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SURVEYING AND CADASTRAL WORKS IN VIEW OF ESTABLISHING AN AREA OF TOURIST INTEREST IN THE CITY OF SEBEŞ, ALBA COUNTY

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ABSTRACT: *Due to its geographical position, the city of Sebeş is characterized by a moderate continental climate, favouring the development of itinerant tourism. For this reason, in view of a better cadastral evidence on the area of interest, measurements and a site plan have been drawn up so as to provide real-time data to all the existing real estate management and planning entities.*

Keywords: *surveying; cadastral works; cadastral evidence; methods and instruments; Gothic church;*

1. Introduction

The present work was carried out in the city of Sebeş. The research site was the fortress area, which today consists of approximately 5-meter-high walls and partially preserved defence towers (The Tailors' Tower, The Bootmakers' Tower). It was built at the end of the 14th and beginning of the 15th century. It consists of an enclosure wall, 1,700 m long, which includes battlements and holes for fuel that are well preserved to date (fig. 1).

The fortress has got four gate towers, of which only the remains of those on the north and west sides are preserved. In the south-east corner, only the Tailors' or Student's Tower are preserved. In the north - east corner, there is a strong polygonal tower, built in 1678. On the north side, we can find the North Gate Tower and the Shoemakers' Tower. To the west, we can find the Gate Tower [3, p.64] .

The Evangelical Lutheran church was built in a Gothic style between the 13th and

Fig.1. The Fortress wall

the14th centuries, and renovated in a Renaissance style during a later period of time (fig. 2).

Fig. 2. The Evangelical Lutheran church

The construction of the church, which began before 1241, was completed in 1382. It represents an interesting mix of the Romanesque and Gothic architectural styles. Its altar, the highest to be found in Transylvania, is decorated with relief paintings and sculptures dated between 1518 and 1528. The old Romanesque part of the church was present during the Tatar invasion (1241), as a basilica with three naves. The central nave was much raised and vaulted during the works carried out in the thirteenth century, and the other three sides were enlarged and raised in the fourteenth century. Today, they are gathered under one roof. The old Romanesque choir has been replaced by a Gothic hall-like one, covered with vaults that rest on arches. The exterior of this portion is decorated with stone statues, canopies and pinnacles [5]. Following the restoration work from 1960-1964, the choir of the old Romanesque church was marked on the floor [1].

2. Methods and instruments used

In order to elevate the area of tourist interest, which includes the walls of the fortress and the Evangelical church, topo-cadastral measurements were made with the total Leica 800 TPS station. The measurements processing was performed with the Toposys specialized software and AutoCad 2016.

As a result of the measurements made in the field on block no.14, (block containing the property mentioned above) the downloaded land book was processed with the Toposys 8.0 software. The inventory of compensated coordinates of the points that were deleted from the register was thus obtained (fig. 3, tab. 1).

The obtained coordinates were exported to AutoCad, a software specialised in data processing and reported with the aid of TopoLT (fig. 4, 5).

After connecting the dots, the layout corresponding to block 14 was obtained is presented in fig. 6.

In order to finalise the cadastral documents, the site plan and property layout were drawn up, which included: the plot of the land, the coordinates of the points, the area of the property, the category of its use, the address of the immovable property, data regarding constructions where appropriate and mentions regarding the land and/or the construction [4] (fig. 7).

The calculus of areas' sizes was carried out with AutoCad 2016 and the calculus software TopoLT (fig. 8).

