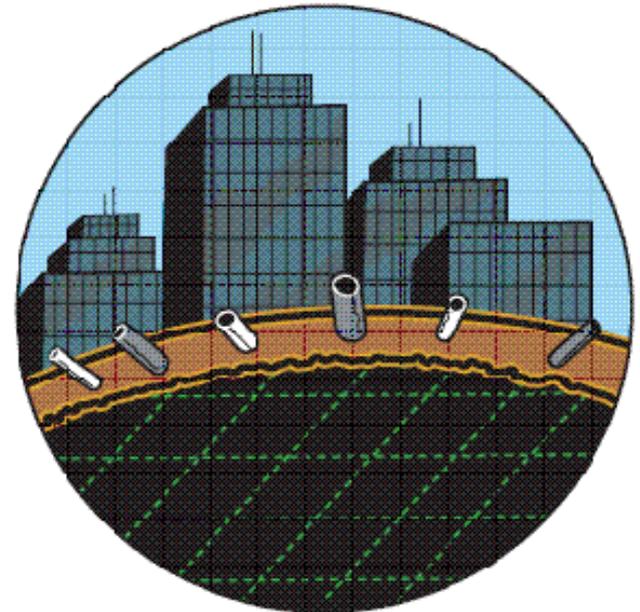


Mapping the Underworld

Results from a Field Trial

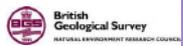
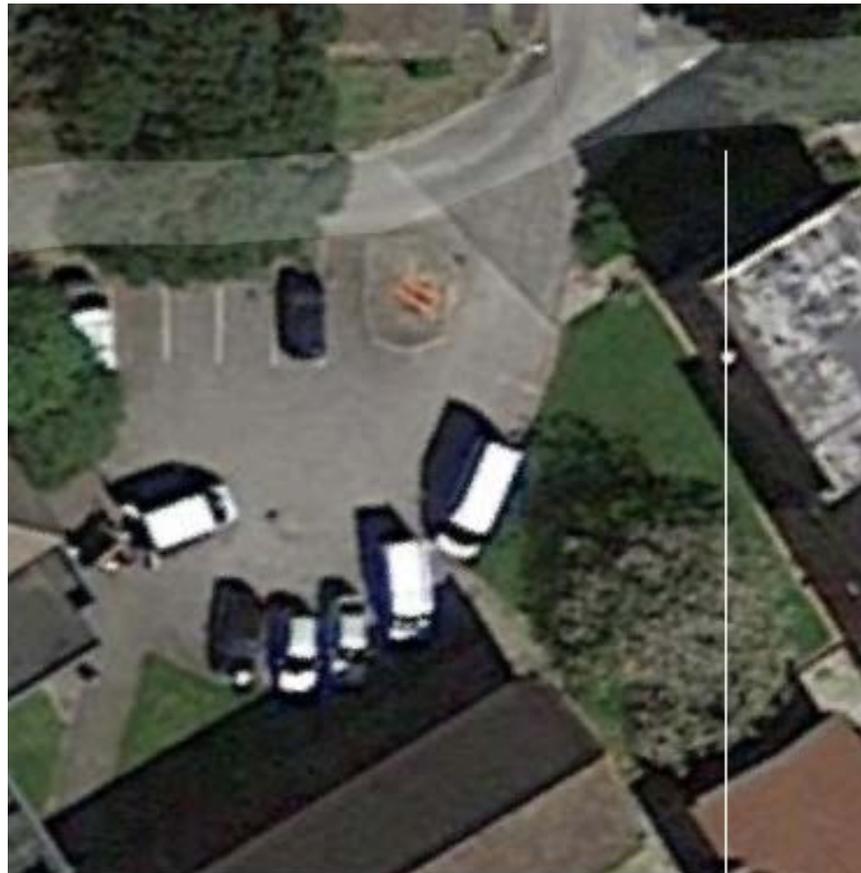
Chris Rogers
... and Tony Cohn



Aim of the Field Trial

Validate MTU sensor technologies on a site where (under)ground truth could be determined

After several false starts, a car park at the University of Southampton was finally identified





