

## FOREST CADASTRE - INSTRUMENT FOR ANALYSIS AND INVENTORY OF FORESTRY FUND

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**Abstract:** *The delay in the implementation of the property laws in Romania along with the permissiveness of sanctions related to forest crimes, the repeated changes to the legal framework and the insufficiency of the funds allocated to afforestation are favorable conditions of the continuous diminishing of the Romanian forest fund, the negative effects being visible in the daily life.*

*Due to the continuous growth of deforested areas as well as the production of extreme meteorological phenomena as a result of unfolding activities of unreasonable exploitation of wood in conditions that go beyond the legal framework, it is necessary to carry out the inventory works for the forest areas and to identify the right owners of these surfaces. At the same time, it is also necessary to make and update forest plans and maps in order to achieve a more accurate account of the areas affected by natural or human abnormalities.*

**Keywords:** *forestry fund, landscaping units, forestry plan, topographical measurements, forest cadastre*

### 1. Introduction

In the interwar period, the bases of the specialized cadastres were set up by the operation of the following subsystems of the specialized cadastre: the mining cadastre, the cadastre, the cadastre of the railway, the cadastre of water and the cadastre of the Autonomous Forest House of the State of the Great Forestry Unit (MUF).

After the Second World War, these cadastre systems were gradually diluted as decision-makers, and then as organization and framing, reaching near the 1970s in simplified land registration systems unrelated to cadastral engineering technology. The national forest fund is a component of the land fund. The technical rules for the introduction of the general cadastre stipulate that the national forestry fund comprises the forestry land included in the forestry arrangements, namely:

- forests and lands for afforestation;
- land that serves crop production, forestry production and management, protective curtains and bushy-bushes.

The forest fund is characterized by the large area of occupied land, where there is a great complexity and diversity of ecosystems ensuring the sustainable development of the area through the ecological, social and economic component of the society. Trees, by their specific size and port, influenced by the internal climate of the forest, are the basic element that impresses the particularities of a forest.

With the creation of the massive tree, the specific internal environment of the new forest is completed. The forest manages to make better use of the trophic and energy potential, defining the productive capacity of forest ecosystems. At the same time, the trees ensure the regeneration and conservation of forest forests in time and space, actively contributing to its extension to other territories.



sustainable and unitary management, in accordance with the provisions of the forestry and forestry rules, of the state forestry fund in order to increase the contribution of the forests to the improvement of the environmental conditions.

The identification of the land that constitutes the public property of the state is made, according to the provisions of the Forest Code, on the basis of forestry arrangements. For the private property forest fund, ownership is established on the basis of legal acts.

The forestry arrangement involves a complex of measures that are undertaken, based on a thorough study of the forest production process, with the aim of better management of the forestry fund, of the size and value of the production. The forestry arrangements are reviewed from 10 to 10 years and improved according to the existing situation.

The surface area with forest vegetation covered by the present project is located on the northern slope of the Southern Carpathians in the outskirts of Șugag locality named Sălăne at an altitude of 1700 m, where forests of conifers predominate. This area is part of the Production Unit UP VI Oașa and is situated at the three-pronged boundary of Alba County, Hunedoara County and Vâlcea County crossed by springs and streams that flow into the Oașa reservoir.

