

1 Article

## 2 Cadastre-Land Registry coordination in Spain: 3 application of Law 13/2015 and its effects

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11

12 **Abstract:** Ever since the Cadastre and Land Registry have existed in Spain, they have been  
13 completely separate organisations with very different objectives, which influence the real-estate  
14 reality. Their coordination is essential to better identify buildings and to more suitably render  
15 services to citizens and Administrations. To this end, Law 13/2015 was passed in 2015 for this  
16 desirable and pressing Cadastre-Land Registry coordination to come about. This law came into  
17 force on 1 November 2015, and coincided with the development of the technical aspects of the  
18 graphical information exchange among the Cadastre, Land Registries and Notaries. Several  
19 ministries and different organisations, like the Cadastre personnel, jurists, technicians, and even  
20 citizens, are implied in this law. Among the technical aspects, georeferenced graphical  
21 representations and GML exchange files adapted to the European INSPIRE directives stand out.  
22 Such technical aspects are a genuine revolution as they were transferred to the legal world. After  
23 more than 2 years after its application, it is still in its initial and adaptation stages because it is a  
24 long-standing law that allows land registry units-cadastral parcels to be coordinated while they are  
25 incorporated into real-estate trade.

26 **Keywords:** cadastre; land registry; notary; cartography; geomatic; coordination; GML; land  
27 surveyors

28

### 29 1. Introduction and background: Law 13/2015

30 Ever since the Cadastre and Land Registry have existed in Spain, they have been completely  
31 separate organisations with very different objectives: the Cadastre with its graphic base with a  
32 basically fiscal objective; the Land Registry as a voluntary registry of rights to real-estate properties,  
33 which initially lacked a graphic base. As their coordination was necessary and essential, after 3 years  
34 of debate the Government passed and published Law 13/2015 in June 2015, which allows  
35 coordination between them both. Law 13/2015 is in charge of amending the Land Registry Law and  
36 also the Law on the Real-estate Cadastre.

- 37 • Cadastre

38 The General Directorate for Cadastre (GDC<sup>2</sup>) manages 7,604 Spanish municipalities of a total  
39 8,124 throughout Spain (except for the northern Spanish regions of the Basque Country and Navarre  
40 as they have an independent, but similar, system to that used by the rest of Spain). These  
41 municipalities have 80 million urban and rural properties with special characteristics. By means of  
42 cartography, it continues to cover the whole national territory, and also comes in a digital format.  
43 Since 2006, this information can be freely obtained through the Cadastral Electronic Office (CEO<sup>3</sup>).

44 Thanks to the CEO services that require authentication, any citizen can download vector  
45 cartography as shp and/or dxf. The CEO received 77 million visits in 2017.

46 Descriptive and Graphic Cadastral Certificates (DGCC) are documents that accredit the  
47 physical, legal and economic data of the real-estate properties registered with the real-estate  
48 Cadastre, along with their graphic representations. According to cadastral regulations, these  
49 certificates must be included in all the documents authorised by Notaries which contain legal facts,  
50 actions or businesses that lead to modifications in the real-estate cadastre (changes in ownership,  
51 fiscal amendments to real-estate properties, etc.), and to the Land Registry. Inquiries of unprotected  
52 data can be made at the CEO, which can be freely downloaded; users must be accredited or  
53 registered to access full information. In 2017 6,940,532 DGCC were downloaded, of which 4.2 million  
54 were downloaded by notary publics (3,923,663 notaries and 261,507 registrars). Since Law 13/2015  
55 came into being, the GDC has had to redesign its DGCC.

