

A Guide to the

# Chartered Geomatics Surveyor



# What is a Chartered Geomatics Surveyor?

A Chartered Geomatics Surveyor is a professional that maps the built and natural environment to provide accurate spatial data which facilitates planning, development and conservation. Geomatics is one of the most technologically advanced of the

surveying specialist's roles and has a key role in a diverse range of sectors.

Geomatics Surveyors are involved in the property and construction industry, off shore engineering and geographical information systems.

## Geomatics Surveying and advancing technology

Geomatics surveyors use the latest state-of-the-art survey equipment, employ satellites and aerial imagery, work with advanced survey and geographic software systems to provide solutions, expertise and knowledge that address the needs of individuals, state bodies, government and multinational companies. On a global scale, Geospatial information is used by organisations such as United Nations and World Bank for policy analysis and visualisation purposes.

Continuous technological developments in the collection and processing of this information include Laser scanning, airborne sensors (including Unmanned Aerial Vehicles, UAV's), developments of web based Geographical Information systems and real time processing of spatially related information, together with Global Navigational Satellite Systems and require Chartered Geomatics Surveyors to constantly keep abreast with these advancements.

Geospatial Information possesses both position and descriptive attributes which are key components of surveying, mapping, Geographic Information Systems (GIS) / and Building Information Models (BIM). Digital models in 2D and 3D created using Geospatial information can be integrated with other Geospatial Information into a BIM or GIS and used to assist decision making at all stages of the project life cycle together with at local, regional and national level to ensure efficient and sustainable solutions of our environment for now and the future.



# Services provided by the Chartered Geomatics Surveyor

The Chartered Geomatics Surveyor's scope of service is extensive and practitioners tend to specialise in particular areas. Services provided may typically include the following:

- Topographical surveys – the production of accurate topographic plans and models in 2D or 3D showing the topography of the landscape, together with site extent and all services on or close to it and access information is a primary responsibility for the Chartered Geomatics surveyor.
- Setting out – Chartered Geomatic Surveyors are employed to set out, to a high specification new structures of varying complexity on the ground. A survey control network of permanent reference points on site in local or national grid to millimetre accuracies will be established for this purpose by the Chartered Geomatics Surveyor.
- Area Measurement of Buildings -The Chartered Geomatics Surveyor is experienced in providing Area Measurement Surveys, and adhere to strict codes of practice to ensure accuracy. Area Measurement Surveys can be used to determine the Net Internal Area (NIA), Gross Internal Area (GIA) and Gross External Area (GEA) of a building. The NIA can be used as the basis for Property Valuation, Rating, Property Management and Marketing. Area Measurement Surveys are essential for commercial and residential properties.
- Legal Surveys – Chartered Geomatics Surveyors offer a range of legal mapping services including the preparation of deed maps, interpretation of existing deed maps to assist in, establishing the extent of property title interests and legal boundaries and easements including rights of ways on the ground, land registration mapping, and property subdivisions. They act as mediators and expert witnesses in relation to boundary disputes.
- As built surveys using 3D Laser Scanning – The Chartered Geomatics Surveyor can undertake as built surveys using 3D Laser Scanning to provide a high level of detail of complex buildings or objects in a fast, accurate and safe way, and where traditional methods of data capture would not be feasible. The Laser Scan information can also be used in the creation of elevation drawings and for area and volume measurements within the building.
- Utility surveys – Provision of complete and accurate utility surveys above and below ground level, ranging in all sizes and levels of complexity, is another service that the Chartered Geomatics Surveyor can offer. The end product is provided in a format suited to the client's requirements and which can be easily integrated into a GIS if required. Different methods for data collection are used to produce accurate and complete data for below ground and include Ground Penetrating Radar (GPR). Additionally, 3D Laser Scanning and Aerial LiDAR are used to map utilities above ground to create a complete picture above, on and underground for the creation of these utility maps.