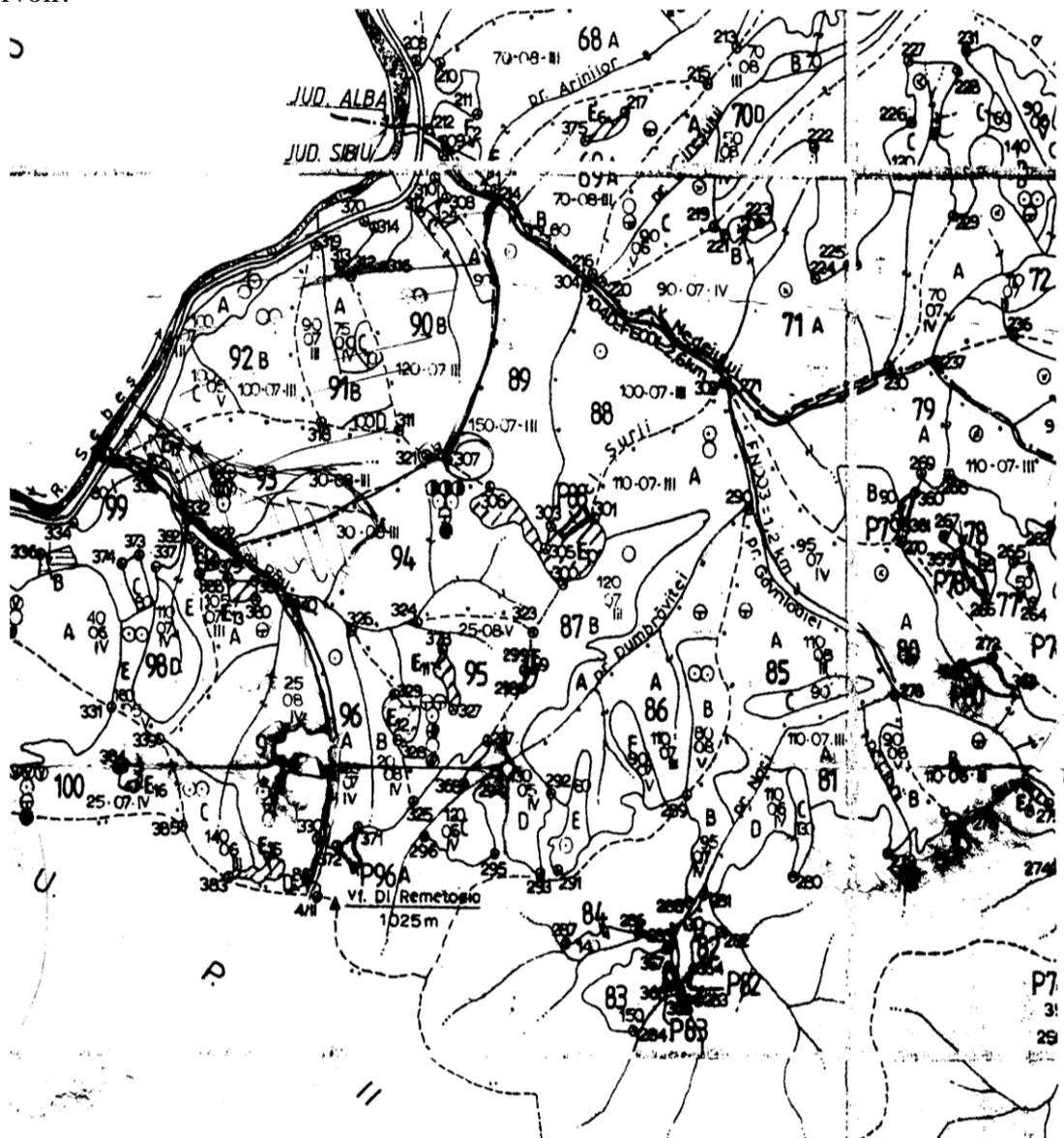


Fig. 2 Forestry Plan - Sălăne (Forest Directorate Alba)