 <b>GOBIERNO DE ESPAÑA</b> <b>MINISTERIO DE HACIENDA Y FUNCIÓN PÚBLICA</b>	SECRETARÍA DE ESTADO DE HACIENDA DIRECCIÓN GENERAL DEL CATASTRO	<b>CERTIFICACIÓN CATASTRAL DESCRIPTIVA Y GRÁFICA</b> <b>Referencia catastral: 05047A012000370000WL</b>

**DATOS DESCRIPTIVOS DEL INMUEBLE**

**Localización:** ER EXTRARRADIO Poligono 12 Parcela 37 CARDENILLO. 05480 CANDELEDA (ÁVILA)

**Clase:** Rústico  
**Uso principal:** Agrario

**Valor catastral [2017]:** 1000,411 €  
**Valor catastral suelo:** 1000,411 €  
**Valor catastral construcción:** 0,000 €

**Titularidad**

Apellidos Nombre / Razón social	NIF/NIE	Derecho	Domicilio fiscal
[REDACTED]	[REDACTED]	100,00% de usufructo	28029 MADRID [MADRID]
[REDACTED]	[REDACTED]	100,00% de nuda prop.	28803 ALCALA DE HENARES [MADRID]

**Cultivo**

Subparcela	Cultivo/Aprovechamiento	Superficie m <sup>2</sup>	Subparcela	Cultivo/Aprovechamiento	Superficie m <sup>2</sup>
0	PR Prado o Praderas de regadío	3.499			

**PARCELA CATASTRAL**

**Superficie gráfica:** 3.550 m<sup>2</sup>

**Parcela, a efectos catastrales, con inmuebles de distinta clase [urbano y rústico]**



Documento firmado con CSV y sello de la DIRECCIÓN GENERAL DEL CATASTRO. CSV: [REDACTED] (verificable en https://www.sede.catastro.gob.es) | Fecha de firma: 29/03/2017

**COORDINACIÓN GRÁFICA CON EL REGISTRO DE LA PROPIEDAD**

**Registro:** ARENAS DE SAN PEDRO

**Código finca registral:** 05001000166739

**Fecha coordinación:** 23/02/2017

*Este certificado refleja los datos incorporados a la Base de Datos del Catastro. Solo podrá utilizarse para el ejercicio de las competencias del solicitante.*

**Solicitante:** DIRECCION GENERAL DEL CATASTRO

**Finalidad:** Revista CT

**Fecha de emisión:** 29/03/2017



GOBIERNO DE ESPAÑA

MINISTERIO DE HACIENDA Y FUNCIÓN PÚBLICA

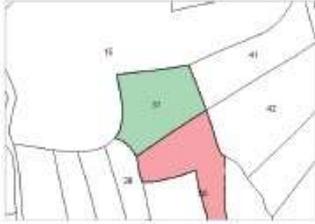
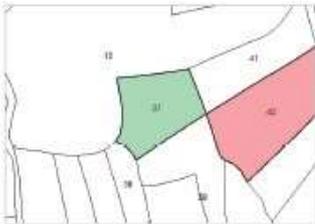
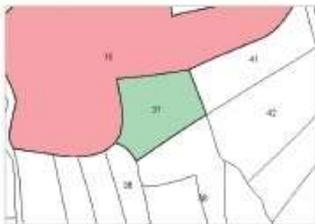
SECRETARÍA DE ESTADO DE HACIENDA