- **Monitoring –** The Chartered Geomatics Surveyor is employed to monitor for displacement, deformation, strain and vibration above and below ground, to ensure that construction works stay safely within the specified tolerance limits. Project requiring this service range from bridges and structures, rail and road, post construction, demolition, pyrite damage to settlement and displacement and naturally caused land movement. Monitoring is carried out using a variety of monitoring sensors, including total stations, level sensors, laser scanners, tilt sensors, and geotechnical sensors, which enable geo-referenced movements in 2D or 3D to be determined. These data are collected at predetermined regular intervals and stored in a geo-referenced database where analysis is undertaken to determine if any significant changes have occurred over a period of time.
- **Building Information Modelling -** The Chartered Geomatics Surveyor is there from the very initial stages of the building life cycle. From green field site right through to the final stages of the building life cycle. At the beginning of the development the surveyor will carry out an accurate topographical survey of the site. Prior to commencement on site the Chartered Geomatics Surveyor will survey the site conditions, collecting accurate measurements and any other required data, and deliver this in a BIM. In the case of existing buildings, a 3D model of the building can be generated which is at the core of the BIM process. The Chartered Geomatics Surveyor is experienced in updating the BIM model with true As Built assets during the Project cycle. Accurate 3D coordination is fundamental to a successful BIM project and the Chartered Geomatics Surveyor can undertake this.
- **Aerial LiDAR surveys –** The Chartered Geomatics Surveyor offers Aerial Surveying and Mapping using Light Detection and Ranging (LiDAR) technology and fixed-wing aircraft or helicopter services. Examples of applications for the information provided includes corridor mapping for road, rail and utility sectors, city modelling, flood plain mapping and monitoring and forestry management.
- **Hydrographic Surveys –** Chartered Geomatics Surveyors can undertake hydrographic surveys to produce seabed mapping which are used to aid navigation, record tide height and determine sea floor material (i.e. sand, mud, rock), for anchoring, dredging, structure construction, pipeline and cable routing, coastal erosion, flood plain studies and fisheries habitat purposes.



# Chartered Geomatics Surveyors and the Society of Chartered Surveyors Ireland

The role of the Geomatics professional group is to promote high standards for the capture, processing, analysis, interpretation and management of data and presentation of Geospatial Information relating to the natural and built environment. The Professional Group have published a range of useful Client guides such as;

- Scale –Let's be clear about scale
- Map projection & scale factor
- Property and Land Boundaries, A checklist for purchasers
- A clear impartial guide to boundary disputes

For free downloading of Client guides or to access a list of Geomatics Surveyors in your area, please visit the Society of Chartered Surveyors Ireland (SCSI) website [www.scsi.ie](http://www.scsi.ie) or call 01 6445500



Dating back to 1895, the Society of Chartered Surveyors Ireland is the independent professional body for Chartered Surveyors working and practicing in Ireland.

Working in partnership with RICS, the pre-eminent Chartered professional body for the construction, land and property sectors around the world, the Society and RICS act in the public interest: setting and maintaining the highest standards of competence and integrity among the profession; and providing impartial, authoritative advice on key issues for business, society and governments worldwide.

Advancing standards in construction, land and property, the Chartered Surveyor professional qualification is the world's leading qualification when it comes to professional standards. In a world where more and more people, governments, banks and commercial organisations demand greater certainty of professional standards and ethics, attaining the Chartered Surveyor qualification is the recognised mark of property professionalism.

Members of the profession are typically employed in the construction, land and property markets through private practice, in central and local government, in state agencies, in academic institutions, in business organisations and in non-governmental organisations.

Members' services are diverse and can include offering strategic advice on the economics, valuation, law, technology, finance and management in all aspects of the construction, land and property industry.

All aspects of the profession, from education through to qualification and the continuing maintenance of the highest professional standards are regulated and overseen through the partnership of the Society of Chartered Surveyors Ireland and RICS, in the public interest.

This valuable partnership with RICS enables access to a worldwide network of research, experience and advice.

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