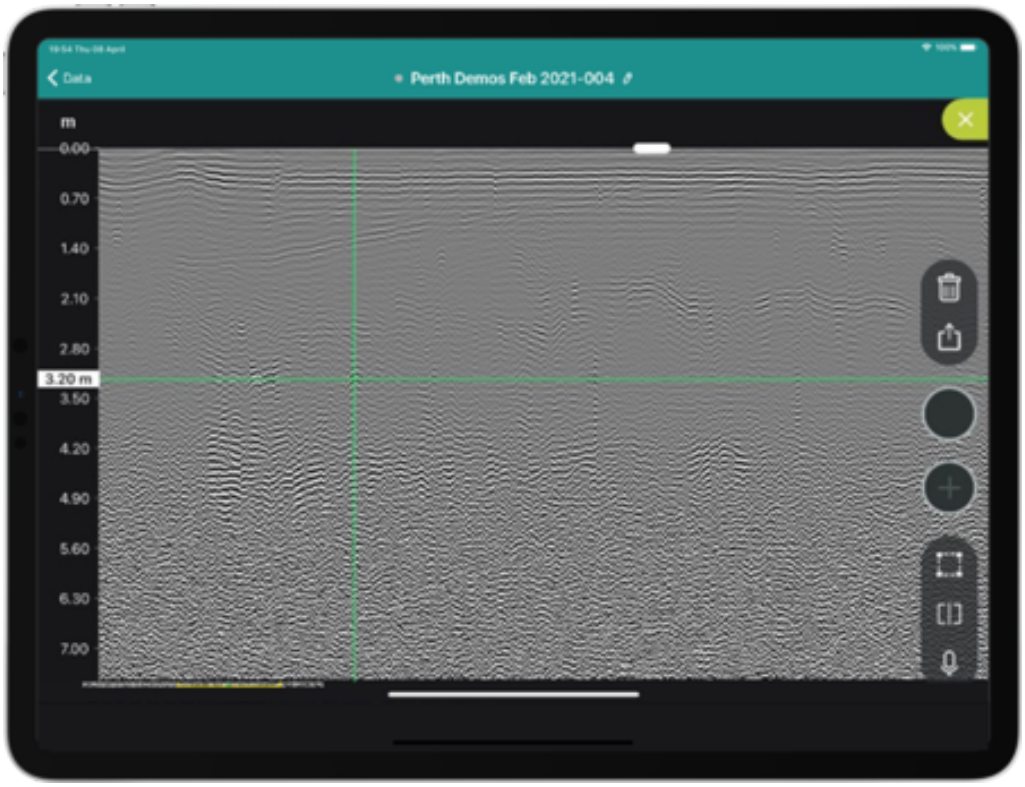
With two encoders and the flexibility to adjust the cart handle customer could collect data where other GPR units would stop. This way we make sure we do not miss any targets close to the edges/pavement.

Results of the investigation

The GPR data was easily processed in no time with the Proceq GPR Subsurface app running on the iPad. An HTML report for the customer was quickly generated and sent directly from the iPad. Results can also be exported in GIS or Google maps from the iPad.



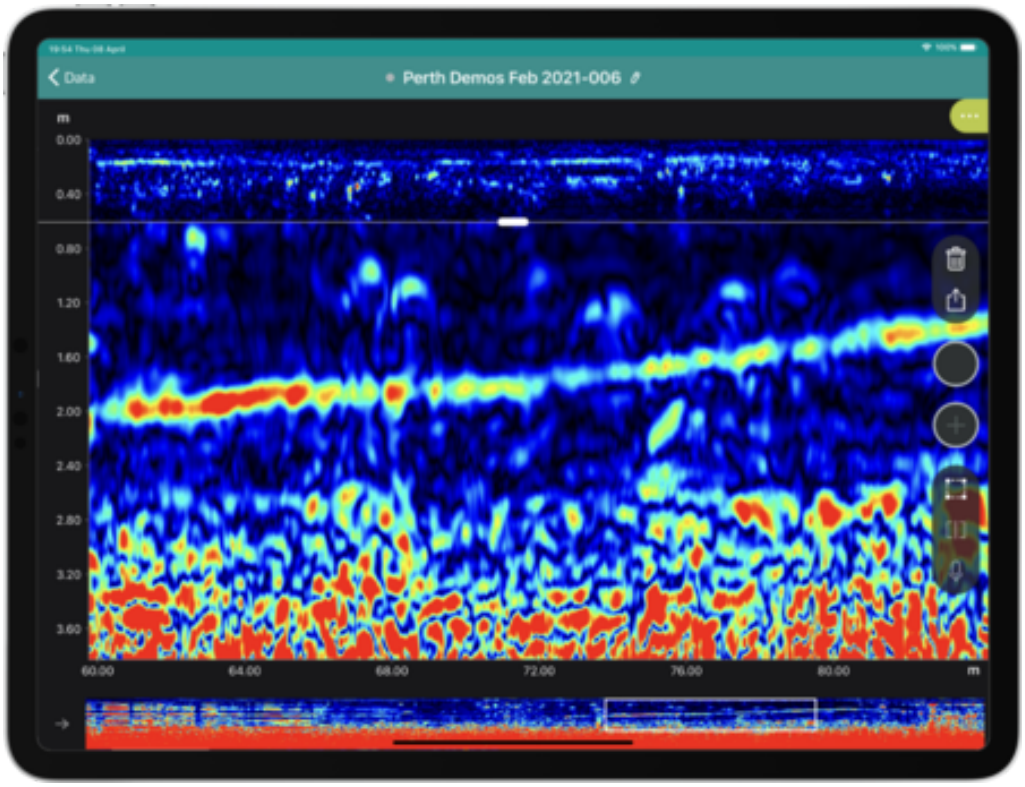
B-scan of the detected lines. Note the excellent resolution for both shallow and targets down to almost the sea level, around 3m.