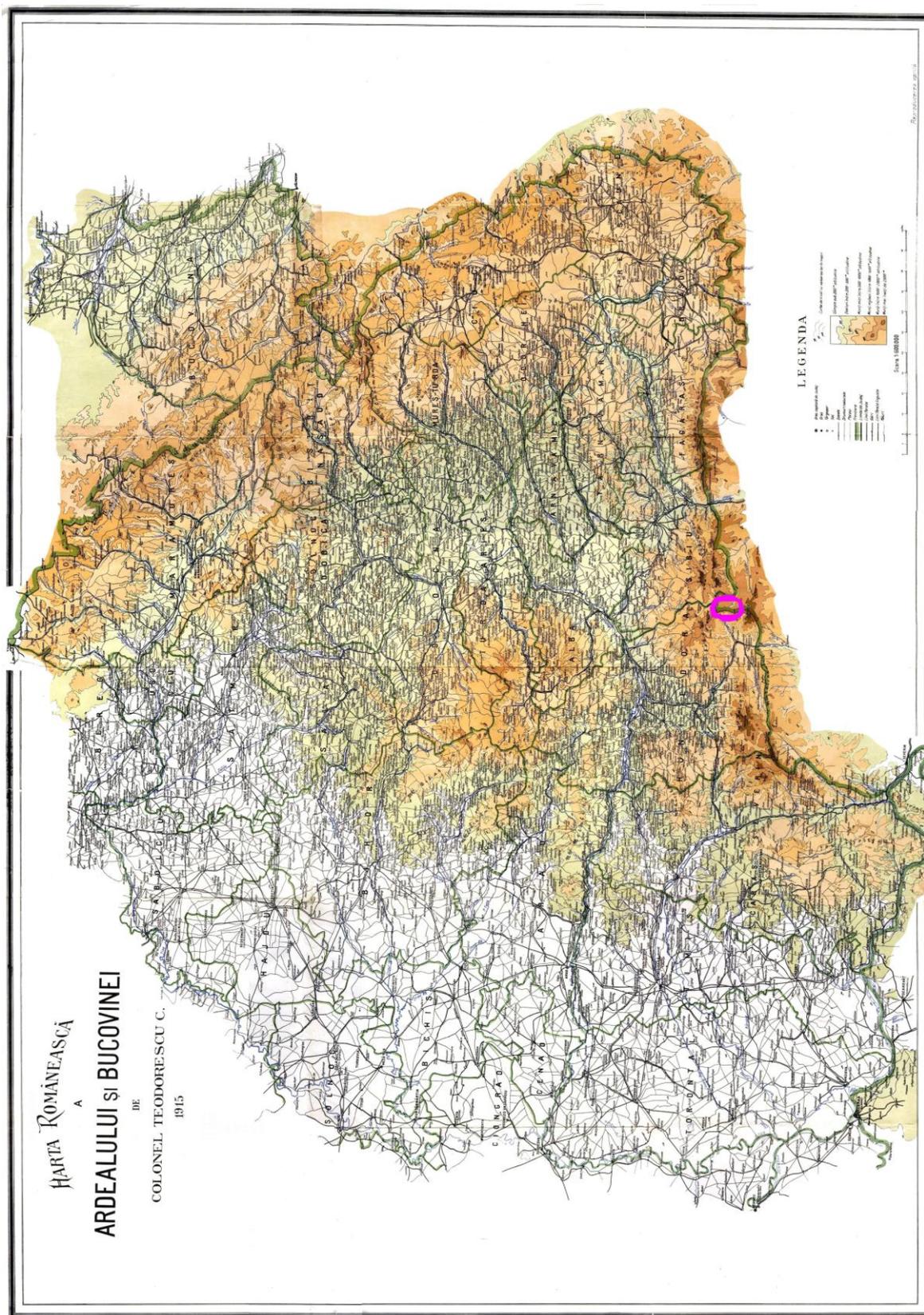


Fig. 3 The map of Ardeal and Bucovina – Austro-Hungarian Border



Fig. 4 „Hulumb” – element of Austro-Hungarian Border

In order to perform the topographical measurements, 2 geodetic points of order III were identified in the area of interest: Vârful Sălâne and Vârful Voievodul.



Fig. 5 Geodetic Beacon and Stone of Sălâne



Fig. 6 Geodetic Beacon of Voievodul

### 3. Results and Discussion

The analyzed area is at the limit of Alba County with Hunedoara County, which requires measurements of the highest accuracy due to the county boundary.

