2 slide

A Chinese proverb says “a picture is worth a thousand words.”

Sometimes, however, pictures - aerial/satellite photographs we surveyors use to collect data from the ground while comfortably sitting in our office, cannot really talk to us.

They say nothing or they lie.

Sometimes pictures ask of us to interpret them correctly.

Can we?

Not always and not everyone can.

Under certain circumstances, maybe we can.

If we have experience, even better but even that is not a guarantee.

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3 slide

- How can you tell if under the plants there are objects or linear elements?

---

4 slide

- How can you have a clear view under the shadow of an object?

---

5 slide

- How can you determine exactly the boundaries in an urban area?

---

6 slide

- How can you be sure of the type of tree in an area or the type of crops that you are looking at?

While in university, we were taught about photogrammetric keys. These do provide us with the passport to travel in a fantasy world, but not necessarily with safety, often leading to bad results that affect other people.

In that case, we are far away from the problem although we were the ones that created it in the first place.

---

7 slide

The correct identification of details on the ground while looking at an aerial picture depends on many factors, such as:

- Tone, tone graduation of the ground and the objects on it.
- Shape and dimension of objects.
- Shade of objects.
- Scale of the picture in relation to the resolving power of the film used and the surveyor's attention to detail which is usually 0.01 to 0.03 mm. Therefore if we take for example an aerial photograph with a scale 1:30.000 or even smaller, it is doubtful whether the surveyor will be able to identify objects that are smaller than 1 meter.

---

8 slide

Let's look at the following examples of stereoscopic interpretation of images:

Church: It is recognized by the shape of the structure, the road that leads to the building and by the surrounding wall that usually exists.
Ruins: they are recognized by the total or partial collapse of the walls and from the scattered building materials.
Quarry: It is recognized by the irregular shape of the excavation and by the brighter tone compared to the surrounding ground

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9 slide

Deciduous forest: It is recognized by the deep gray tone and by the height of the trees
Evergreen forest: It is recognized by the near black tone and by the height of the trees
Olive grove: It is recognized by the even distribution of the trees and the medium gray tone

---

10 slide

Dirt road: It is recognized by the whitish thin line of irregular width within farming areas
Asphalt road: It is recognized by the dark gray tone, the smooth roadway surface, the gray color of the roadside and of the existing technical projects
Railway: It is recognized by the long straight sections, the wide radius turns and the black line within the white tone of the gravel substrate which is interrupted by bridges.

Is it always wise to rely on other sources to collect data rather than the field survey?

11 slide

Let's look at some examples

- Athens. My neighborhood, my parking lot. Here with a red color the cadastral registration. 150sq.m. are given to the neighbor. This side is approximately 3 meters higher from the level of the neighboring property but because it is covered with various high trees, it is not visible from aerial photographs especially those taken in spring or summer. The boundary has been in the same place since 1900!

---

12 + 13 slide

- Athens. A place with many high buildings and high density of vegetation. Look at the property boundaries on the cadastre and look at the actual one. The difference is significant. (2 slides)

---

14 slide

- Rural area. Crops. The property boundaries by the cadastre are significantly different than the actual ones.

---

15 slide

- Rural area. uncultivated land

16 slide

Someone might wonder why. This is the answer:

- Because the cadastre used small scale photographs to set the limits

- Because there is no way to see under trees and vegetation, shadows and high objects.

- Because the owners back then never submitted a topographical drawing since it was not mandatory to do so
- Because the state did not care to legislate properly to make it mandatory to submit a triangulated topographical drawing.

- Because we as surveyors and the associations did not push the state enough to do what was right.

- Because we as surveying companies due to cost reduction, tend to occupied younger engineers that lack the knowledge and experience or unskilled personnel.

A simple correction of the above incorrect registries costs a lot of money and time.
However, if not corrected the property cannot change owners by any legal contract either it's a sale, donation, parental benefits transfer or even inheritance acceptance.
Therefore this is an indirect confiscation of property, with the cadastre as an excuse.

17 slide

Let's discuss in a few words the results of the incorrect data in the area of party wall deputies:

This is a 1000 acre land that was the reason of a court dispute over many years.
I was assigned as surveyor – court expert to decide whom the land belong to.
Even though the legal owner had property ownership titles dated back many years, the neighboring owner claimed that the land belong to him.
Two court rulings were issued previously which where both in favor of the neighbor trespasser. These court rulings were based mostly in two previous court expert studies from fellow surveyors which with just the examination of the document's folder and NO actual survey to the land, ruled in favor of the trespasser.
I was the third court expert surveyor that a different court had appointed after fifteen years.

