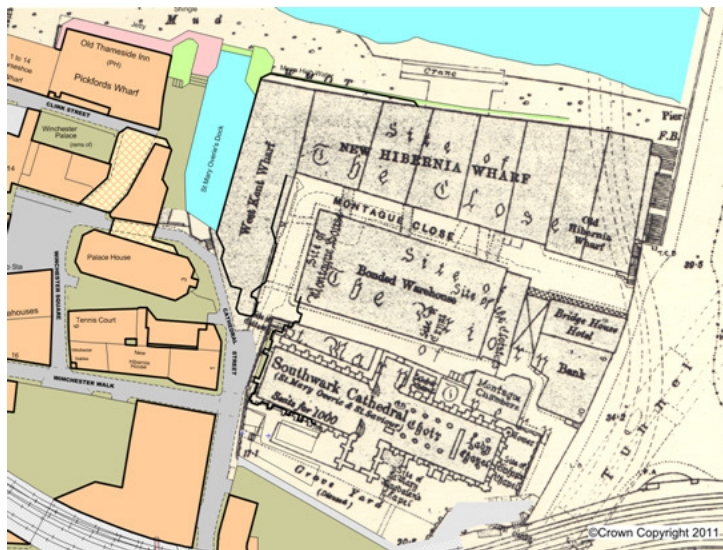




Bringing History to Life in Southwark

As part of their wide range of GIS services to clients, CDR Group has been making historic maps and drawings accessible for more than ten years. Their skills were recently called upon by the London Borough of Southwark. The GIS Manager at Southwark, Stuart Carter, had discovered an old archive of maps dating from between 1936 and 1952. Recognising the quality and potential interest of these maps Stuart realised that it was a shame if they were to remain hidden away. However given the age of these paper maps it was not appropriate to give the public direct access to them. Stuart Carter therefore engaged CDR Group to make this historic record of the Borough available both internally to the Borough and externally to the wider public via the internet.

The 82 maps Stuart had uncovered were Ordnance Survey maps from 1894 and 1922 but later amended by the London County Council between 1936 and 1952. The maps covered the whole of the Borough of Southwark and were each about A0 in size and were at a scale of 88 feet to the inch (or 1:1,056 for you younger people!). The maps were now out of copyright and were free to be published.



CDR's task involved firstly scanning each of the maps using their large-format scanning equipment. Each map was enclosed in a transparent plastic cover for protection and then scanned in 16 million colours at a resolution of 300 dpi. As a by-product of the exercise these full-size images were provided to Southwark as an archive. Each of the scanned images was then cropped along what is known as the "neat line". This is the line that borders the actual mapping area of the plan, and excludes the legend, title, scale-bar etc that adorn the outer edges of the maps. The cropped images were further manipulated to produce a true rectilinear image with the top edge of the map being horizontal. (This process is necessary to remove the distortions in the paper map that occur over time due to paper shrinkage, stretching due to hanging, manual handling etc). The fourth stage is to generate geo-referencing data for each image. This is a process whereby the geographic position of each image is recorded in such a way that, when displayed in a GIS system, the map image will appear in the correct position in relation to other mapping data such as modern Ordnance Survey digital mapping.

The geo-referenced map image can be loaded into a GIS such as MapInfo Professional from Pitney Bowes and viewed in conjunction with other geographic data. However with 82 images in total, finding the ones that you want to view can be a fiddly job. CDR Group utilised the Seamless Manager feature in MapInfo Professional to generate a single seamless map. This is a single MapInfo table that can easily be loaded by the user and which then automatically displays the correct geo-referenced images covering the area being viewed by the user. This enables the user to pan over the whole of the Borough of Southwark without needing to keep loading up individual maps.

Now we can see why it was necessary for CDR Group to crop the original images. If the cropping and subsequent processing is carried out with sufficient accuracy, the seamless table will appear just that – seamless. The GIS user sees an unbroken display of the historic map data and is unaware of where the edges of the individual paper plans are. The historic data can then be easily compared with other data such as the current Ordnance Survey mapping and data created by various departments within Southwark.

Stuart Carter's ambitions reached beyond this however. As an early adopter of Pitney Bowes' Stratus Connect internet based mapping software, he had already implemented the web-based dissemination of map-based information to the general public. He now wanted to make these historic maps available to the public too.

At this point we need to talk technical! We are all familiar with the modern Ordnance Survey mapping (either paper or digital) which is based upon the British National Grid, and is surveyed using what is known as a Transverse Mercator projection. (A projection is a complex set of mathematical rules designed to depict features on a three-dimensional object such as the Earth on a two-dimensional object such as a piece of paper or a computer screen). However prior to the Second World War, when these historic maps were originally surveyed, the Ordnance Survey were making use of a different project – a Cassini Projection. (Those interested in this topic might like to visit www.ordnancesurvey.co.uk/oswebsite/freefun/geofacts/geo1164.html). The difference in projections leads to a spatial distortion when one set of maps is compared to another. In simple terms, what is a rectangle in a Cassini projection becomes something approaching a parallelogram when viewed using a Mercator projection.

Whilst viewing the historical maps using MapInfo Professional the user is not aware of this issue. The MapInfo software compensates for the differing projections automatically. However web-based software is a different kettle of fish! In order to publish the historic map images via Stratus Connect CDR Group had to re-project the seamless map into a series of rectangular images that were true rectangles when viewed in the Transverse Mercator projection. This was successfully completed and the public can view the finished data by going to http://www.southwark.gov.uk/info/200212/egovernment/1776/old_maps_of_southwark

The County series of maps that were produced by the Ordnance Survey for almost the whole of the country are of particular historical interest. Not only do they provide accurate large scale mapping, but the maps are also extensively annotated. Locations such as schools, public houses and hospitals are named, and industrial buildings are not only named but usually show the type of industry as well – for example Pickling Works, Wire Works, Dye Factory etc. This provides historical and sociological information as well as geography. Indeed CDR Group has used mapping such as this to help Local Authorities identify potential areas of pollution as a consequence of historic industrial activity that no longer appears on a modern map.



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CDR Group

Eccles House, Eccles Lane, Hope, Hope Valley, S33 6RW, U.K.

Tel: 01433 621282

Fax: 01433 621292

EMAIL address: sales@cdrgroup.co.uk

Web site: <http://www.cdrgroup.co.uk>