DIRECCIÓN GENERAL DEL CATASTRO

## CERTIFICACIÓN CATASTRAL DESCRIPTIVA Y GRÁFICA

Referencia catastral: 05047A012000370000WL

**RELACIÓN DE PARCELAS COLINDANTES**

	<p><b>Referencia catastral:</b> 05047A012000360000WP</p> <p><b>Localización:</b> Polígono 12 Parcela 36 CARDENILLO. CANDELEDA [ÁVILA]</p> <p><b>Titularidad principal</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Apellidos Nombre / Razón social</th> <th style="text-align: left;">NIF</th> <th style="text-align: left;">Domicilio fiscal</th> </tr> </thead> <tbody> <tr> <td>PEREZ GARCIA, JUAN</td> <td>45477000L</td> <td>05480 CANDELEDA [ÁVILA]</td> </tr> </tbody> </table>	Apellidos Nombre / Razón social	NIF	Domicilio fiscal	PEREZ GARCIA, JUAN	45477000L	05480 CANDELEDA [ÁVILA]
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PEREZ GARCIA, JUAN	45477000L	28032 MADRID [MADRID]					
	<p><b>Referencia catastral:</b> 05047A012000410000WT</p> <p><b>Localización:</b> Polígono 12 Parcela 41 CARDENILLO. CANDELEDA [ÁVILA]</p> <p><b>Titularidad principal</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Apellidos Nombre / Razón social</th> <th style="text-align: left;">NIF</th> <th style="text-align: left;">Domicilio fiscal</th> </tr> </thead> <tbody> <tr> <td>PEREZ GARCIA, JUAN</td> <td>45477000L</td> <td>05480 CANDELEDA [ÁVILA]</td> </tr> </tbody> </table>	Apellidos Nombre / Razón social	NIF	Domicilio fiscal	PEREZ GARCIA, JUAN	45477000L	05480 CANDELEDA [ÁVILA]
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PEREZ GARCIA, JUAN	45477000L	05480 CANDELEDA [ÁVILA]					
	<p><b>Referencia catastral:</b> 05047A012000420000WF</p> <p><b>Localización:</b> Polígono 12 Parcela 42 CARDENILLO. CANDELEDA [ÁVILA]</p> <p><b>Titularidad principal</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Apellidos Nombre / Razón social</th> <th style="text-align: left;">NIF</th> <th style="text-align: left;">Domicilio fiscal</th> </tr> </thead> <tbody> <tr> <td>PEREZ GARCIA, JUAN</td> <td>45477000L</td> <td>05480 CANDELEDA [ÁVILA]</td> </tr> </tbody> </table>	Apellidos Nombre / Razón social	NIF	Domicilio fiscal	PEREZ GARCIA, JUAN	45477000L	05480 CANDELEDA [ÁVILA]
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CSV:  (verificable en <https://www.sedecatastro.gob.es>) | Fecha de firma: 29/03/2017

Hoja 2/2

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(b)

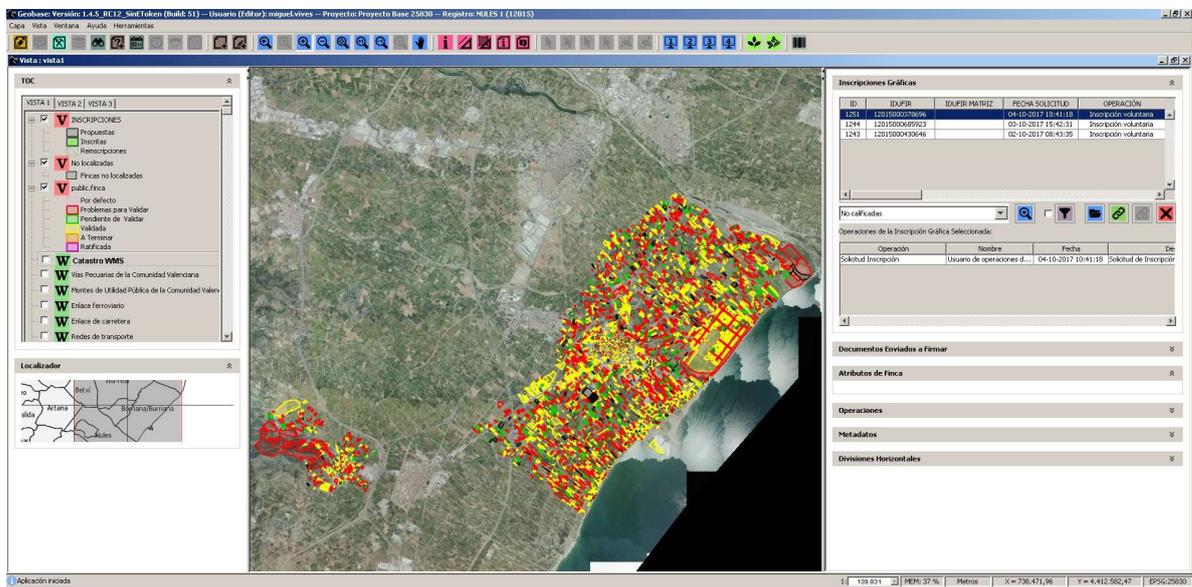
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**Figure 1.** A Descriptive and Graphic Cadastral Certificate (DGCC) of a coordinated land registry unit, according to the new design of 11/11/2016. (a) Main page, sheet 1/2; (b) The rest, sheet 2/2. Source: GDC