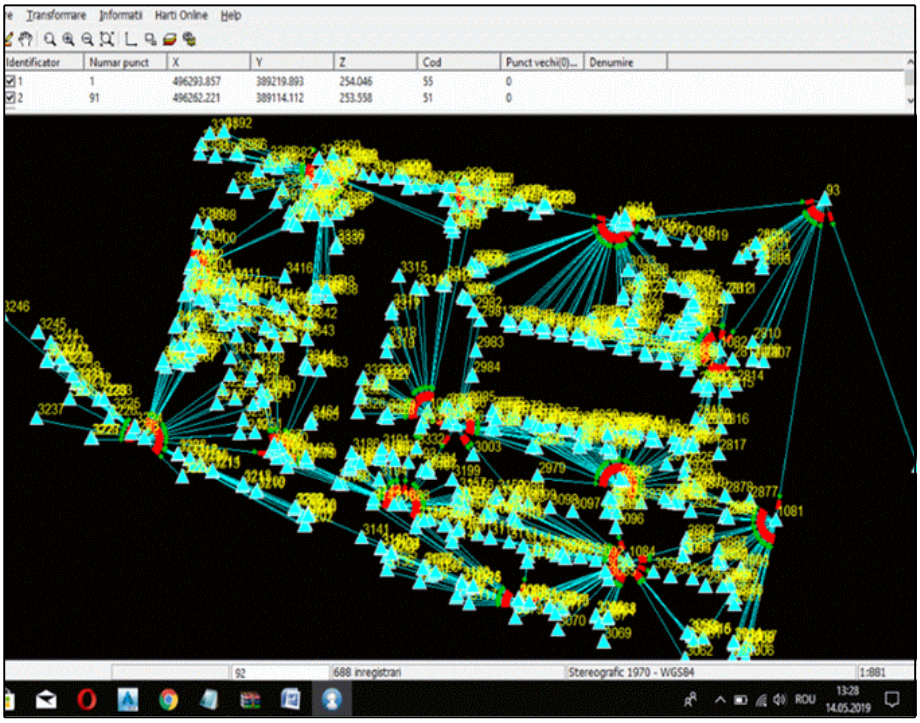


Fig. 3. Automatic deletion

Tab. 1. Inventory of coordinates of all points from block 14

1	496293.857	389219.893	254.046	55
91	496262.221	389114.112	253.558	51
92	496300.445	389014.075	253.597	51
93	496355.596	389194.967	253.566	51
1081	496281.457	389182.019	253.551	51
1082	496320.622	389167.019	253.662	51
1083	496350.791	389139.516	253.282	51
1084	496272.270	389142.632	253.282	51
1085	496289.788	389140.115	253.667	51
1086	496303.541	389096.844	253.461	51
1087	496357.053	389101.972	253.193	51
1088	496284.999	389082.466	253.409	51
1089	496296.815	389049.369	253.375	51
1090	496339.499	389026.305	253.350	51
1091	496361.884	389062.042	253.148	51
3462	496316.389	389057.649	253.563	16
3463	496315.990	389060.668	253.709	16
3464	496304.695	389058.454	253.385	16
3465	496303.736	389058.284	253.434	16
3466	496295.977	389057.022	253.448	16
3467	496299.000	389048.598	253.741	60
3468	496311.386	389045.293	253.565	16
3469	496309.896	389045.546	253.576	44
3470	496310.449	389046.765	253.586	6
3471	496308.867	389045.724	253.623	6