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18 slide

I walked studied and examined the ground of this land for three days.
I tracked down foundations of old houses and walls which were mentioned in the old ownership titles dated back to 1920 and which were not visible on any aerial photograph.
I also located two old trees that were zoning the boundaries of this land.
It was an ancient almond tree and an ancient locust tree. I found trails of old paths etc…
Gathering all these findings together i drafted a study of sixty pages demonstrating that the land in question belongs to the rightful owner and not to the trespasser like the previous two surveyors claimed.

19 slide

I could list many similar examples based on my experience that would highlight the importance of collecting data directly of the ground.

But, we need to pay attention in the following:

- The surveyor needs to decide when that is necessary
- We should not avoid data collection from the ground to save money or time etc.
- Data collection on the spot should be done by experienced surveyors who know to “read” the ground.

Every surveyor should know that:

His job could be used for social progress and financial development, but in some cases it could become the reason for social injustice and financial wretchedness.

We as surveyors should fight to support the financial development and to achieve social justice with our work.

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20 slide

Thank you

Nikolaos Zacharias

International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

FIG COMMISSION 3
Spatial Information Management

EGOS

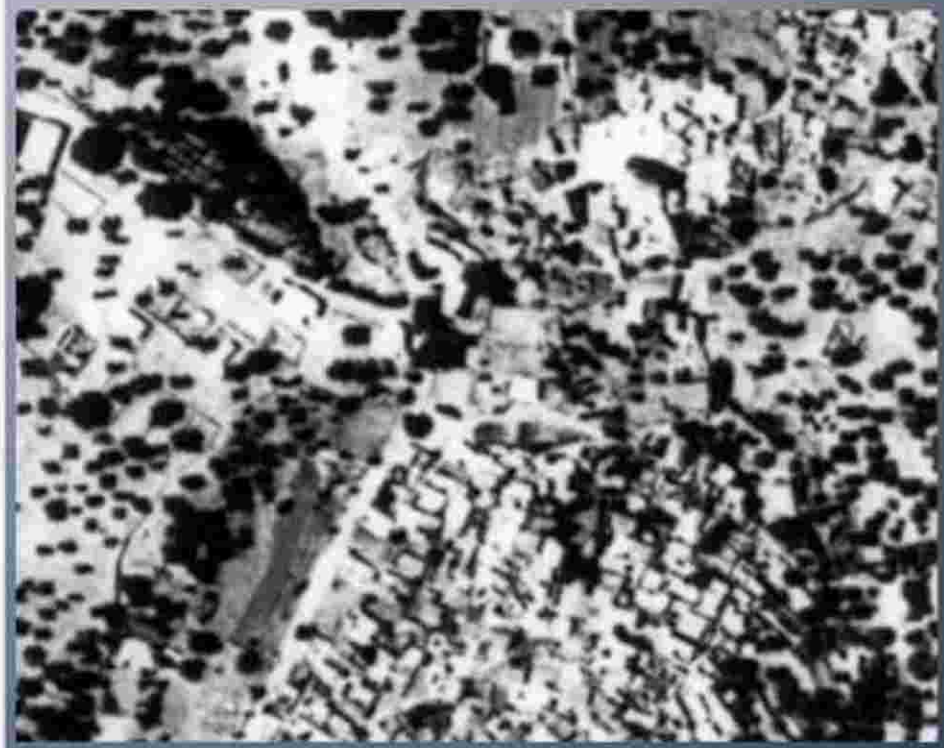
FROM VOLUME TO QUALITY
BRIDGING THE GAP FOR
SPATIAL DATA INSTRASTRUCTURE
Iaşi 3\7 November 2016

THE VALUE OF DATA COLLECTING FROM THE GROUND

Nikolaos Zacharias
Rural and surveying engineer
Ex general secretary of HARSE
President of EGOS

