



## Listening to the user



At Sigma Seven, a key element of our culture is working closely with our users to ensure that we are giving them the tools that they need to improve the effectiveness of their field work. We regularly seek feedback from all levels of our user community, from senior management to the operational staff. In this edition of Field Views, we share recent feedback from staff at three of our customers, each with different operational requirements.

You'll find articles on SEPA and Symbion Power elsewhere in this issue but in this section we will concentrate on GeoField's users at ScottishPower. These include the company's first responders, asset inspectors, new connections coordinators and vegetation management teams; all have

different requirements and use a number of different types of mobile device to perform their field work.

We started by asking the teams what single aspect of GeoField they would like to change to make their working lives easier. The responses can be effectively split into two categories. The first concerns areas where GeoField or the mobile environment can easily be re-configured without further product development. Our users want network tracing in GeoField to be enabled for all voltages, not just LV; expanded cable tooltips to include more attributes from the full record, and more options in the Asset Search facility. Thanks to the configurability of GeoField, ScottishPower can implement some of these requests themselves and we are in the process of addressing the rest. ▶

**The biggest business benefits of mobilisation were listed as quicker response times; faster restoration times for customers and better performance results to report to the industry regulator.**

## Value of field trials

**What happened when SEPA put GeoField on the frontline with their operational staff?**

Since April, field staff at the Scottish Environment Protection Agency (SEPA) have been evaluating GeoField as part of their Priority Catchments Project.

Dr. Jonathan Bowes, Senior Data Analyst/Modeller at SEPA, comments, 'The pilot has attracted a great deal of attention across SEPA as this concept of paperless field work is applicable right across the board at SEPA. Potentially it could revolutionise major parts of SEPA's business under the "spend to save and improve" umbrella.'



Among Dr Bowes' key findings were that trials offered a comfortable introduction to electronic data collection for the operational staff and that feedback from the staff meant that GeoField could be tweaked to improve performance of the system.

'We selected GeoField as it is lightweight, simple and fully customisable to SEPA's business needs,' says Dr Bowes. 'The pilot aimed to prove the concept of paper-replacement for field surveys. This pilot simply needed to highlight the efficiency savings in time and therefore money, as well as the raft of other benefits that a digital capture system would bring to SEPA systems.'

## Welcome...

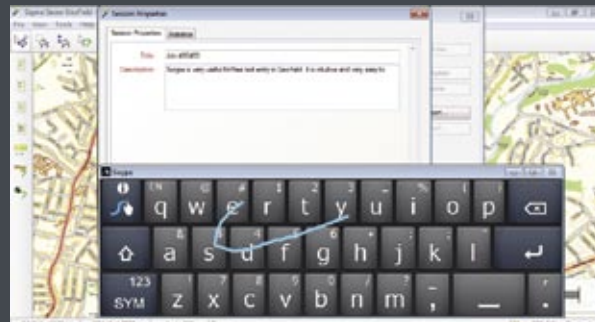
**W**elcome back. I hope that you all enjoyed a nice summer break. The frontline staff that use GeoField are at the heart of Sigma Seven's business. Our goal is to make GeoField the most usable and effective solution for map-based field work management. Meeting this goal requires us to concentrate on both the requirements and the challenges of field-based workers in the utility, environmental services and public sector markets.

So, in this edition of Field Views, we are focussing on the views of our field users. In particular, we asked how they use GeoField in their

daily work; what changes to their field working tools would make life easier, and what benefits they gain from the mobile platforms that our customers have put in place.

Remember that you can access Field Views from anywhere at any time, via our blog at [www.fieldviews.co.uk](http://www.fieldviews.co.uk). You will also find news snippets and items of interest from the world of map-based mobile working.

For example, you can check out the exciting new on-screen keyboard technology from Swype, designed to greatly improve the speed of free-text entry for mobile devices. We've been working with Swype



Swype and GeoField: speeding up data entry

to integrate their technology with GeoField and we love what we've seen so far.

Best wishes,

Paul Reid | Managing Director

## Listening to the user continued from page 1

► The second category of requested enhancements are 'wish-list' items that have been on hold pending the upgrade of mobile hardware and communications infrastructure; the most common request being an increase in the frequency of map updates. ScottishPower are mature users of mobile technology and some of their devices are naturally reaching end of life.

So, users are eagerly anticipating ScottishPower's planned upgrade, giving wireless communications and enabling incremental updates of mapping data.