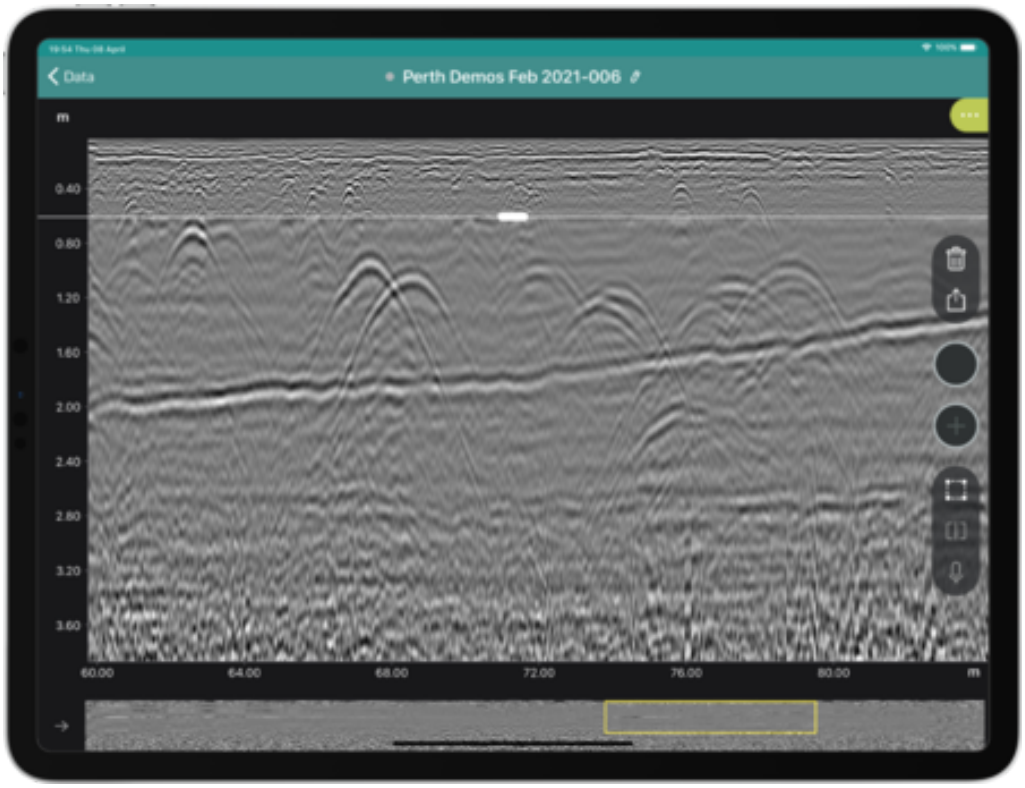
Small target detected at more than 3.2m depth (refer to the intersection of the green cursors).

Conclusion of the investigation

The survey in Perth, confirmed to the customer that the GS8000 is an excellent tool to locate and map utilities of different materials, at different depths and under different environmental conditions. The easy and intuitive working environment offers the fastest data collection in 2D and 3D mode and shortest reporting time existing in market.



Migrated and non-migrated view of utilities detected.



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