1988 1:6.000

1960 1:30.000



A Thousand words

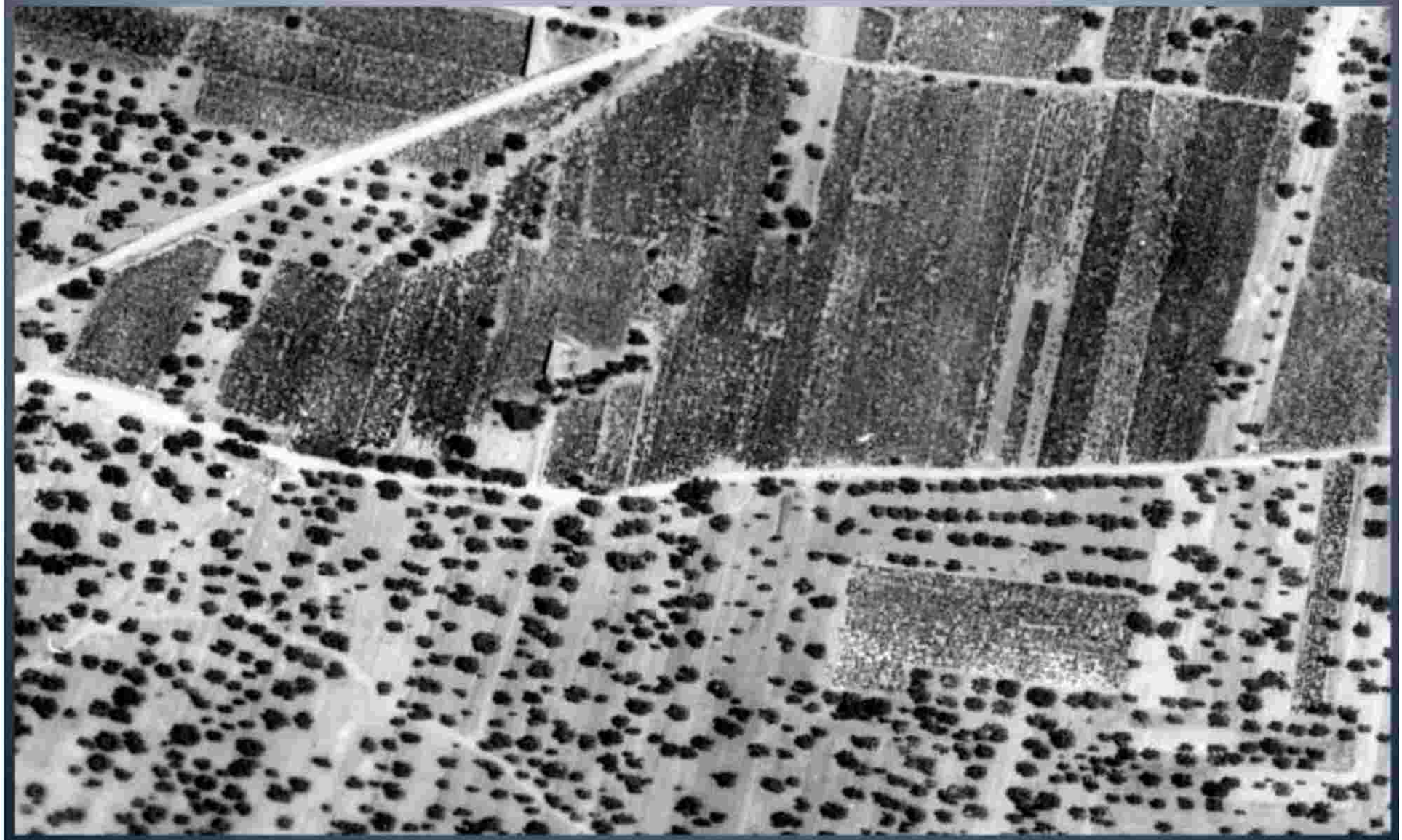
?

How can you tell if under the trees there are objects or linear elements?

How can you have a clear view under the shadow of an object?

How can you determine exactly the boundaries in an urban area?

How can you be sure of the type of tree or the type of crops?