When asked about the best feature of GeoField, responses included: ease of use; clarity of the layout and map display; the speed of refresh when navigating around the maps and the ability to quickly change the map display to show or hide groups of assets or background maps depending on the task at hand. The biggest business benefits were listed as



Ease of use is vital in the field

quicker response times; faster restoration times for customers and better performance results to report to the industry regulator. Reduction in travel time was also a big plus as the users don't have to visit the office for maps and can access the full network records wherever they end up working throughout the day.

In terms of hardware, some users of the smaller convertible Tablet PC devices are keen for a slate-style device with a larger screen. Others commented that the Tablet PC is a nice user-friendly platform for those not familiar with a PC, mouse and keyboard combination, as the point-and-click stylus feels natural and intuitive.

The common threads that emerged from the survey are: the importance of usability and assessment of fitness for purpose; a desire to capitalise on the performance benefits from better hardware and communications

infrastructure and a sense of pride and ownership through respect for mobile technology and the assistance it provides.

When implementing field working projects we always encourage customers to engage their field staff at as early a stage as possible to improve the chances of success for all stakeholders. This exercise shows the value in maintaining this dialogue long after the roll-out, as the feedback can be used to make adjustments to the mobile environment, ensuring that the tools are set up to make the field-working day as pain-free and productive as possible.

Finally, we would like to say a big thank you to the following for their help in this survey:

Dave Clarke, Guy Jefferson, Duncan McCallum, Michael Alexander, Steven Davidson, Warren Finney, Alan Harding, Steve Burns, Jock Dubickas, Eugene Kenny, Rob Lowe, Niall McCall, Brian Ness, Terry Richards, Gregor Small.





## Address data sorted

Andy Gosney delivers the good news about Sigma Seven's address solution

**S**igma Seven is launching NLPG Mobile Manager, a new application which allows gazetteer custodians to edit and create address data records in the field using mobile technology. Based upon the successful GeoField platform, this unique product has been developed for the local authority market in the UK.

In collaboration with Nottingham-based Rushcliffe Borough Council, the solution has been developed to help manage the Local Land and Property Gazetteer (LLPG) data that each local authority is legally obliged to maintain. This in turn flows into the National Land and Property Gazetteer (NLPG) which is commercially available as a national address dataset used for finance, retail and government purposes such as the census.

Currently, to maintain data in the field, custodians use processes which have involved the use of

thousands of paper plots. This is hardly an all-weather method and data is routinely returned to the office damaged, degraded, or simply missing. The subsequent manual data input process to actually get new or edited address information into gazetteer and GIS systems is time consuming and is often hindered by the poor state of data. This is a fault of the process and undermines the hard and diligent work of the custodians and their teams of field workers.

NLPG Mobile Manager gives the custodian the tools to collect data at source with all his/her existing data (e.g. OS MasterMap and existing LLPG records) to hand and providing a precise context. The data is stored electronically in an industry standard format which can be paired with the office gazetteer software. This cuts out the manual data entry process and removes



NLPG Mobile Manager:  
mapping address data  
made easy

any chance of data degradation.

The intuitive interface displays easy to follow data edit and creation functions that can be taught easily and quickly to field workers, even non-experts. This tool has been designed and developed by address data producers for address data producers and will create efficiencies and improved data quality. NLPG Mobile Manager is bundled with the powerful Viliv X70 Ultra Mobile Personal Computer (UMPC) as standard. A fully fledged UMPC, capable of all the standard Windows PC functions one would expect, coupled with a 6-8 hour battery life, makes the Viliv X70 and NLPG Mobile Manager an ideal combination for this kind of work.

Keep an eye on upcoming issues of Field Views where we will bring you a case study of NLPG Mobile Manager in action. Until then, if you have any questions or enquiries please contact [Andrew.Gosney@sigmaseven.co.uk](mailto:Andrew.Gosney@sigmaseven.co.uk)

## Nine out of ten pilots prefer GeoField

Symbion Power and PDG Helicopters assess two years with GeoField

**O**ver the last two years, Symbion Power and PDG Helicopters have used GeoField for all their aerial power line inspection work. In this time they have experienced the benefits that adopting GeoField can bring: many of them were planned, some were unexpected.

Adam Crick, General Manager of Symbion Power, explains some of the planned benefits.

'Most significant for us is that Symbion have gained a competitive advantage and have won additional work as a result of using GeoField. The pilots think using GeoField is great and would find it difficult to go back to the old paper-based method of working.'



