

Cadastral Boundaries or Legal Boundaries?



A few months ago Pedro J. Ortiz, a land surveyor from Spain, read an article in *GIM International* titled 'Cadastral Boundaries from Point Clouds?'. In this column, he explains why he disagrees with the use of the term 'cadastral boundary'. His explanation includes a focus on the definition of 'cadastre'.

I am sure that most readers of *GIM International* know what the word 'boundary' means. I'm not a native English speaker but, in everyday terms, the usual understanding of the word 'boundary' is related to international borders rather than private property borders. However, if we add the adjective 'cadastral' to the word 'boundary', perhaps it will help us to go deeper into the topic. In my country, Spain, the word 'cadastre' is related to real-estate tax, which can also create confusion.

(By Pedro J. Ortiz, land surveyor and real-estate geoconsultant, Spain)

A generally accepted definition for 'boundary' is: *An imaginary line which marks the mutual extent and limits of two adjacent parcels of land*. This definition clarifies the way in which the main characteristic of a boundary becomes *'the legal line where the ownership rights of one person meets those of another'*.

Because of the inherent legal and non-physical characteristics, intensive surveying data capture is not really the best way to ensure security of ownership. Furthermore, the legal boundary may be delineated on the ground by physical features such as boundary marker stones, fences, walls, ditches, etc.

It is important, in the first instance, to look at where the boundary lines originate. In the case of an agreement between adjacent neighbours, it can be clearly stated where the boundary line lies. That is known as an 'agreed boundary' and shall then be registered at the proper real estate registry. In the case of a parcel subdivision, it is first necessary to gain administrative permission. Then the real estate must be legally divided, as a division or segregation, and the precise location of that sub-division must be recorded for future reference.

In both cases, there is a technical act that determines the precise location of the boundary. It is then important to record that boundary as a clear legal aspect, both on the legal document, i.e. title deeds, and by the land registry. Sometimes the land owner will need to physically fence the property (although, occasionally, due to the topographic nature of the land, a fence may be built as an offset from the true line). Once the boundary is described in the title deeds or any other kind of legal document, the recording of that boundary remains even after the physical boundary marking has disappeared.

There are several circumstances that do not require a fence to be erected. Transit purposes may require a gap to be left between the boundary and roads, rivers, railways, etc. Other times, there may be a natural boundary feature (a riverbed, a watershed, etc). These kinds of boundary features are not easy to determine with a flat orthophoto, and would ideally require a digital terrain model (DTM) as well. Nevertheless, the most important aspect is that the DTM shall represent/capture the date on which the boundary definition took place if it differs from the survey date.

In order to represent the boundaries in a map or a geospatial database, there is one critical aspect, namely the liability for this data. It should be remembered that there are three main parties involved in this issue; the land owner, the land surveyor, and the authority in charge of recognising the overall legality of the process.

In some countries, the land surveyor and the authority are merged into the same entity. This is an advantage in terms of security, economic agility and, finally, the overall responsibility. It should be borne in mind that a GIS operator (interpreting the captured data) will not, and should not, be responsible for any misinformation or mistakes caused by the boundary interpretation.

Those involved in the above process should never forget that the object of the exercise is to ensure certainty for property owners in the future.

About the author

Pedro J. Ortiz is a land surveyor and real-estate geoconsultant with more than 20 years of experience in the surveying industry. He owns the company GeoPropiedad in Marbella (Málaga-Spain) and is associate professor for the master's degree in valuation, cadastre and GIS at the University Miguel Hernández (Elche - Spain). He is also president of the Spanish Association of Geometry Experts (Land and Property Surveyors), secretary general of the International Land Measurement Standards Coalition (ILMSC) and former vice-president (2012-2014) of the Council of European Geodetic Surveyors (CLGE).

