

## TOPOGRAPHIC OPERATIONS FOR CADASTER INTRODUCTION IN A CADASTRAL SECTOR

MILUȚ MARIUS, C LINA AUREL, BUZATU CLAUDIU

University of Craiova, Faculty of Agriculture, e-mail: milutmarius@yahoo.com

**Key words:** cadaster, technical documentation, cadastral sector

### ABSTRACT

*The main purpose of the systematic cadastre work is to identify properties, measuring, describing and recording them in technical cadastral documents, representation on cadastral plans and identifying the holders and other property owners in order to enter in the land registry. The works of cadastre introduction are regulated by Law 7/1996, republished with subsequent amendments and in force regulations of the National Agency for Cadastre and Land Registration.*

### INTRODUCTION

At this point we can say that in Romania cadastre is found in two forms systematically cadastre and sporadically cadastre.

The general cadastre (systematic) is performed by measuring all real estates (land with or without buildings) on the area of administrative and territorial unit or cadastral sector, identification of all owners and other rights holders over the real, while opening books land for all buildings, operations performed in a single procedure for the entire cadastral sector or the entire administrative territorial unit.

Sporadic cadastre is achieved by measuring at a time of real estates on the area of local government units or sector cadastral and opening all the land books or updating of existing ones. The cadastral plan of a territorial administrative units or cadastral sector will be completed when measuring the whole cadastral sector or entire administrative unit.

The works of cadastre introduction are regulated by Law 7/1996, republished with subsequent amendments and in force regulations of the National Agency for Cadastre and Land Registration (ANCPI).

### MATERIALS AND METHODS

Systematic cadastral work is a set of activities, which have the following purposes:

- a) identifying properties, measuring, describing and recording them in cadastral technical documents, its representation on cadastral plans, also data storage on informational supports;
- b) identifying the owners or other property holders in order to enter in the land registry;
- c) public display of results from systematic cadastral works execution, correction of mistakes reported by the holder and opening new land registers (**The endorsement and reception regime ODG 700**).

The paper presents an example of cadaster introducing in a cadastral sector from a territorial administrative unit. It is the cadaster introducing in field 8, located in buildable area of Sadova, Dolj County.

In the work taken as a case study to determine the precise points required for the site plan and the delimitation of field 8 from built-up area Sadova were used: the traverse method supported at the ends on points with known coordinates and sides with guidelines known and method of polar coordinates .

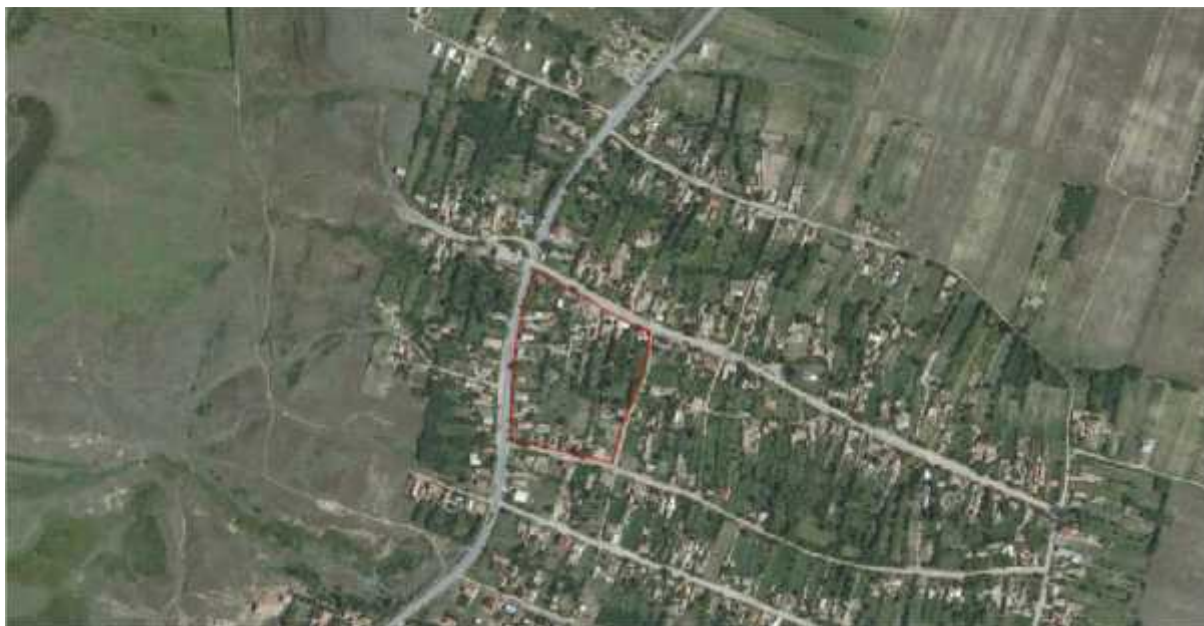


Figure 1. Plan of bounding in the area – orthophotomap

In achieving the present work, the field measurements were performed with total station TOPCON GTS 601A.