Considering the fact that there are only two geodetic points in this area and the terrain is injured and woodland, which leads to the lack of visibility between these two points, the only method that can be applied in this case is the two-point polygon mining fixed at the surface and which is completed with the measurements of the details.

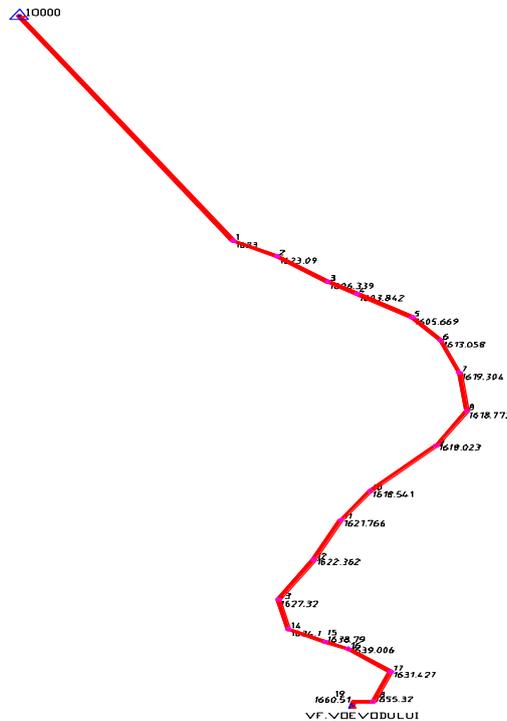


Fig. 7 Topographical network

The Forest Cadastre aims to inventory and record the forest fund for sustainable forest management, optimal use of resources and preservation of its integrity.

The forest cadastre is based on topographical or cadastral plans, pedological maps, forest plans and parcel descriptions showing all the factors on which the production and optimal use of forest products depend. On the basis of these elements, the final cadastral plans of the forestry fund and the appropriate IT systems are drawn up.