63 • Land Registry and Notary

64 Registrars and notaries belong to the General Directorate for Registries and Notaries (GDRN<sup>4</sup>)  
 65 which is answerable to the Ministry of Justice. They are included in professional groups. Registrars  
 66 in Spain are grouped in the Property Rights and Commerce Registrars Public Corporation  
 67 (CORPME<sup>5</sup>), with 1,058 geographically delimited Land Registries (February 2018). Rights are  
 68 registered in Spanish Land Registries. For notaries, different professional corporations exist for  
 69 regions that are, in turn, grouped through the General Notaries Council (GNC<sup>6</sup>).

70 At the end of the 1990s, Registries realised the importance of having a graphic base to define the  
 71 land registry units that they registered. Therefore, they signed an agreement with the GDC to use  
 72 cadastral cartography as a reference in exchange for its digitalisation which, at the same time, led to  
 73 its own computer application being designed to manage its graphic registry base, known as the  
 74 Geobase programme. There are different versions of this programme and, depending on Registries,  
 75 it is applied at several levels, although some did not even have this programme. Nowadays as far as  
 76 Corporations are concerned, only one application (Geobase 4) exists, which must be used by all  
 77 Registries.



78 **Figure 2.** Programme Geobase 4. Source: Land Registry Nules 1, Castellón, east Spain  
 79

80 1.1. Motivation and the fundamental objectives of Law 13/2015

81 As the preamble of Law 13/2015 states, the reasons which have led to this law being passed, and  
 82 the pursued objectives, are:

83 The intention is to "...write a report with the measurement proposals which will provide the  
 84 Administration with size, efficiency and flexibility that citizens and the country's economy demand.

85 *The Land Registry and the Real-Estate Cadastre are quite different institutions with distinct competences  
 86 which, notwithstanding, cover the same area: the real-estate reality. Coordinating the information that both  
 87 institutions hold is essential to better identify buildings and to better render services to citizens and  
 88 Administrations.*

89 *This requirement has long-since been pending and many attempts have been made to fulfil it. However, it  
 90 was not until Law 13/1996, of 30 December, on tax, administrative and social order measures, was published  
 91 before the first pillars for effective coordination were set when the cadastral reference was introduced as an  
 92 element to identify and exchange information, and to incorporate cadastral and graphic certification as a vital  
 93 requirement of land registry units in the Land Registry.*

94 *Since then, the Land Registry forwards relevant data to the Cadastre. However, no connection currently  
 95 exists that allows any two-way information exchange that permits the necessary coordination between both  
 96 institutions to actually materialise. Given the voluntary nature of records, some assumed cases exist in which  
 97 registry operations or cadastral amendments can be made without such communication existing, or there are*

98 other reasons why diverging situations may arise. Nor does a coordination procedure exist to help solve any  
99 discrepancies in the description of real-estate properties that may arise between the Land Registry and the  
100 Cadastre.

101 Considering all this background and the difficulty of the shared objective being fulfilled with today's  
102 procedures, this Law aims to accomplish the desirable and pressing Cadastre-Land Registry coordination using  
103 currently available technological elements via a secure and fluent data exchange between both institutions to  
104 encourage interoperability between both, provide a suitable legal framework and a better graphical  
105 representation of buildings by increasing legal security in real-estate trade, and by simplifying administrative  
106 procedures.