Figure 2. Display of GTS601A

## RESULTS AND DISCUSSIONS

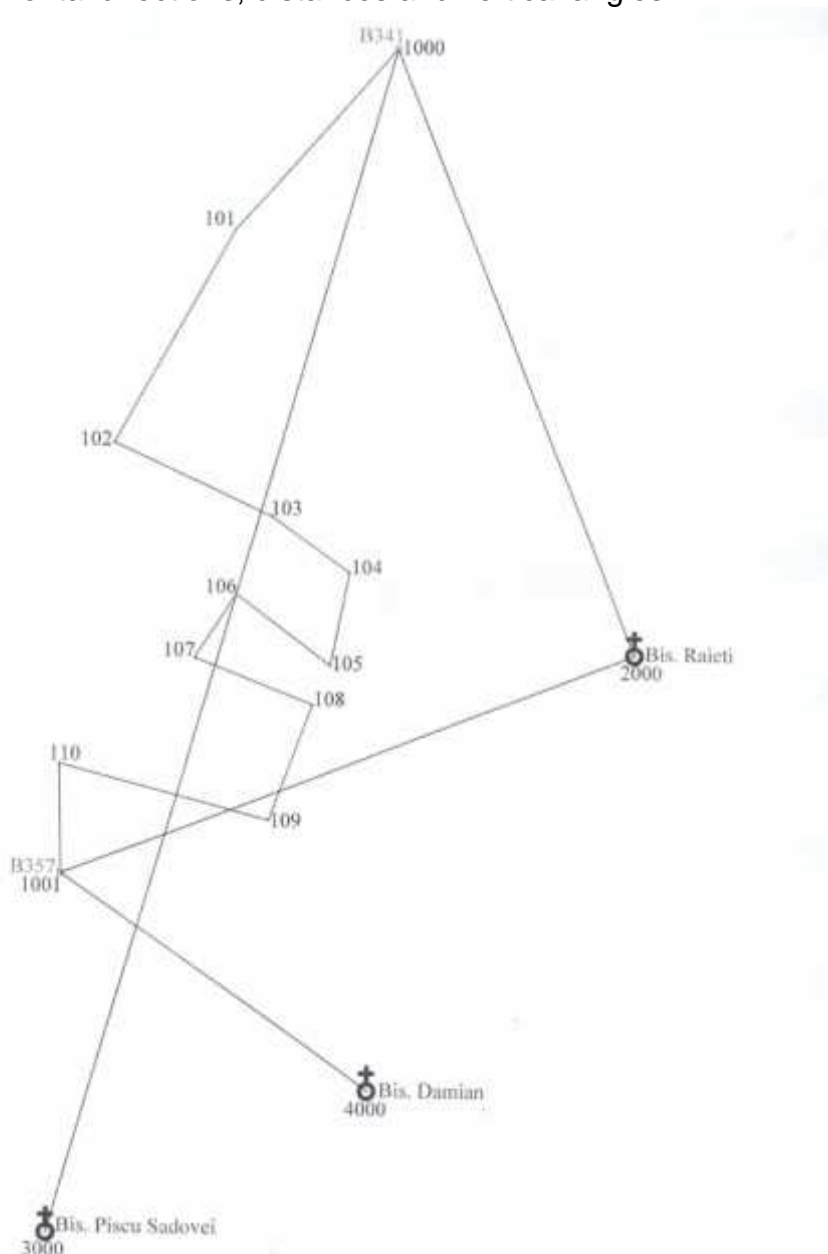
Before performing the ground operations, was studied an existing plan on that was spotted and traced the outline of the surveyed area. Was also procured the list of the entering into possession of the owners and the plot report from the Town Hall.

Operations performed on the ground both at traverse method and the details determination method began with a general recognition of the territory. In this sense they were made:

- identification of geodetic points from upper and lower order that will support the traverse;
- determining what should be included in the plan (border points, the road ends, the points of plot delimiting, points delineating real estate, construction bounding points, etc.);
- determining the traverse routes and the choice of station points for the traverses that were executed in order to survey the area.

