The New Israeli Survey Regulations

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SUMMARY

The new Survey Regulations of the state of Israel have been published this year. The Survey Regulations is the principal document that standardizes the professional activities in four key areas- geodetic control, mapping, cadastre and Geographic information systems. Licensed Surveyors and mapping professionals in Israel are required to work according to those regulations. The development of the regulations followed a long process of research and investigation into new technologies in geomatics. These new technologies include the emergence of advanced Global Navigation Satellite Systems, National Spatial Databases and Geographical Information Systems, Digital Photogrammetry and Laser Scanning and Remote Sensing technologies. These technologies have changed the core principles and working procedures of geomatics professionals. For this reason, surveying and mapping regulations, standards and specifications should be updated to reflect these changes. The regulations include major changes in the following fields:

In the Geodesy chapter, horizontal control is officially based on the Israeli network of Continuously Operating GNSS Reference Stations (CORS). The regulations were phrased in a manner that will allow minor datum changes to the CORS stations due to Earth Crustal Movements. Moreover, the regulations permit the use of GNSS for low accuracy height measurements. In additional new guidelines were developed for construction surveying. These describe all the surveying procedures in all the construction phases (foundation layout and marking, building columns positioning and marking, first floor approval, to the as-build map submission).

In the Cadastre chapter, the most critical change is the move to Coordinate Based Cadastre (CBC). Each parcel corner point is ranked according to its quality (accuracy and clarity of definition). The highest ranking for a parcel corner is 1. A point with a rank of 1 is defined by its coordinates alone. Any other contradicting evidence is inferior to the coordinate's values (Barazani and Felus, 2017).

Cadastral Information is stored and managed via the National Cadastral Databases.

In the Mapping and GIS chapter, digital maps or spatial databases replace the traditional paper maps (ranked by scale). These spatial databases are ranked by their quality level. Quality level is determined (similar to the ISO19157 Standard) by logical consistency, completeness, positional accuracy, attribute accuracy, temporal accuracy and usability. Metadata is another critical component of any spatial database. Every component in a map should have a metadata identification, even if the map was compiled from multiple resources. The regulations permit the use of advanced sensors and mapping techniques including LIDAR and digital cameras that have been certified and meet the defined criteria. The article reviews these new regulations and the process that led to their development.