107 The first effect of the reform will be to favour coordination between the Cadastre and Land Registry. From  
108 both the economic and legal security viewpoints, it is essential for the Land Registry to determine the portion of  
109 land on which its effects are projected as exactly as possible. It is essential for the Cadastre to know and reflect in  
110 cartography all the registry amendments or alterations that have been made on the physical realities of land  
111 registry units due to any fact, business or legal act. Such coordination must be performed by swift procedures  
112 but which must also offer sufficient legal guarantees for those possibly affected by them through procedures that  
113 avoid any defencelessness situation.

114 The Law defines when an agreement exists between the land registry unit and cadastral parcel, and when  
115 coordination is achieved. It also establishes the ways to make registry and cadastral records of the achieved  
116 coordination, and to make this circumstance public."

117 Law 13/2015 fully came into force on 1 November 2015. The coordination of land registry units  
118 with cadastral parcels is a voluntary process, one that owners request as they are included in  
119 real-estate trade. Such coordination implies a legal guarantee in the land registry unit's physical  
120 delimitation, and the Land Registry's principles cover the graphical representation of the  
121 coordinated land registry unit.

122 As land registry units are registered in the Land Register, they are coordinated with the  
123 cadastral parcel. Cadastral cartography is official and is, therefore, that which must be taken as the  
124 basis for coordination. Nonetheless, the Land Registry can use an auxiliary programme to manage  
125 its registry graphic base, which must be made official by the five Spanish Ministries (Justice,  
126 Treasury and Public Administrations; Public Works; Defence; Agriculture, Food and the Natural  
127 Environment) involved in this process (Geobase 4 programme)<sup>7</sup>.

128 After Law 13/2015 came into force, several joint interventions have taken place in conferences  
129 and international events of the GDC and CORPME <sup>8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20</sup>.

130 One of the most important points that this Law has conferred is the obligation, in certain  
131 assumed cases, of incorporating a Georeferenced Graphical Representation (GGR) to the Land  
132 Register's initially literal information. In all other cases, incorporating a GGR and subsequent  
133 coordination is optional. These compulsory assumed cases take place, as the Law sets out,<sup>21</sup>:  
134 "Whenever a land registry unit is registered, or when certain operations are done (e.g., parcelling, reparcelling,  
135 parcel concentration, segregation, division, grouping or aggregation, compulsory purchase orders or  
136 rectification of boundaries) that determine territorial reorganisation, the georeferenced representation of a land  
137 registry unit that completes its literary description and, if duly accredited, the georeferenced coordinates of its  
138 survey points will be recorded."

## 139 2. Technical information exchange among the Cadastre, Land Register and Notaries<sup>22</sup>

140 A few days before Law 13/2015 came into force, two joint rulings were published which settled  
141 and stated the technical aspects of the information exchange to take place among the GDC  
142 (Cadastre), CORPME (registrars) and GNC (notaries). This is a fundamental aspect given the  
143 obligation to present a graphic representation for certain compulsory assumed cases, which must  
144 also be georeferenced in the Spanish official coordinates system (the ETRS89 reference system,  
145 REGCAN, and UTM coordinates). The whole cadastral cartography is included in an official  
146 reference system (ETSR89 and REGCAN, on the Canary Islands). Since 2015, this system is unique  
147 for any official cartography. During the 2007-2014 period, this system has co-existed with ED50<sup>23</sup>.

148 The GML (Geography Markup Language), adapted to the European INSPIRE directives (now  
149 in its version 4), was designed as an exchange file to be delivered to the GDC for both output  
150 exchange from the Cadastre and alterations input. To this end, the graphical information sent by  
151 Land Registers and Notaries must meet this format.

152 Basically, two GGR cases can be presented depending on whether the cadastral cartography is  
153 right or not:

154 - Those for which the physical real-estate reality presumably coincides with the land registry  
155 unit's description in the Land Register, and with the graphical representation of the cadastral parcel  
156 in the Cadastre. In this case we can state that a GGR exists. The employed GML are generated by the  
157 Cadastre, and accompany DGCC as attachments to pdf files; i.e., these are cases in which the  
158 cadastral cartography does not need amending because it correctly reflects the reality.

