EXECUTION OF THE TOPOGRAPHICAL WORKS FOR THE TABULATION OF AN AGROTURISTIC BOARDING HOUSE PROJECT IN SĂVÂRȘIN LOCALITY, ARAD COUNTY

Lavinia POPESCU[1], Andreea STULEANEC[1], Roxana ȘELARIU[1], C. BÂRLIBA[1]

[1] *Universitatea de Științe Agricole și Medicină Veterinară a Banatului "Regele Mihai I al României" din Timișoara, Facultatea de Agricultură, Departamentul Dezvoltare durabilă și ingineria mediului*

Corresponding author: laviniapopescu1997@gmail.com

Abstract .*The present documentation is made up of a topographic work towards preparing the project for an AGROTOURISTIC PENSION. This was done at the request of the beneficiary who will complete the work through European funds..The drawn and written pieces were set up in accordance with the no. 50/1991 Law, republished with the subsequent amendments and additions. The building is located in the town of Temeșești, no. 11, Săvârşin Commune, Arad County and is privately owned. The land of 3348 square meters is inscribed in C.F. 301432 Săvârşin target topographic number 301432. The land is located on the upper terrace of the Mures River, a high meadow area, without the danger of flooding. The land is parallel to the street, with a street front of 1645, and access by means of transport like cars of small capacity to minibus level. There is pedestrian access in the area by using the pavement on the property's edge, the green area and the river drainage ditch between the sidewalk and the road. Access inside the building is on the south side of the street over a footbridge with a load of up to 7.5 tons. The Agroturistic Boarding House will be a tourist accommodation complex located in the rural area of Temeșești, which will offer accommodation services through the future construction of the pension, a restaurant where 3 meals based on traditional products obtained from own resources or in the immediate vicinity can be served; and leisure , relaxation and recreation activities in the specially arranged area in the pension yard, car park with a capacity of up to 8 parking spaces arranged at the entrance pension and its precincts. Agropoda will be a family business with separate access to the restaurant for tourists not accommodated in the pension and access ways inside the boarding house for tourists that are billed at the pension. In the hotel area, the access to the rooms will be provided by an access ladder in the attic area, where there will be a number of 6 rooms available, equipped with their own sanitary units and a balcony. The topographical works in their initial stage consisted of the topographical surveys of identification and subsequent drawing of the construction, and in theur final phase, which is the actual object of this work of creating surveys on each floor of the building. For this stage, two distomate-telemeter laser topographical instruments were used , and also specialized graphics software such as AutoCAD.*

Keywords: *distomat, situation plan, survey*.

INTRODUCTION

The present documentation represents the design of a building, used for agro-tourism purposes, located in Temeşeşti locality, Săvârşin commune, Arad county no.11. It includes several topographical works, namely: the topogeodic elevation for the drawing up of the cadastral documentation, the compilation of the drawing documentation on the basis of the construction project and the execution of the topographical measurements for the registration of the building in the Land Registry. Of the total surface of the land of 1924.00 sqm, the built area represents 340.00 sq m, as a footprint on the ground.

The topographic survey deals with the positioning of surface crust elements on small surfaces as well as with the graphic representation technique, the topographical surveys being actually the field

measurements, and their representation on the plane was realized through a computer environment specialized in graphic representations. In our case the measurements were made with telemetry-distomats, and the data processing was done through AutoCAD.

Measurement, drawing and scale representation of elements of a building, of a building block or of a constructive detail is called survey. The report is obtained by processing the field sketch in a program whose functions allow the design of construction plans in smaller dimensions, such as AutoCAD. (BÂRLIBA C., BÂRLIBA LUMINITA LIVIA, ELEŞ G., 2015).

The plans of a building are the most important elements of an architectural and topographic project that can be used to register a building. These indicate the layout of the rooms, the connection between them, the access and the movement inside the building, the position of the hallways, the constructive dimensions; (BÂRLIBA LUMINIŢA LIVIA, BÂRLIBA C., ELEŞ G., 2013).

In the present paper, for the preparation of the surveys, we used topographic instruments of the Distomat type and roulette where it was not possible to perform indirect measurements of the distances. On-site sketches have been made for each level. Thus, the lower level sketch, the ground floor, comprisesof 5 rooms with different destinations: entrance hall with reception and reception hall or courses or workshop events, a kitchen, a boarding-room, a bathroom. The layout of level 2 and the attic includes: the staircase with access hallway to the 6 rooms, each equipped with its own bathroom.

