

## Some aspects of surveying the park from Săvârşin, Arad County

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**Abstract** Topographic measurements were aimed to surveying the contours of buildings located on the property of Her Majesty, King Michael. Alleys, trees and outdoor facilities also have been subject to surveying. On the basis of the absolute rectangular coordinates of those 62 points determined, was drawn the situation to 1:2000 scale plan that will serve for the beneficiary's subsequent works of facilities.

### Key words

survey, coordinates, scale

The idea of writing this paper came out from the royal family's request, to conduct a survey of the Săvârşin Castle Park, in order to rearrange it.

processed using AutoCAD 2008.

### Results

### Material and Method

Topographic measurements were made with total station Leica TC 805, which performs data collection and computer processing, using electronic reading distances with an accuracy of  $\pm 2$  mm at a distance of 1 km, in any season, within the limits of  $-20 \dots +50^{\circ}\text{C}$  and an angles reading accuracy of  $5^{\circ}$ . Data collected from the field with Leica TCR 805 total station were transferred to computer for processing. Data were

Topographic measurements were supported by Stereo'70 coordinate points obtained by targeting the Orthodox and Catholic churches. For the calculation Hansen method was use. It was not possible using other old points, because there was no visibility to other known points, and terminal on the hill fortress no longer exists. Measurements in the field were processed using AutoCAD 2008. Planimetric coordinates of the 62 points topographical plans are presented in Table 1.

Table 1

### Stereoscopic projection system

County: Arad

Name territorial administrative unit: Savarsin

SIRSUP code: 11842

Plot: 1/1/1

Nume punct	X	Y
0	1	2
1	505966.14	286573.16
2	505969.88	286566.09
3	505977.04	286550.36
4	505979.73	286542.62
5	505981.29	286535.37
6	505986.72	286479.19
7	505988.68	286454.31
8	505993.64	286404.63
9	505994.42	286396.93
10	505994.18	286396.42
11	505989.19	286392.40
12	505952.54	286363.70

<b>0</b>	<b>1</b>	<b>2</b>
13	505903.10	286324.10
14	505866.33	286294.13
15	505809.09	286248.80
16	505768.66	286215.80
17	505680.73	286146.77
18	505674.07	286139.31
19	505670.71	286136.25
20	505668.41	286134.14
21	505665.45	286130.87
22	505648.68	286108.67
23	505639.55	286062.21
24	505638.31	286062.49
25	505636.16	286057.21
26	505627.63	286038.57
27	505622.96	286026.34
28	505615.07	286010.43
29	505612.36	286005.71
30	505570.00	286015.56
31	505538.23	286021.16
32	505503.00	286030.44
33	505487.69	286025.43
34	505486.43	286019.88
35	505447.07	286028.61
36	505432.93	286033.01
37	505408.41	286037.79
38	505382.03	286044.23
39	505352.88	286077.46
40	505340.60	286077.25
41	505339.69	286107.14
42	505339.87	286162.55
43	505339.64	286177.30
44	505339.83	286204.81
45	505357.82	286221.26
46	505369.41	286231.32
47	505376.03	286232.16
48	505376.01	286232.61
49	505378.38	286232.79
50	505377.92	286238.73
51	505377.65	286239.03
52	505406.07	286265.10
53	505422.26	286280.37
54	505533.51	286382.59
55	505582.26	286427.53
56	505613.16	286456.65
57	505642.24	286483.63
58	505698.03	286529.03
59	505754.32	286558.80
60	505789.04	286564.15
61	505830.83	286566.40
62	505912.17	286569.92

On the basis of absolute rectangular coordinates of the points, was drawn the scale location plan to 1:2000 (Fig. 1).



The calculation was made by surface analytical method, using rectangular coordinates of contour points on the basis of general formula for calculating the surface about ality, for a polygon with „n” contour points.

$$2S = \sum_1^n x_n (y_{n+1} - y_{n-1})$$

Analytically calculated area is 197,969 square meters.

**Conclusions**

The work consists of written and drawn documents, was

made by tehno - surveying computer and printing with printer and plotter. The situation was handed to the beneficiary and on magnetic tape. Instant calculation of the coordinates of all points offer high quality, feature the latest geeration devices. In these circumstances, the work can be used in subsequent planning work.

**References**

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