159 We also indicate that a GGR exists when the physical real-estate reality coincides with the  
160 cadastral parcel's graphic representation, but not with the registered land unit's description in the  
161 Land Registry. With a GGR (which is the cadastral graphical representation), the land registry unit's  
162 physical description must be amended to adapt it to the cadastral description.

163 Technicians barely intervene in such cases as they are the simplest assumed cases since they  
164 entail making no changes to the already existing cadastral graphical representation.

165 - When the physical real-estate reality or the Land Registry unit's description, despite them  
166 being correct, do not coincide with the cadastral cartography because it is mistaken; or because they  
167 present some assumed cases contemplated by the law, which involves territorial reorganisation.  
168 Here we can state that an Alternative Georeferenced Graphical (AGG) Representation exists; these  
169 assumed cases are the most complex ones as they involve amendments made to the cadastral  
170 graphic base, in which changes from +/- 1 cm can be detected. The implication of a technician is  
171 essential in such cases. GML files are normally created by "*competent technicians*", although the Law  
172 does not specify any given qualification since Spain has no technician with competences that are  
173 exclusive to property delimitation aspects. Moreover, no exclusiveness for any group exists when  
174 devising GML.

175 In the first few months, many computer applications were developed to automatically obtain  
176 GML files for the AGG adapted to the new regulation in both free and owned software<sup>24</sup>. Different  
177 technical groups sought a quick adaptation to legal technical changes, where the work by the  
178 Spanish Official Corporation of Engineering in Geomatics and Land Surveying (COIGT) stood out.

179 A computer system was designed for the previous technical validation of the files to be  
180 delivered to the Cadastre in AGG cases. This validation system allows Graphic Validation Reports  
181 (GVR) to be obtained, which subsequently permit the cadastral cartography updating process to be  
182 automated. The Law sets a maximum 5-day period for land registry unit-cadastral parcel  
183 coordination. The intention here is to clearly define the Cadastre's object. A positive GVR ensures  
184 that all the legal procedures in Notaries and/or Registries refer to the geometries of the registered  
185 land units that are technically correct for the Cadastre. A previous check is done to avoid problems  
186 arising later.

187 GML files are validated by the CEO with previous authentication, and both positive and  
188 negative IVG are saved in its database until they are legally authorised by notary public. Such  
189 information is stored by a 16-digit Secure Verification Code (SVC), in the same way as DGCC, which  
190 allows any cadastral document to be uniquely identified.

191 The land registry units-cadastral parcel coordination through GGR has been operating correctly  
192 now for a few months. The first AGG are still scarce because they are limited only to pilot zones  
193 being tested because the work being done to develop the Notaries and Land Registries applications  
194 is about to finish.



202 exchange files, which proved to be a genuine revolution when such technical elements were  
203 transferred to the legal world. Jurists have to learn technical concepts and technicians must learn  
204 legal concepts. This Law implies changes in many organisations and groups. It also entails changes  
205 in citizen awareness about the former idea held about cadastral information. Two years after it was  
206 applied, it is still in its initial and adaptation stages because it is a long-standing law that allows land  
207 registry units-cadastral parcels to be coordinated while they are incorporated into real-estate trade.  
208 It depends on the market and on coordination requests.

209 Procedures comply with the main legal guarantees to confer security to the graphical  
210 information about the delimitation of coordinated land registry units. This system has not been  
211 available in Spain until now. To a great extent, its operation depends on citizens understanding the  
212 system, knowing what it involves and using it properly.

213 The effects of this Law also extend to the Local Administration at a time when it is obliged to  
214 revise procedures, and it is also obliged to send all urban planning information to Registries.