Survey car park with MTU sensors



Combine data from MTU sensors to map area surveyed



Invite commercial survey companies to map as well



Permission obtained to subsequently dig ~12 test pits



... unfortunately digging delayed until Q1 2016



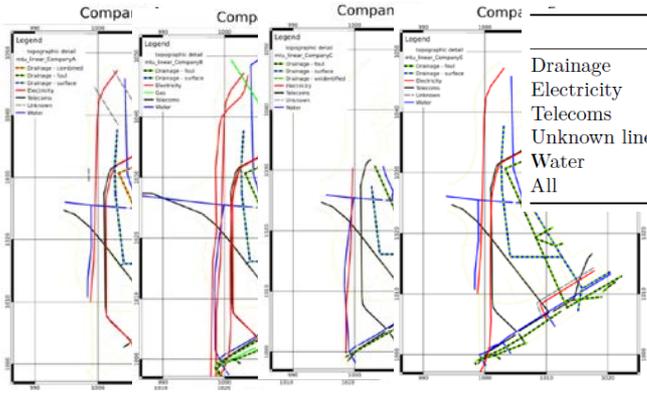
... this precludes a presentation of the findings



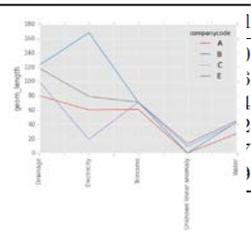
During the excavation phase, we plan to bury sensors and use this site for further (ATU) testing



Commercial Survey Results



	A	B	C	E	All
Drainage					
Electricity					
Telecoms					
Unknown line					
Water					
All					



Four commercial surveys were carried out and the results were delivered in a timely and professional manner

... as you'd expect

There was encouraging correspondence

... again as you'd expect

And there were some points of difference

... maybe again as you'd expect

The 'ground truthing' is needed to explain these differences

The following MTU technologies were deployed:

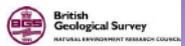
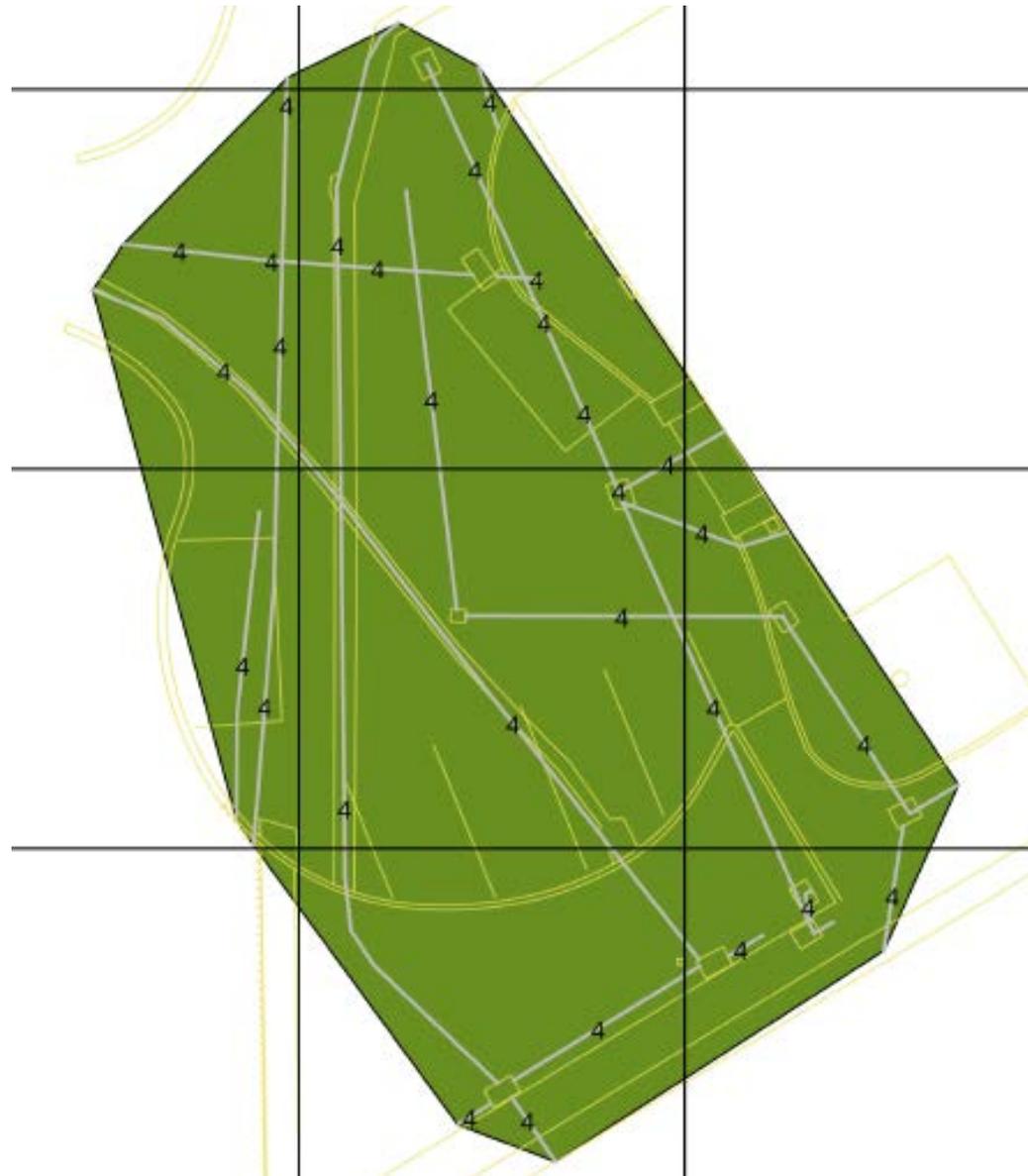
- Passive Magnetic Field sensor (PMF)
- Magnetic Gradiometer
- Pipe Excitation
- Ground Excitation
- Low Frequency Electromagnetic Field sensor (LMEF)
- MTU Ground Penetrating Radar (GPR)
- Commercial GPR
- Street Furniture survey
- Intelligence on Ground Properties