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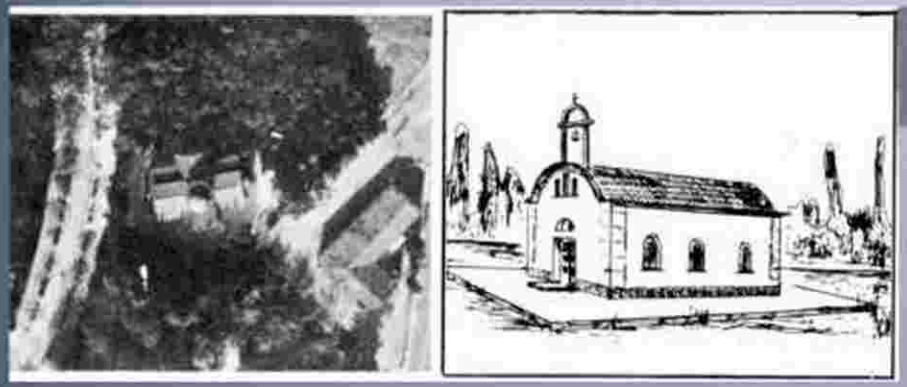
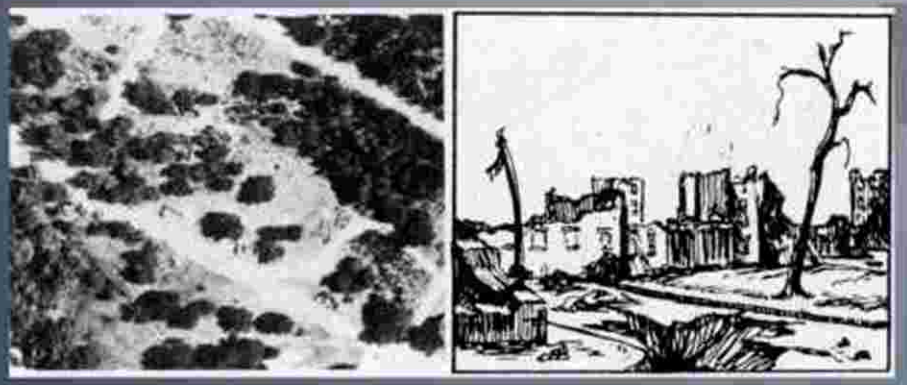


Church

It is recognized by the shape of the structure, the road that leads to the building and by the surrounding wall that usually exists.



Ruins

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It is recognized by the irregular shape of the excavation and by the brighter tone compared to the surrounding ground.

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It is recognized by the deep gray tone and by the height of the trees.

Evergreen forest

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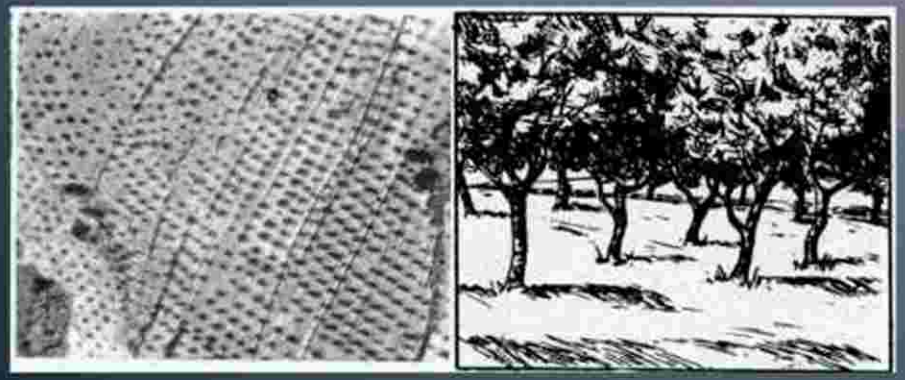
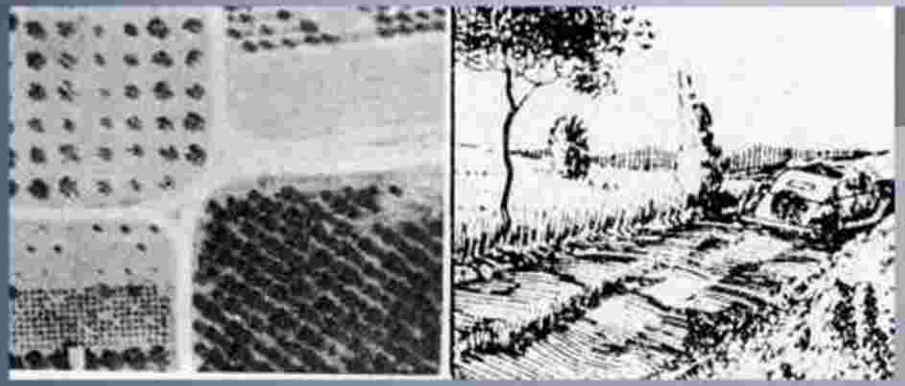


