ACHIEVEMENT OF NETWORK SUPPORT FOR THE CONSTRUCTION OF A NEW COMMUNICATION WAY

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ABSTRACT

One of the most important steps in the topographical survey for building a communication ways or drawing it on the ground is represented by achieving of the networking support. Of the total area of land affected by the road bypass South Craiova, 22.56 ha are owned by private individuals, the remaining 9.53 ha are the property of Romanian state.

When performing network support was used Leica TCR 805 total station and Leica Sprinter 150 M electronic level. For downloading data and processing were used Autocad, TopoLT, ProfLT, Leica Geo Office Tools, Topograph, Microsoft Office Excel software. Network support was determined by a traverse at both ends supported on points with known coordinates.

INTRODUCTION

One of the current problems of road administrators is the continuous improvement of services offered by them. An important contribution to the development of good roads that provide a high degree of comfort have the work to stakeout their characteristic elements, complex works preliminary to roads execution.

Making a modern ways of communication, at every stage of his involves performing specific topographical work, to which in the context of the design of modern communication way, the topographic measurements accuracy is extremely high (Călina A., 2014).

Road bypass of Craiova starts from DN6 from km 216 + 850 at the entrance to the localities Cârcea and stops at km 9 + 360, DN65 area.

One of the most important steps in the topographical survey for building a communication ways or drawing it on the ground is represented by achieving of the networking support. (Călina Jenica, 2012).

MATERIAL AND METHODS

The purpose of this work was achieving the support network of topographic study for design and then execute Craiova detour belt through the south.

Road bypass of Craiova is located in the south-east of Craiova and will link two national roads DN6 (Bucharest-Timisoara-Craiova-Cenad) and DN65 (Pitesti, Craiova-Slatina).

Of the total area of land affected by the road bypass South Craiova, 22.56 ha are owned by private individuals, the remaining 9.53 ha are the property of Romanian state.

Specify that on these surfaces are not buildings proposed for demolition. South Craiova Road bypass crosses the railway line electrified Craiova - Piatra Olt - Slatina being necessary to build a passage between kilometer 5 + 660 and 5 + 420.

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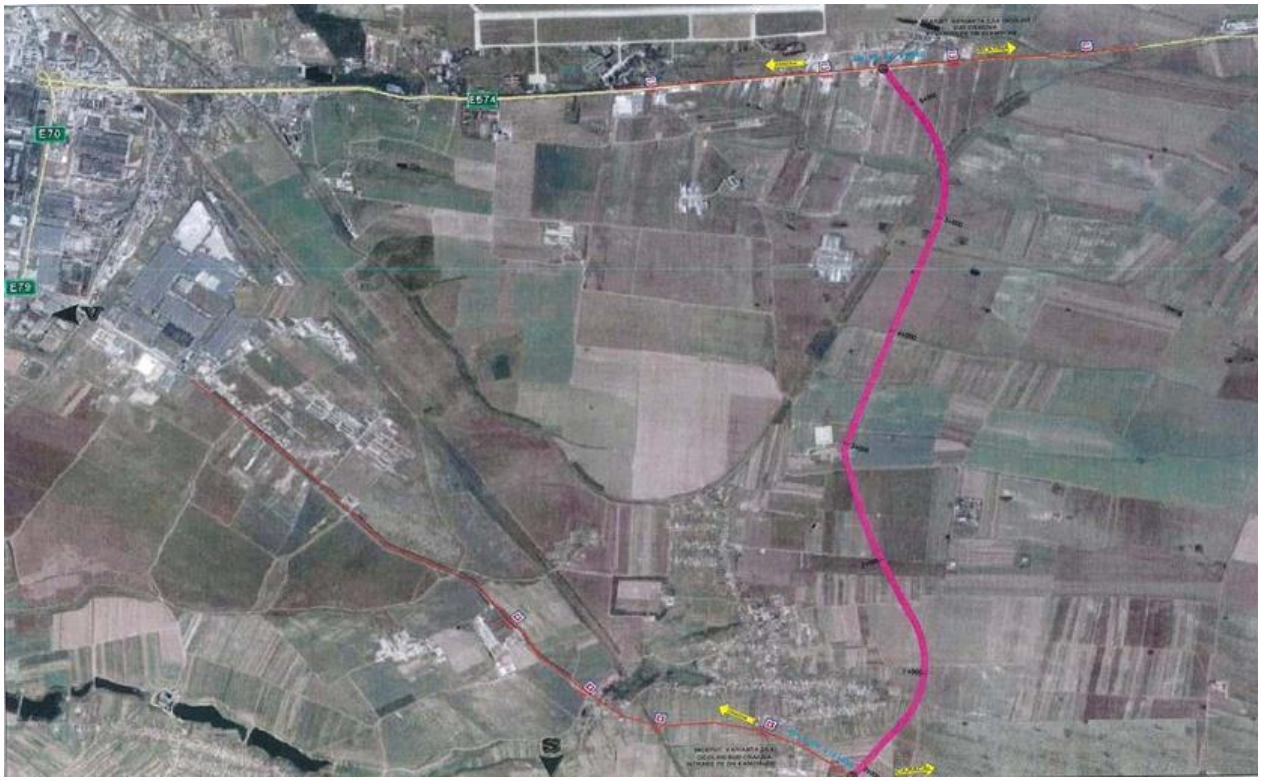

Figure 1. Work framing in the area

RESULTS AND DISCUSSION

Was carried out on the ground a supported traverse at both ends from point B215 (with known coordinates) with visas on CA _I.PGGH Carcea, Carcea Church and CA_SMA Carcea through the points B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B12, B13, B14, B15, B16, B17, closing on the the Parloagele pyramid and visas to points T116, T77, airport tower, PG Teis Hill, PG Garlesti west, lightning rod oil, IAS Robanesti (Figure 2).