215 Improvements to preventive legal security for real-estate trade in Spain have not only arrived  
216 with Law 13/2015, but has been extended to other related laws because Land Registries must also  
217 monitor the protection of public property. According to Article 9 of the Land Registry Law:  
218 *"Contributed graphic representations will be incorporated into the land registry unit's real document, provided*  
219 *that the Registrar has no doubts about the correspondence between this representation and the registered land*  
220 *registry unit, by evaluating this lack of coincidence, be it partial, with another previously incorporated*  
221 *graphical representation, and any possible public property encroachment."* Article 199 reads: *"The Registrar*  
222 *will refuse registering the land registry unit's graphical identification if it coincides completely or partly with*  
223 *another registered graphic basis or with public property. This circumstance shall be communicated to the*  
224 *Administration that corresponds to the affected building."*

225 For this reason changes have also been made and affect the Law on Voluntary Jurisdiction for  
226 the demarcation of properties not registered with the Registry<sup>25, 26</sup>; or the Law on Natural Heritage  
227 and Biodiversity<sup>27, 28</sup>; the Law on Roadways; the Law on the Railway Sector; the Law on Mountains,  
228 etc. Although these are minor changes, they are most significant as they indicate mainly the  
229 incorporation of any geographic information related with urban planning, environmental or  
230 administrative matters into the Registry. Article 1 of the Land Registry Law states that: a) *"When*  
231 *expressed as being accredited, the corresponding urban, environmental or administrative rating will be noted in*  
232 *the margin, along with the date to which it refers" b) "...by also preventing public property encroachment, and*  
233 *inquiries about the property limitations that can derive from classification and from the urban, environmental*  
234 *or administrative rating."*

#### 235 4. Spanish Geomatics and Land Survey Engineers and applying the Law

236 Technical Land Survey Engineers, and today's Geomatics and Land Survey Engineers, have  
237 been grouped since 1965 as a professional group in COIGT,<sup>29</sup> which has some 4,300 members from  
238 all over Spain who work on different geomatics aspects, of which many are done while freely  
239 exercising their profession as regards cadastral and property delimitation aspects.

240 As expert technicians in historical and technical delimitation matters, the COIGT was aware  
241 that this Law was necessary, and it presented amendments to it when it first came into being by  
242 following its whole course and its advances until the present-day. Ever since it came into force and  
243 was published, several lines of action were set up, which continue today, to improve the technician's  
244 role to support this Law actually being applied, such as:

- 245 • Own and joint events and continuous training courses, and conferences related to it, with legal
- 246 organisations, registrars and notaries
- 247 • Publications in specialised technical and legal journals
- 248 • Computer developments to obtain the GML files adapted to new regulations<sup>30</sup>
- 249 • Designing the property's georeferencing report according to new regulations<sup>31</sup>
- 250 • Making contact with directly involved organisations, such as GDC, CORPME and GNC to set
- 251 up the Law, and for the possible connection with different computer applications

- 252 • Designing the outline for certifying Expert Technicians in Cadastre, Real-Estate Property and  
253 Evaluations according to Standard ISO 17024 on certifying persons,<sup>32</sup> through the Spanish  
254 Institute of Graduates in Engineering and Technical Engineers (INGITE<sup>33</sup>), which is an  
255 organisation accredited by the Spanish National Accreditation Agency (ENAC).
- 256 • Creating and designing the National Land Surveying Archive of Boundaries (ATNL<sup>30</sup>) to  
257 manage the geographical information and property delimitation metadata obtained by COIGT  
258 technicians, which resulted from the research in Professor Mora-Navarro's doctoral thesis<sup>34, 35</sup>.  
259 The intention is for this information to help improve coordination as these data are not  
260 currently stored in either the Cadastre or the Land Registry.

