

From Surveying to Incident Management



Working with the Environment Agency, Keith Nursey reports on how his career has moved from 'pure' surveying into various managerial roles and explains where he thinks his geomatics skills have helped.

My interest in surveying began while studying for my Geography degree at Aberystwyth University and during my post-graduate studies at University College London (MSc Surveying) I determined my early career path. Eight years followed; working for a small survey company, a national architect and a consulting engineer. This saw me employed on projects from the top of Scottish mountains, to the depths of the London Underground, in Royal palaces after the Windsor fire and on infrastructure projects such as the Jubilee Line extension and Crossrail (some projects take a while to see activity on the ground!).

During this period, I began to develop many of the analytical and geospatial skills of a surveyor, which would play a strong part in my later career. In addition, knowledge of CAD and IT skills, working in and leading teams, using my mathematical knowledge and taking responsibility for delivery, to name just a few, all increased my skills base.

In 1994 I joined the National Rivers Authority Thames Survey Group, (later to merge with other organisations to form the Environment Agency), under the job title of Surveyor Archivist. This role involved managing survey contracts (topographic, river channel surveys and deformation monitoring), GPS control and research and development work, developing specifications, validating survey data and managing a survey archive. Notable work included managing the contracts for monitoring the Thames Barrier and the GPS primary control for the Jubilee River. My first experience of major flooding came in Easter 1998 and my CAD skills were used to provide the maps and diagrams for the Government's Bye report. It was during this role that I became a chartered land surveyor, one of a surprisingly small number in an organisation which relies so heavily on geospatial data. During this period, I really began to understand the importance of a robust specification and the need to check the data from survey contractors.

New Millennium, New Opportunity

The year 2000 saw the start of change in my career path. I made an internal move to the South West of England to work under the title of Flood Defence Strategic Planning Engineer (Engineer!) and found myself immediately in the Flood Forecasting Room at Exeter: I have often found myself in the incident room when subsequent floods have hit the south west. The floods of October 2000 were extensive and my role involved predicting and monitoring flood levels, and issuing flood warnings. Team work, analytical work, communicating, both verbal and written, were required, all available from my previous work as a surveyor. This period saw another significant flood, at Boscastle in Cornwall. Here I worked with the EA's in-house geomatics team and external contractors to provide vital data to our operational teams: aerial photography and Lidar being used to show the routes of the flood water. Out of the incident room I developed a regional survey strategy for the Flood Defence team, along with a programme for introducing GIS into the local offices. Especially beneficial was bridging the gap between our engineers and the survey contractors, and managing the engineers' expectations.

Flood Mapping

A logical step, and an important part of my development, was to lead the Flood Mapping and Data Management team in the Devon Area office - the public and professional partners face of the organisation. Leading a team of skilled flood modellers and flood mappers, our work saw rapid development of the Environment Agency's Flood Map showing river and coastal flood risk. River channel and flood plain topography are vital ingredients for river modelling, whilst beach topography, sea level and wave data are vital for coastal flood modelling. As a sideline, I was given the role of business and financial planner for all elements of flood risk in the area, again a role using the analytical skills gained as a surveyor. This specific role especially established a good understanding of the wider aspects of flood risk management.

During this period in the Devon area, I also began to work with colleagues from the non-flood part of the organisation, leads from fisheries and biodiversity, climate change, pollution and waste. Before I left this role I became a chartered environmentalist, an accreditation that provides a respected benchmark for individuals working to mitigate and solve environmental challenges.

Long-term Planning

My next development opportunity saw me managing a team responsible for the delivery of our strategic long-term plans, the Shoreline Management Plans and Catchment Flood Management Plans. Both look at the most sustainable approach to managing flood and coastal erosion risks over the next 50 to 100 years. Again the evidence base is critical and geospatial information plays a key part.

Incidents and Emergency Planning

It is my recent role as an Incidents and Emergency Planning Manager that has taken me furthest from my original role as a land surveyor. I am very proud to have led the team in the South West responsible for ensuring that the Environment Agency is prepared for any incident which could impact on the environment. This includes not just flooding, but also pollution, waste fires, marine incidents, and incidents involving plants and animal health, to name a few. 2012 through to 2014 saw major flooding and damaging storms across the South West, with the scenes of the Somerset Levels and the Dawlish railway line fresh in our minds.

A key role was to ensure our incident rooms were always ready to operate, with the right equipment in place and with sufficient trained and exercised staff ready to ensure a robust response. At the same time, my team also undertook duty roles during the response. My duty role included leading an incident room responsible for ensuring communication of the situation on the ground, through to the management teams at our Head Office, which in turn could see information passing to Ministers and COBR (Cabinet Office Briefing Rooms). Incident rooms are a hive of activity, pressured with demand from all directions and with a need to respond quickly.

Rapid Problem Solving

So how did my surveying experience help in such a pressured environment? Clearly, having decision-making skills and the ability to work independently, or as a team leader, proved to be essential traits that I originally demonstrated as a surveyor. My knowledge of GIS meant that I could be clear on the requirement of our mappers, these people appreciating the clarity. Understanding what geomatics staff can and cannot do also helps manage the expectations of colleagues. Experience of IT systems associated with survey work in my early days, built the confidence for the occasions when systems occasionally struggle and the ability to conceptualise 3D information is a valuable skill.

For all my roles, probably the most important attribute gained as a surveyor is the ability to identify challenges quickly and to offer solutions. This is especially vital when managing an incident. Colleagues across the country come from various career backgrounds and it is this diversity that builds a professional flood and coastal risk management team. With the work we do so reliant on quality geospatial information, I feel that it is important that the organisation has a good number of staff with a surveying background, to provide the assurance that the data we use has been produced to the required standards and with the most appropriate techniques.

What Goes Around Comes Around

They say all things come round and after 20 years in the organisation, today I find myself in my fourth leadership role in the Environment Agency, and it is one that relies heavily on the work of surveyors. As the team leader of the coastal modelling and forecasting team, covering the English coastline from Kent to Cornwall to Cumbria, the data provided by surveyors is vital to ensure our evidence base is robust. It gives me the opportunity to reawaken my passion for surveying. Despite having not put up a tripod, looked through a telescope, or processed GPS data in many years, I am still asked about surveying and seen as one of our survey leads. I have to admit I'm a bit rusty, so a trip to GeoBusiness 2015 is required to get me back up to speed!

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