MATERIAL AND METHOD

In the field phase, topo-cadastral operations were performed with the following topographic instruments: two Bosch GLM 80 Professional laser telemeter-distomates (Fig.1) with precision in measuring angles of ± 0,2 ° and measuring length ± 1 5mm. These tools are very easy to use and do not require a large number of users. Also, the distance measurements are performed in a much shorter time. That's why they were able to complete land-based sketches with the real dimensions of the site.

This device is designed to measure distances, lengths, heights, distances, inclines and surface and volume calculations and is suitable for indoor and outdoor measurements. It memorises the last 20 measured values and their calculations and displays them in reverse order (first measured value).

Figura 1. Laser Telemeter Bosch GLM 80 Professional

At the office stage all the measured elements and the drawn sketch were transposed to the 1: 500 scale via the AutoCAD computer environment.

Graphic processing was executed in the computer environment using the AutoCAD graphical program, where all field data was imported for processing. The AutoCAD Specialized Graphics Program allows us to design the construction plans in 2D (Fig.2-Fig.3).

Fig. 2 Starting page AutoCAD

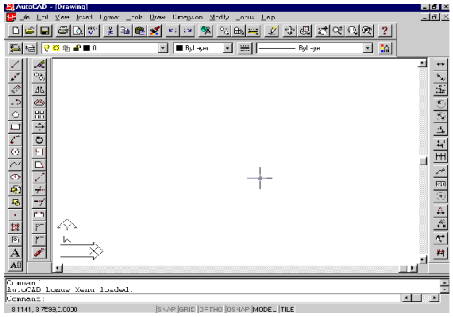

Fig. 3 new file AutoCAD

For the topographical documentation necessary for the design, which has been used to prepare and apply this project on the ground, the geo-topographic elements that serve as the design basis have been prepared in advance. The work in the first phase found (designing, measuring) the execution of recognition and the establishment of working methods. During the last phase of the execution of the work the interiors of the building were measured in order to be recorded in the Land Registry.

RESULTS AND DISCUSSIONS:

The geographical location of Săvârşin commune:

Săvârşin commune is situated on the Mureş corridor. It is located in the western part of the country, in the south-east of Arad County, at a distance of 87 kilometers from Arad, occupies an area of 207 km² and has 9 villages, located at a distance of 3 to 10 km from this. It is traversed by the European road E 68, which makes the direct connection between the capital of Romania through the center of the country with Hungary and implicitly with the other roads of Europe. The Mureş Corridor is limited to the south by the Poiana Ruscă Mountains and Lipovei Hills, and to the north by the Zărandul Mountains. Between the two mountain ranges, the commune's relief is formed only from the hills and meadow of Mureş. The fauna in the area consists of wild animals among which we refer to the bird, fox, squirrel, wolf, wild boar and a wide variety of bird species. The climate in the Săvârşin area is tempered-continental with influences from the meadow due to the Mureş River. The forest area of the commune represents over 60% of the total area of the territorial administrative unit and is also used ,besides the forestry purpose ,as a tourist, recreational and hunting area. The touristic objectives in this area are multiple and diverse, some of them are: The dendrological park with an area of 6.5 hectares and contains some rare species of trees and shrubs, declared monuments of nature, silver fir, spruce, pyramid, pheasant, Chinese acacia, Himalayan pine, Turkish hazel, secular oaks and much more. Wooden church "The Three Hierarchs" in the village of Troas, built in 1782, this being a historical monument; The Royal House of Săvârşin (Fig.4); Ethnographic Museum in the village of Timisesti; Archaeological site in the village of Troas; Natural Reserve "Cave of Duţu" (Figure 5); Natural Reserve "Sinesie's Cave"; "Eugen Popa" Memorial House from Săvârşin; Decorative and graphic art from Săvârşin.

Fig. 4 Royal House

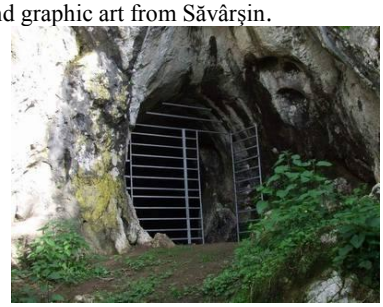

Fig. 5 National Reservation "Peştera lui Duţu"

The building that is the subject of this paper is located in the town of Timisesti, no. 11, Săvârşin commune, Arad county, being enrolled in C.F. 301432 Săvârşin, under no. top cad 301432.

The land on which the building was designed is delimited as follows:

In the north, an agricultural road belonging to the public domain of the commune of Timisesti, situated at a distance of 28.20 m; in the east is an urban land (distance = 37.00 m); in the west at a distance of 12.20 m there is another urban land, and in the south there is the public road and the green space at a distance of 3.50 m.