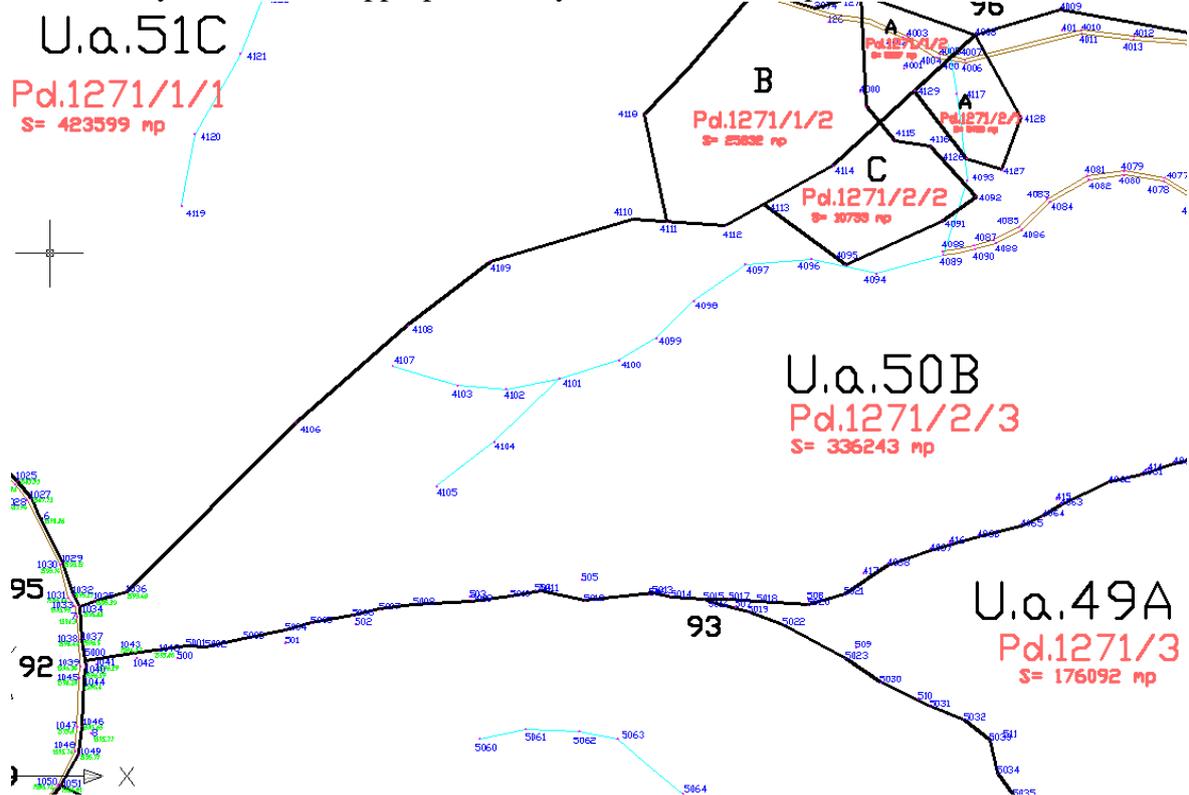


Fig. 8 Drawing up the cadastral plan

With the execution of the cadastral works, works are carried out for the delimitation of the forestry fund and for the spatial organization of the forest area in production units (U.P.), parcels and landscaping units (UA).

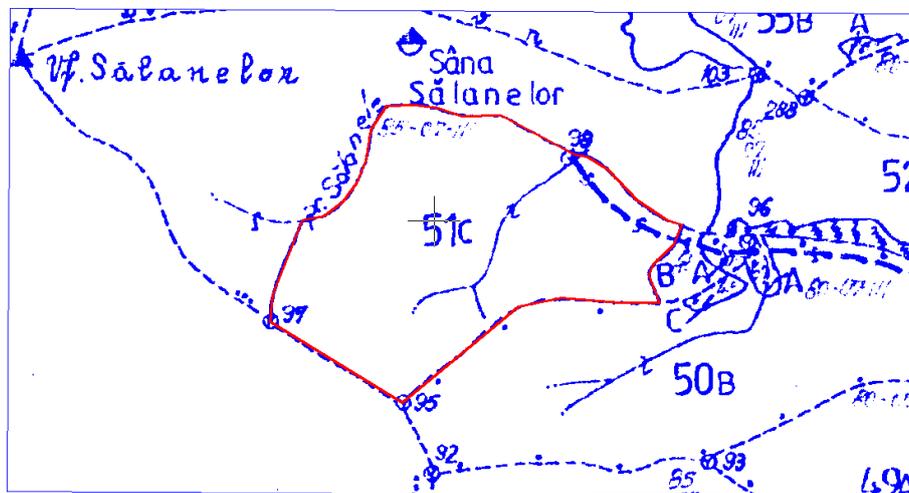


Fig. 9 Existing Topographical Plan of landscaping units (UA)