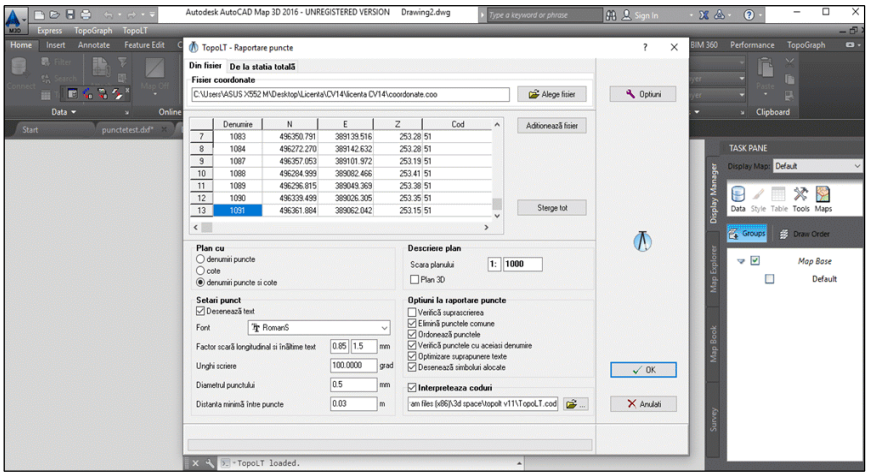


Fig. 4. Reporting of points with the aid of TopoLT

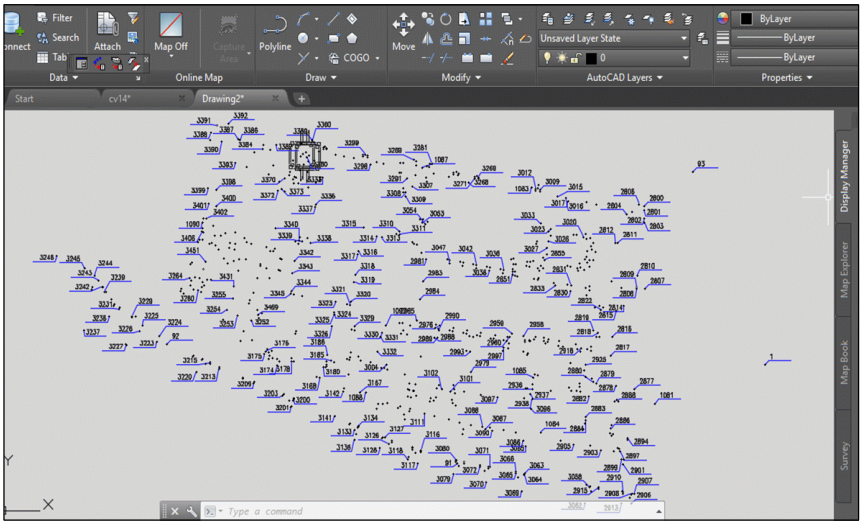


Fig. 5. Points reporting in AutoCad

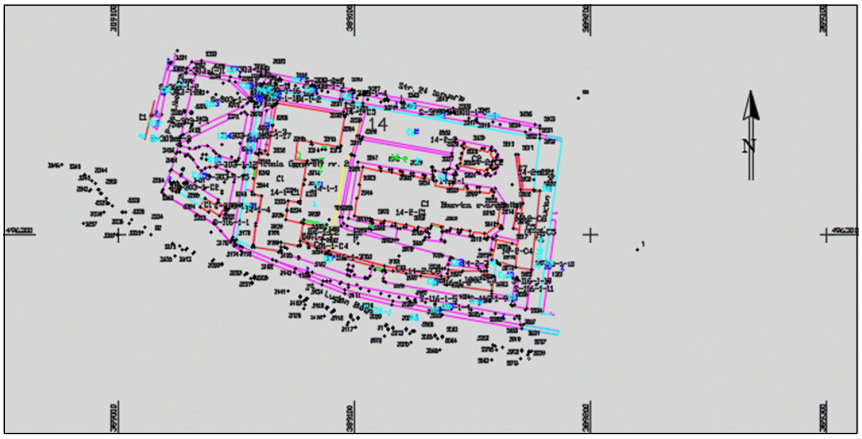


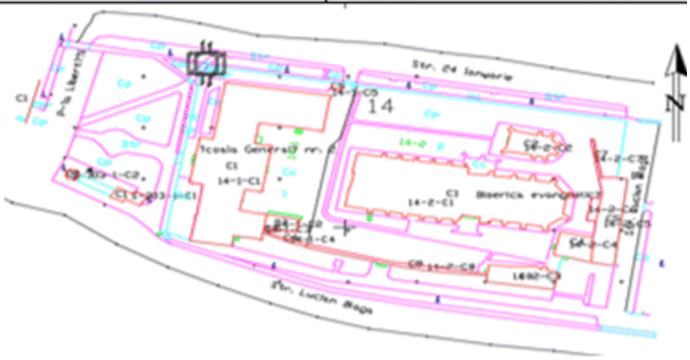
Fig. 6. Layout

Plan de amplasament şi delimitare a imobilului

Scara 1: 500

Nr. cadastral	Suprafaţa măsurată a imobilului (mp)	Adresa imobilului
14-2	3252 mp	Sebeş, str. Lucian Blaga, nr. 1