After the topogeodic elevations were made the absolute coordinates of the contour points and of the ground planimetry details were determined on the basis of which a 1: 500 scale (1) was plotted on a AutoCAD computer environment (Fig.6). From the graphical processing of the data resulted a total building area of 19240 according to the one registered in CF with no.301432. The building has a street front of 20.02 m and a length of 133.372 m.

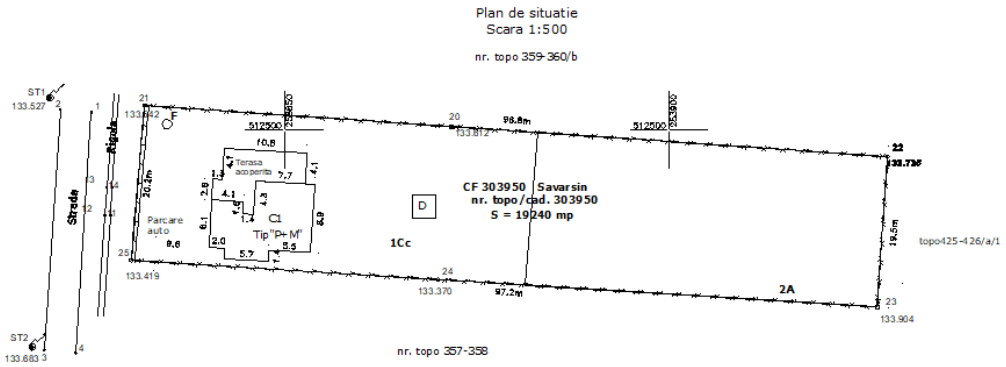

Fig.6 Situation plan

In order to accommodate the agro-touristic pension in the project of accessing European funds it was necessary to design the construction on two levels with different destinations, ensuring accommodation through the 6 existing rooms. The construction has a structure designed mainly for tourism but also for various training and information events. The surrounding area provides specially arranged spaces for parking the means of transport up to the capacity of 7.5 tons. Also, the boarding house will offer the opportunity to participate in recreation, sports, housekeeping and crafts activities by arranging land dedicated to these purposes. The building allows the arrangement of these dedicated places through its rectangular and uniform by planimetric and altimetric points of view.

The building elements of the agro-touristic pension are the following:

The foundation, which is made of C12 / 16 concrete, under the GVP brickwork with vertical gaps, the structure of resistance, made of reinforced masonry reinforced with pillars, beams and reinforced concrete belts. The gaps are made of GVP brick with vertical gaps and external insulation, made of 10 cm thick expanded polystyrene sheets. The ceiling is made up of reinforced concrete slab over the ground floor, 13 cm thick and firwood over the attic. The roof is made of firwood and the cover is made of tiled tiles or Lindab, with both interior and exterior plasters;

The area built from the total land area (1924.00 sq m) is 340.00 sq m and the height of the building is + 9.15 m

In the office phase, already having the sketch and all the data, as well as the measurements necessary for the elaboration of the report, were introduced and processed in the specialized graphics program.

The details included in the survey are: the thickness of the walls, the surface of the rooms, the height of the doors, the windows, the floor of the rooms and the functions of their use (kitchen, bathroom, hall, etc.).

From a functional point of view, the guesthouse will be composed of a ground floor + attic being structured thus:

- on the ground floor: entrance hall, reception, relaxation room, dining room, kitchen, double toilet (Fig.4) staircase, covered terrace, CT room

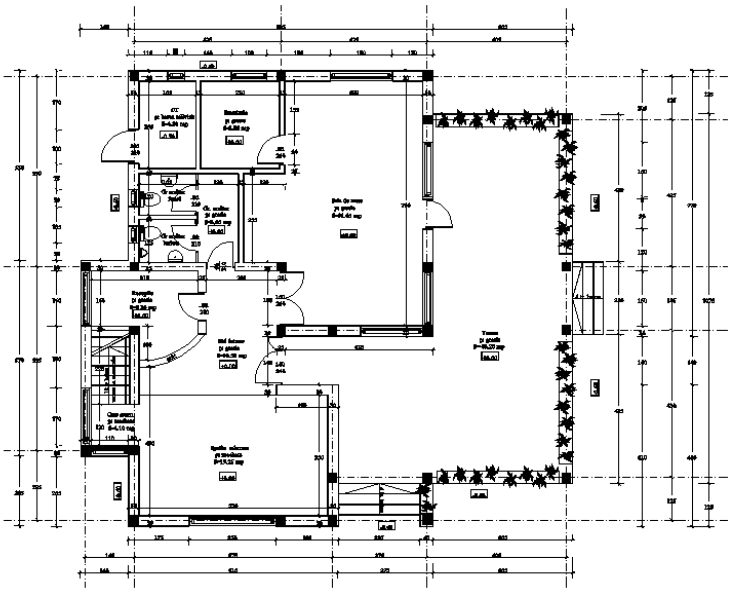

Fig.4 Ground floor plan

- in the attic: hall, 4 rooms with bathroom, 2 rooms with shared bathroom, balconies in each room (Fig.5)