Pilots prepare for another inspection flight

**Symbion have gained a competitive advantage and have won additional work as a result of using GeoField.**

Users have also found that the quality of the inspection results has improved dramatically – being more complete, accurate and at a detail that couldn't be achieved by using a paper-based system. Among the more unexpected benefits, using GeoField has fostered a more collaborative relationship with the customer, particularly in improving the existing data quality. Areas that had been previously considered to be missing or wrong. Many of these errors lay undiscovered in systems for years and probably would have remained there without this partnership working.

'Clients have found that their data is not as good as they thought it was,' says Crick. 'These gaps are being closed and now clients are much more aware of how they can use their data.'

The experience of Symbion Power, PDG and their customers have been so positive that they have already started to push this application into their other services such as condition assessment inspections, thermal imaging and corona discharge surveys. They already have plans to supplement these types of inspections and their standard Tablet PC-based visual patrols by integrating GeoField with video and still camera for a complete inspection package.

## How accurate is GPS?

In the second of a series of articles on GPS, Andrew Coleman looks at the factors affecting accuracy

On their journey from space GPS transmissions are disrupted by the Earth's atmosphere, tall buildings, trees and radio interference. Add in electronic errors and astronomical ephemeris and the accuracy of an uncorrected GPS signal is only fifteen metres. GPS units can fail to get any fix.

In theory, just three readings should be enough to triangulate a position. In reality the GPS data do not intersect at a single tidy point but to an area in which your unit has to 'guess' where you are. By adding additional signals from other satellites, good GPS handsets can narrow down the area. Up to nine satellites can be visible in a clear sky.

Manufacturers have developed an arsenal of techniques to further reduce uncertainty. That extra smart software and processing power comes at a price. Good

general purpose handheld GPS devices are now correct to five to ten metres and there are several options which offer greater accuracy.

Differential GPS (DGPS) uses multiple ground stations located at accurately-surveyed points to measure the errors in GPS satellite signals and produce a constantly updated 'corrections map'. This map can be used to adjust the local readings made by roaming GPS units. Sub-metre real-time accuracy is possible with DGPS.

Terrestrial DGPS uses ground based transmitters to broadcast corrections for your area to your GPS unit. Commercial subscriptions to this are available in many countries including the UK.

Satellite Based Augmentation Systems (SBAS) work much the same way but the corrections



are broadcast from satellites. The service, called EGNOS in Europe, is now integrated in some GPS Tablet PCs. For EGNOS, just one satellite in geostationary orbit covers the whole of Europe, Middle East and Africa. So the signal is weak and low in the sky for northern latitudes. While this limits accuracy and availability, SBAS has the advantage of covering wide areas and being free. Precision of two to five metres is reported for SBAS-enabled GPS.

Where real-time accuracy is not needed, Post-processed DGPS works by storing all your measurements in the unit's memory and relying on computer software to later correct the positions. Accuracies up to ten centimetres are possible this way but you cannot see or correct readings in the field. More in part three.

## Meet the team: Jim Downie

Jim Downie is a founding member of Sigma Seven and brings a wealth of enterprise level systems integration experience to the team. Originally an electrical engineering graduate from Strathclyde University, Jim utilises his considerable enterprise architecture skills in the implementation of GeoField projects within the Utilities sector. An expert in GIS integration, Jim has ensured that GeoField integrated smoothly with the enterprise infrastructure at ScottishPower, Scottish Water and Bristol Water.

In one such project, ScottishPower migrated their back office GIS to an ESRI platform. Jim supervised the project which was nominated for the AGI Innovation and Best

Jim Downie



Practice Award. 'We reconfigured the existing mobile solution for ScottishPower so that it was streamlined to their workflow requirement. GeoField is adaptable and configurable so that we can change the workflow to suit the business. The transition was straightforward and meant that the field workforce did not require any retraining.' A similar process is now happening as ScottishPower move to SAP.

One of Jim's current assignments is the implementation of a Low Voltage network control and status management solution.

'Within an electrical utility, the LV network is a fairly difficult thing to manage because it is vast and

has lots of people working on it constantly. We've been asked to implement a GeoField workflow solution where engineers can change the status of the switches in the field and send that information back to the corporate GIS. This way, the business knows exactly what the status of the electricity model is in near real time.'

When he is not busy integrating GeoField with companies' enterprise systems, Jim enjoys cycling. A regular visitor to the mountain bike centre at Glentress, he is happiest when hurtling down a mud track.

'I was introduced to it about five years ago,' he says. 'I enjoy it but I'm not the best at it. I've managed to break a few bones.'