Nr. Cartea Funciară	Unitatea Administrativ Teritorială (UAT)
	UAT Sebeş



A. Date referitoare la teren

Nr. parcelă	Categorie de folosinţă	Suprafaţa (mp)	Menţiuni
1	CC	3252	Împrejmuit cu gard de beton
Total		3252	-

B. Date referitoare la construcţii

Cod	Destinaţia	Suprafaţa construită la sol (mp)	Menţiuni
C 1	CCLT	703	S. construită desfăşurată = 790 mp
C 2	CCLT	81	S. construcţie desfăşurată = 93 mp
C 3	CA	61	S. construcţie desfăşurată = 72 mp
Total		865	-

Suprafaţa totală măsurată a imobilului = 3252 mp
Suprafaţa din act = 3150 mp

Executant .....
(nume, prenume)

Confirm executarea măsurătorilor la teren, corectitudinea întocmirii documentaţiei cadastrale şi corespondenţa acesteia cu realitatea din teren

Semnătura şi ştampila

Data.....

Inspector

Confirm introducerea imobilului în baza de date integrată şi atribuirea numărului cadastral

Semnătura şi parafa

Data.....

Ştampila BCPI

Fig. 7. Site plan and property limits

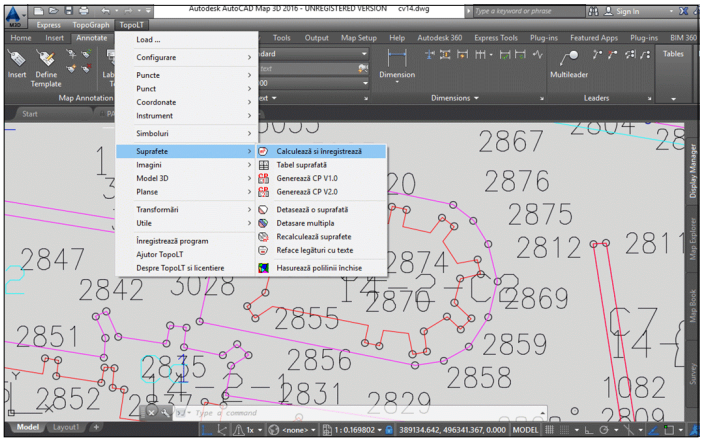


Fig. 8. Calculus of areas using TopoLT

3. Conclusions

In order to carry out the cadastral registration, the following were prepared:

- the supporting technical report;
- the area establishment plan prepared at a convenient scale by the rule 1:2,000 - 1: 10,000;
- the actual location plan on an analog medium on a convenient scale (1: 500, 1: 1,000, 1: 2,000) and in a digital format;
- the property record;
- the inventory with the points used for the surveying of the building in 1970 or local stereographic coordinate system;
- the coordinate inventory of the points on the outline of the building / property and four established points of detail that could serve to reconstruct the coordinate system used to determine the limits of the property;
- the applications draft.

References

[1] Cărpinişianu R., *Vârstele oraşului Sebeş - 750 de ani de atestare documentara 1245-1995*, (Ages of the City of Sebeş - 750 years since the city was first attested with documents), Petresti, 1995.

[2] Ivănuş Daniel, *Surveying and cadastral works in view of establishing an area of tourist interest in the city of Sebeş, Alba County*, Bachelor's Degree Thesis, "1 Decembrie 1918" University of Alba Iulia, 2019, Faculty of Sciences and Engineering, under the coordination of assoc.prof. Ph.D Eva Koncsag;

[3] Raica I., *Sebeşul*, Ed. George Bariţiu, Cluj-Napoca, 2002;

[4] *ORDER no. 700 of 9th July 2014* regarding the approval of Regulations for the approval, acceptance and registration into the land book and cadastral registers;

[5] The official website of Sebes City Hall.