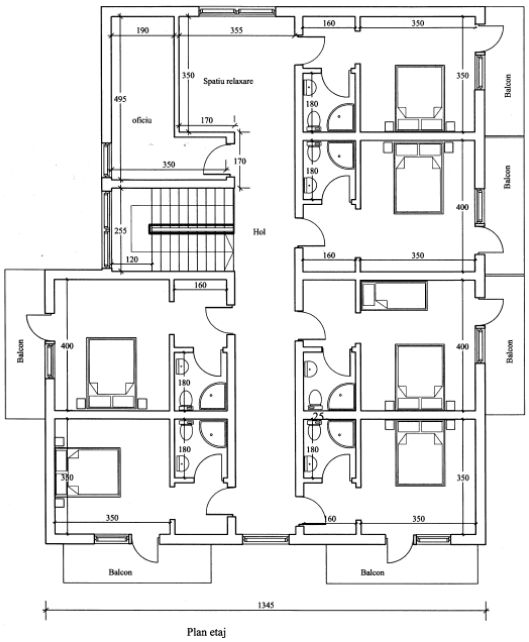

Fig.5 Attic plan

CONCLUSIONS

The construction is located on a regular, non-dense plot that gives us the opportunity to participate in domestic and crafting activities, located in an area of great touristic importance.

The downloading and importing of data through the specific programs for the use of topo-geodetic tools in the AutoCAD computer environment have led to the accurate and precise execution of the specific documentation of this type of work.

In order to achieve the agropension construction, the following topofraphic instruments were used: distomat-telemetry and graphic specialization programs, which simplified and relieved the work done, the distomat having a high accuracy, another advantage being its weight of only 180 g .

The present cadastral work is part of a larger agropension tipe development project, which has contributed to the development of the area from the touristic point of view, built in Temeşeşti locality, Săvârşin commune, Arad county.

BIBLIOGRAPHY

1. BÂRLIBA LUMINIȚA LIVIA, BÂRLIBA C., ELEȘ G. (2013), Computing and verifying the land surface without visibility by using GPS and classic procedures. International Multidisciplinary 13th Scientific GeoConference SGEM , Albena-Bulgaria, Conference Proceedings, Vol.I, pp 355-362, ISSN 1314-2704, ISBN 978-954-91818-9-0;

2. BÂRLIBA LUMINIȚA LIVIA, DRAGOMIR L., BÂRLIBA C., ȘMULEAC A., CIOLAC VALERIA (2014), Achieving the topographical works necessary to establish a poultry farm, International Multidisciplinary 14th Scientific GeoConference SGEM, Albena-Bulgaria, Conference Proceedings, Vol.II, pp19-26, ISSN 1314-2704, ISBN 978-619-7105-11-7;

3. BÂRLIBA C., BÂRLIBA LUMINITA LIVIA, ELEȘ G. (2015), Achieving topographical works for stakingout the main elements of a trout farm, Buletinul Ştiinţific al Universităţii Politehnica Timişoara. Seria Hidrotehnica Transactions on Hidrotechnics Tom 60(74), Fascicola 2, ISSN:1583-3380;

4. BÂRLIBA LUMINITA LIVIA, BÂRLIBA C., CALINOVICI I., ELEȘ G. (2016), RTK GPS technology use for a work of delimitation and topographical surveying of the monastery land from Dobrești village Timiș county. 16 th International Multidisciplinary Scientific GeoConference SGEM , Albena-Bulgaria, Conference Proceedings , ISBN 978-619-7105-59-9 / ISSN 1314-2704, Book2 Vol. 2, pp 519-524;

5. BÂRLIBA LUMINITA LIVIA, BÂRLIBA C., CALINOVICI I., POPESCU C. (2016), Topographic and cadastral measurements necessary to achieve an urbanistic zonal plan in the village of Ghiroda – Romania. 16 th International Multidisciplinary Scientific GeoConference SGEM, Albena-Bulgaria, Conference Proceedings , ISBN 978-619-7105-59-9 / ISSN 1314-2704, Book2 Vol. 2, pp 657-662.