## 261 5. Results and Conclusions

- 262 • Currently it is possible to count coordinated registered land units in real time (111,418 on 21  
263 February 2018; 12:39h, Spanish time) from the Cadastre website; in this case, only those where  
264 the cadastral cartography is not amended (GGR) are referred to
- 265 • In the present-day, GVR operate, but the first AGG to be automatically processed are not  
266 numerous as they are limited to pilot test areas. Adaptation to the computer developments of  
267 notary and registry applications is lacking. In short, major advances are expected
- 268 • Improving the quality of real-estate data by the coordination between the Cadastre and the  
269 Land Registry is included as a commitment in the recently published III Action Plan of Spain  
270 2017-2019 of the Alliance for an Open Government<sup>36</sup>
- 271 • As the cadastral cartography is official and as is, therefore, the graphic basis of coordination, the  
272 GDC has envisioned the need to improve the graphic quality of its information. Thus it has set  
273 up a plan to improve it by creating a specific cartography area to solve any related conflicts,  
274 such as: tolerances between graphic and alphanumeric surfaces; cases that involve  
275 displacements in some areas, including the analysis and improvement of position-related  
276 accuracy in particular, etc. The possibility of even including geographical metadata, e.g  
277 accuracy, was thought in the data model
- 278 • After the Law came into force, the first parties to be affected by it, e.g., citizens, technicians,  
279 notaries and registrars, had to make many efforts to adapt to it, and then found themselves in  
280 very different phases, depending on each case. However, those in the most advanced phases  
281 managed to overcome the initial problems with both GML files and GVR in the first few months
- 282 • Techicians (mainly from the COIGT) quickly adapted to the system after a few intense months,  
283 and are still learning and adapting to changes. Now many are capable of generating the GML of  
284 cadastral parcels with positive GVR. They are even beginning to create GML of buildings,  
285 which the Law contemplates, to be validated with the new Cadastral Reports about the  
286 Location of Buildings (CRLB), designed by the GDC and set up in June 2017
- 287 • The COIGT is well aware of the major changes that this Law can contribute, and the COIGT  
288 foresees the possible requirements, where expert technicians' certification in these matters or  
289 the collection of geographical metadata from works done by technicians through the National  
290 Land Surveying Archive of Boundaries, stand out
- 291 • The evolution and problems with applying the Law that have taken place in these 2 years have  
292 meant that several involved organisations are obliged to continue making improvements to  
293 procedures and computer applications, by even extending some assumed cases that were not  
294 initially considered
- 295 • No jurisprudence exists about the considered problems although the GDRN has published  
296 many and different rulings that have clarified and specified many aspects related with the Law  
297 being applied in Registries and Notaries
- 298 • The GML files and Law 13/2015 have arrived, will remain and will revolutionise Spanish  
299 administration. The Local Administration's greater awareness and further implication are still  
300 pending, especially in urban planning themes. These include, and are directly applied to,  
301 assumed replotting cases, which are compulsory by Law, and are the competence of Town and

- 302 City Councils. The Administration that is in charge of public properties, such as cattle tracks,  
303 mountains, coastlines, water, Nature Reserves, etc., needs to be more involved.
- 304 • After the first year with plenty of work and with the typical problems of adapting to change,  
305 certain tasks were quite often done in the way they had always been done, as knowledge about  
306 the correct procedure was lacking, and without considering the coordination consequences
  - 307 • Quite often citizens were unaware of the implications of the decisions they made when seeking  
308 to speed up processes and cut costs. Social unawareness exists as, generally speaking, the  
309 relevance of coordination is unknown, which involves assuming the veracity of graphic  
310 information. It can be stated that citizens have always considered the Cadastre to be merely a  
311 tax office that is basically interested in charging taxes on real-estate properties (Land Value Tax).  
312 Currently, the role that its cartography plays is significantly changing at the time it is  
313 coordinated with the Land Registry
  - 314 • Today the whole process is long and slow as processes need to be automated; thus some justify  
315 not using it or bringing it into disrepute because the real-estate trade pace cannot be stopped. It  
316 is true that it is sometimes slow and awkward, but it is going through a phase of being fitted  
317 and adapted; many organisations, groups, technologies, processes and applications are  
318 involved which, with the numerous changes going on, are operating at a good rate and show  
319 constant improvements. Speed, efficiency and social awareness need to improve, but we are  
320 getting there. It is necessary to work slowly, but steadily, to set solid bases.

## 321 Acknowledgement

322 We thank the GDC, CORPM and COIGT for their collaboration and providing up-to-date  
323 information to finish this article, and to revise all the different sections.

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