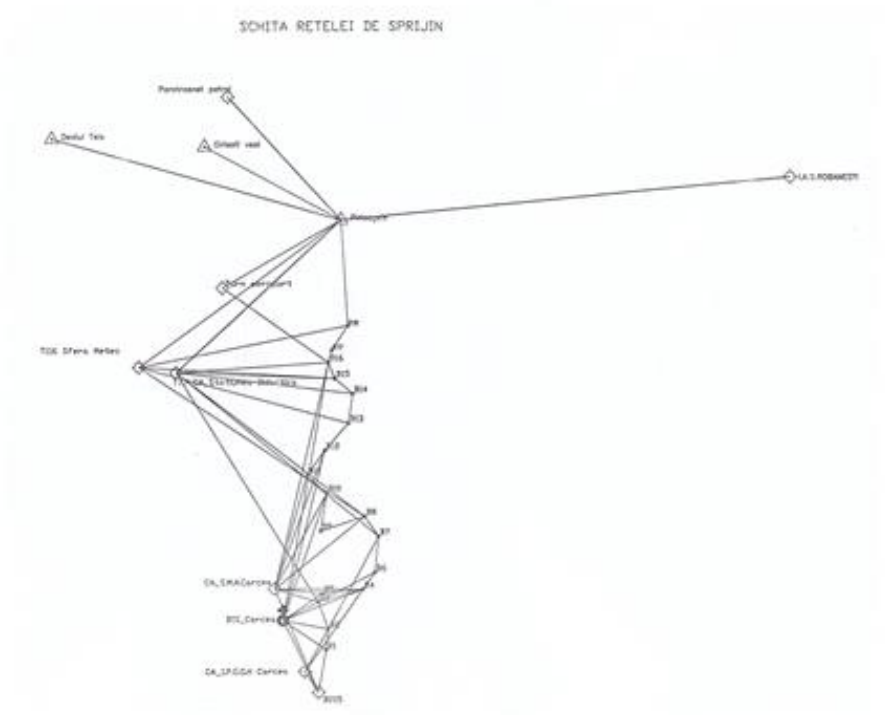

Figure 2. Drawing of support network

Old points of known coordinates were:

Table1

Coordinate inventory of old points

Point no.	X(North)	Y(East)	Z (Altitude)
IPGGH CARCEA	307666.118	412656.009	
CA IAS CARCEA	309118.278	412132.919	
BIS CARCEA	308565.513	412279.847	
T77	312848.959	410418.839	
T116	312941.080	409774.180	
B215	307298.670	412894.265	180.090
PG PARLOAGELE	315468.833	413279.528	193.000
TURN AEROPORT	314307.599	411218.600	
DEALUL TEIS	316862.834	408265.378	
GARLESTI VEST	316723.105	410907.073	
PARATR PETROL	317571.560	411308.430	
CA IAS ROBAN	316197.959	421084.949	

All of the operations necessary to obtain the correction on the coordinates, directions and horizontal distances were performed using TOPOSYS program, based on data resulting from downloading information from total station. Leica geo office tools was used to transfer data between station Leica TC 805 and PC.

According to the report of Toposys, the directions error was -0.0051^g, the directions correction being 0.0003^g.

On the coordinates, error was: -0.116 m on the X axis
-1.664 m on the Y axis

It resulted the following coordinate inventory for the support network points (Table 2):

Table 2

Coordinate inventory – new points

Point no.	X(North)	Y(East)	Z (Altitude)
B1	308045.525	413024.118	178.446
B2	308408.464	413062.192	178.857
B3	308883.650	412889.219	180.726
B4	309098.241	413661.647	175.386
B5	309035.235	412963.818	178.420
B6	309397.508	413876.497	176.297
B7	310019.412	413938.474	174.850
B8	310364.895	413695.144	175.354

B9	310117.609	412925.199	180.116
B10	310774.880	413037.843	175.763
B11	311074.711	412694.654	180.158
B12	311504.075	412999.019	181.737
B13	311976.443	413410.878	178.999
B14	312482.117	413483.796	179.951
B15	312747.248	413171.938	183.867
B16	313020.963	413062.776	187.575
B17	313235.958	413121.434	188.342
B18	313657.458	413396.625	190.513

From points determined by supported traverse and from the other known points from the work area, were determined by polar coordinate method, points of detail required for the location plan (a total of 1245 points).

CONCLUSIONS

Topographic and geodetic works preceding, accompanying and complete any construction process, contributing to smooth running of the construction process by shortening the period both design and execution, and through a better organization of work.

The design of any construction can not be made without updated topographical plans and topographic profiles drawn at scales as large, and land application of project construction and execution of construction works are calling on topographic methods and tools.

The software processing and editing of data, allowing manipulation of large volumes of data for which specialized plans are carried out a short time. Therefore it is recommended to use current specialized software to ensure best possible accuracy and highest possible efficiency of workflow.

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