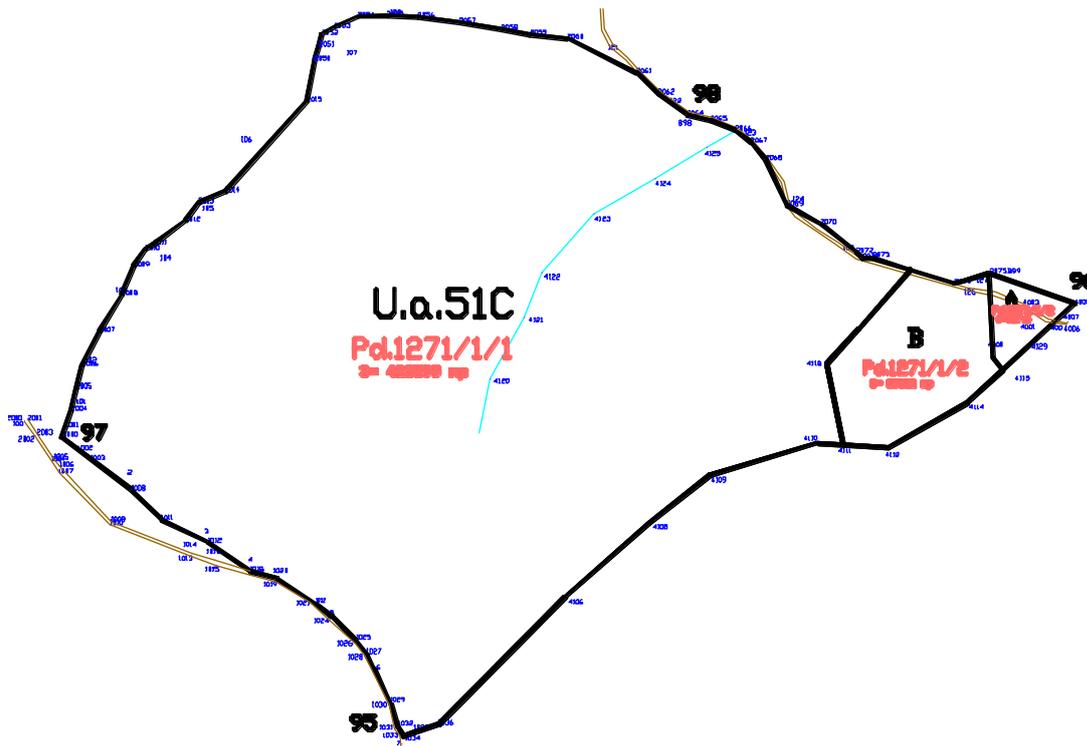


Fig. 10 Topographical Plan - updated and completed with cadastral elements related to the landscaping units

Due to the delay or bad application of the property laws, there have been situations in which the forest fund records could not be carried out due to the following aspects:

- the refusal of the site to be taken over by the future owners, in cases where the retrocession was not carried out on the old site;
- the invalidation of Property titles by the Local Land Fund Committees;
- granting multiple Property titles on the same forest area;
- the ownership of the landowners without any cadastral work to identify the property limits;
- the refusal of landowners to take over the land they had in possession because the proposed forest lands were grubbed up;
- validation by the Land Fund Committees of requests for possession without clearing of the location and limits;
- inappropriate involvement of local public authorities in solving the problems of ownership;
- unjustified delay in the issue of property titles.

These aspects have led to the re-forestation activities not being started mainly due to the following factors:

- lack of financial funds for these activities;
- the refusal to initiate reforestation activities, since the exploitation of the areas was abusively made by unauthorized persons;
- litigation regarding the legal status of forestry property.

Although land areas have been identified which has not been re-forested within the statutory deadlines, the legal framework in the field further favors these irregularities, leading to irreversible damage to the sustainability of the national forest fund.

#### 4. Conclusions

Taking as a model the long - standing experience of the cadastre in Transylvania, Banat and Northern Bucovina from the Austro - Hungarian period, it appears that when the cadastre works together with the land books, society is much more organized and much better headed for progress. The general cadastre and land books are intended to serve the owner and his real estate rights issues, as well as the administrative institutions of the local and central state, in fulfilling their role as arbiter and guarantor in securing this right as owner, as well as the equitable establishment of real estate tax obligations.

The location and positioning of the site was made after a thorough study at the office, which involved the overlapping of the MUF in 1949 with the cadastral plan, the forest plan, the topographic plan, and the orthophotometric plan that resulted in precise identification of the boundaries of the surfaces to be measured, and field support.

The application of mining polygonation has made it possible to achieve very good results and using the devices with superior performance and appropriate software has reached the precision required by the rules in force.

Considering the field and landscape conditions, the use of this method allowed the completion of the work because there are few geodetic terminals in the mountainous areas and the possibility of using GPS devices is difficult and sometimes impossible because of the forest vegetation in the area.

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