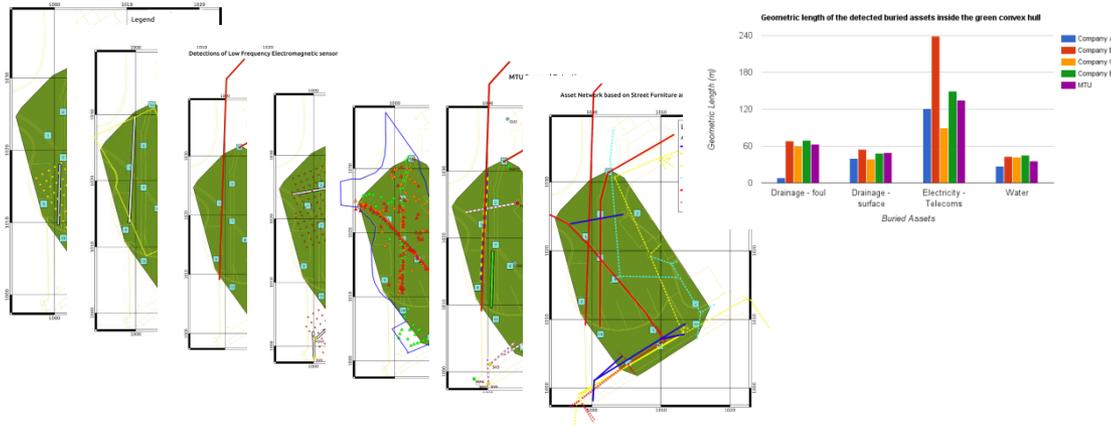
Restrict area of analysis to convex hull of area with all 4 companies identifying assets.

We provided a brief to survey the car park in whatever way was considered appropriate ... *and some went farther than others (geographically).*

The MTU team tried some ATU techniques ... *and also went farther*



MTU Survey Results



The MTU sensor technologies were deployed and the data fed to the Leeds team to synthesise

... as you might expect

There was encouraging correspondence with the commercial surveys

... again as you'd expect

And there were some points of difference

... maybe again as you'd expect

The 'ground truthing' is needed to explain these differences



Conclusions

Our agreement with the commercial survey companies preclude us presenting the results today

... it simply would not be fair to speculate

There are, however, some general observations:

- We were delighted with the response of the surveying companies who have collaborated with us

... this, and parallel activity (e.g. the PAS), reflects well externally

- We are in a far better place than we were when UKWIR carried out this same exercise more than 10 years ago

... the differences, if they prove to be real differences, are likely to prove marginal rather than fundamental

- MTU was always about delivering improvements in the sensor technologies and how they might be combined

... and we have reported on these previously

... our ambition remains high, and our work on ATU will de facto enable us to advance our MTU thinking

- We will create a final report and forward it to you



ASSESSING THE UNDERWORLD