Marking of traverse points was performed simultaneously with the recognition of land and consisted of marking each station with an iron stake. Then it passed to measure with the total station of elements necessary to determine the coordinates of the support points of the traverse and points of detail: measuring distances, measuring the horizontal

direction – was the same for every station: back station, front station, and any other visible point with known coordinates and measuring the vertical angles - was done separately for each point. For control, they were given visas also to other visible churches both from the departure station and from the destination station, namely the churches Piscu Sadovei (3000) from the station 1000 and Raie i (2000) from the arrival station 1001 (Figure 3) . For points of detail was applied polar coordinates method. From the stations 102-110 have covered all points of detail necessary for surveying the area, registering on the device (total station) horizontal directions, distances and vertical angles.



**Figure 3. The traverse draught**

All measurements made on the ground, with the total station, were then processed at the office in Microsoft Office Excel. The error for orientation as the difference between the calculated orientation from coordinates and orientation transmitted was  $-11^{\circ}$  being, divided by the number of stations. The error on X and Y axis were 0.0034, respectively 0,079m. After the errors compensation, were calculated relative coordinates, also absolute coordinates of the traverse points.

After determining the coordinates of all points that characterize the area, using AutoCAD 2011 was draw the position and delineation plan of the plot, in DWG format, at

the scale of 1: 500. Surface calculation of each real estate from field 8 was performed through the analytical method. This cadastral sector consists of 23 real estate totaling 25,549 sqm surface measured. The area from documents according to the plot report is 25,466 sqm. The difference between the measured area of land and the area from documents is 83 square meters and fall in the proportion of under 2% set out by the Regulations.

The technical documentation for the introduction of cadastre will include the following: - the technical description of work performed; - .cgxml, .pdf, .jpg Files, corresponding to the identified properties; - folders containing legal acts of properties and surveying of individual units from condominium constructions, if any; - parceling plans; - internal quality control report; - report on monitoring public information campaign, if applicable; - the technical documents of the cadastre: cadastral plan, cadastral register of properties, alphabetical list of the owners.

### CONCLUSIONS

1. The main purpose of the systematic cadastre work is to identify properties, measuring, describing and recording them in technical cadastral documents, representation on cadastral plans and identifying the holders and other property owners in order to enter in the land registry.

2. In achieving technical documentation for the cadastre introduction at this time are used modern methods and devices that increase productivity and decreases the execution time of works.

3. In this moment in Romania entered in execution the Systematic Cadastre Program that will be implemented by the year 2023. It provides free registration of all real property - land and buildings, land registers opening for them and issuance of succession certificates, in the integrated system of cadastre and land registry.

### BIBLIOGRAPHY

1. **Buc Nicolae Ion, Călina Aurel, Miluț Marius, Croitoru Alin**, 2013, *Topographic works for preparation of maps by mapping and surveying, lots plans for the possession of surface 103,68 hectares, land with forest located in the municipality Criciova, Timis County*, Annals of the University of Craiova - Agriculture, Montanology, Cadastre Series, vol XLIII/2, ISSN 1841-8317, Ed. Universitaria, Craiova, pag. 23-26;

2. **Călina A. et al**, 2010 – *Topografie generală și inginerească*, ISBN 973-657-945-X, Ed. Sitech, Craiova;

3. **Călina A., Călina Jenica, Milu M., Buzatu C., Popescu M.**, 2010, *Dividing of some properties from Ghercești outside limits, Dolj County*, Annals of the University of Craiova - Agriculture, Montanology, Cadastre Series, vol XL/2, ISSN 1841-8317, Ed. Universitaria, Craiova, pag. 342-345;

4. **Călina Jenica, Călina A., Miluț M., Buc N.**, 2014, *Surveying data processing for extension, land registration and construction improvement*, Annals of the University of Craiova - Agriculture, Montanology, Cadastre Series, vol XLIV/2, ISSN 1841-8317, Ed. Universitaria, Craiova, pag. 47-50;

5. **Miluț M., Călina Jenica, Călina A., Buzatu C.V.**, 2014, *Achievement of network support for the construction of a new communication way*, Annals of the University of Craiova - Agriculture, Montanology, Cadastre Series, vol XLIV/2, ISSN 1841-8317, Ed. Universitaria, Craiova, pag. 132-135;

6. **XXX**, 2014, Order 700/2014 of ANCPI, *Rules of approval, reception and registration in cadastre and land register evidences*;

7. **XXX**, 1996, Law 7/1996 – *The law of cadastre and land registration – republished*.