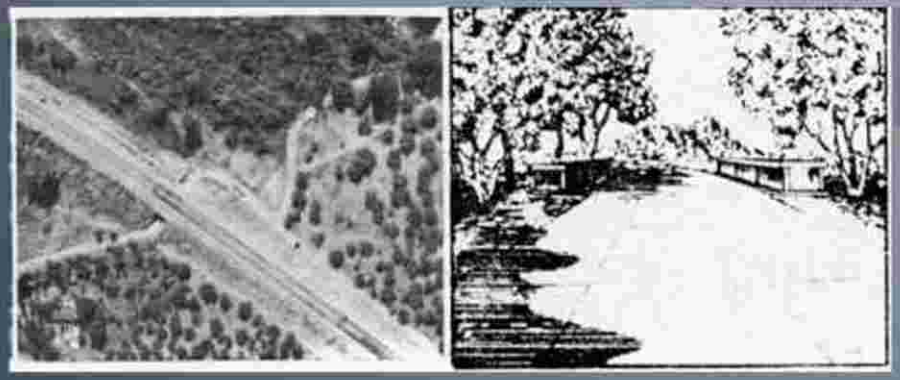
Olive grove

It is recognized by the even distribution of the trees and the medium gray tone.



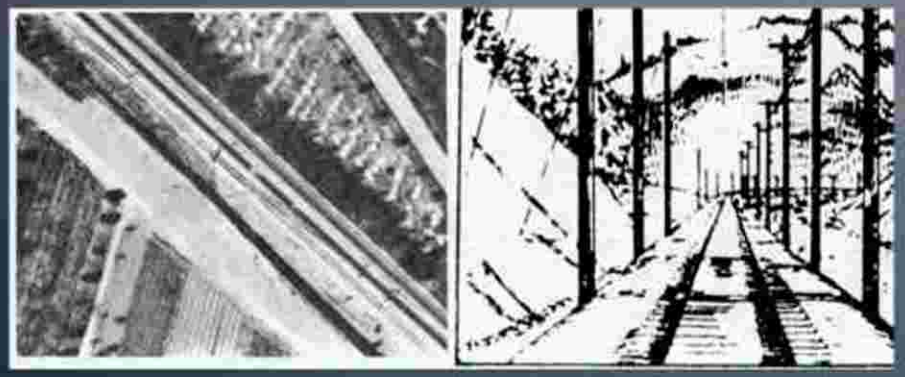
Dirt road

It is recognized by the whitish thin line of irregular width within farming areas.



Asphalt road

It is recognized by the dark gray tone, the smooth roadway surface, the gray color of the roadside and of the existing technical projects.

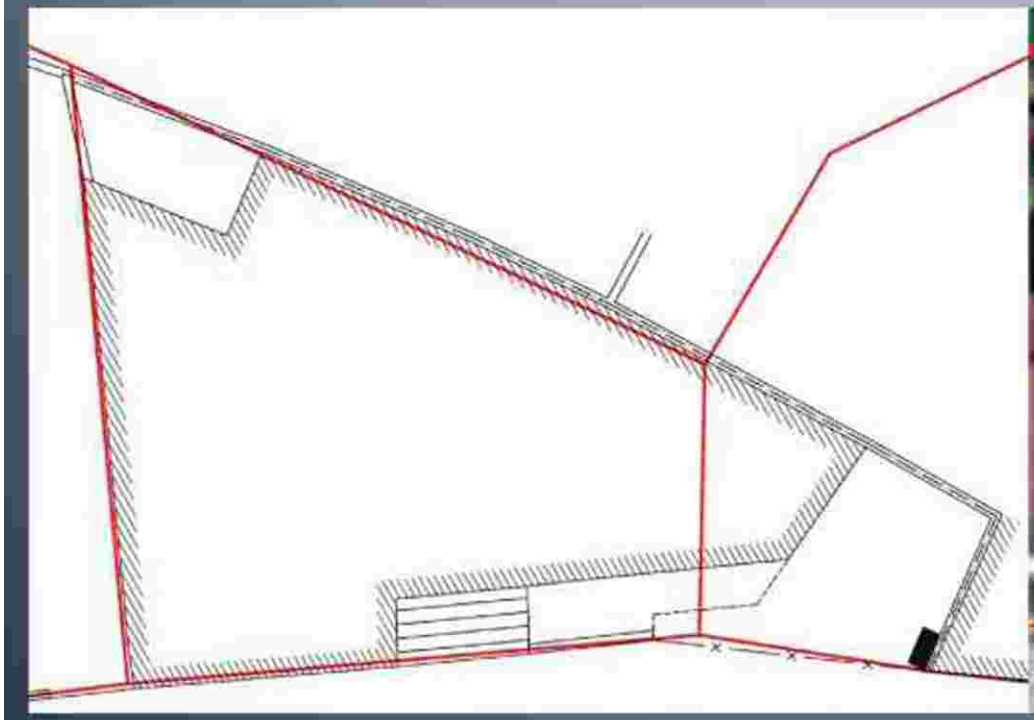


Railway

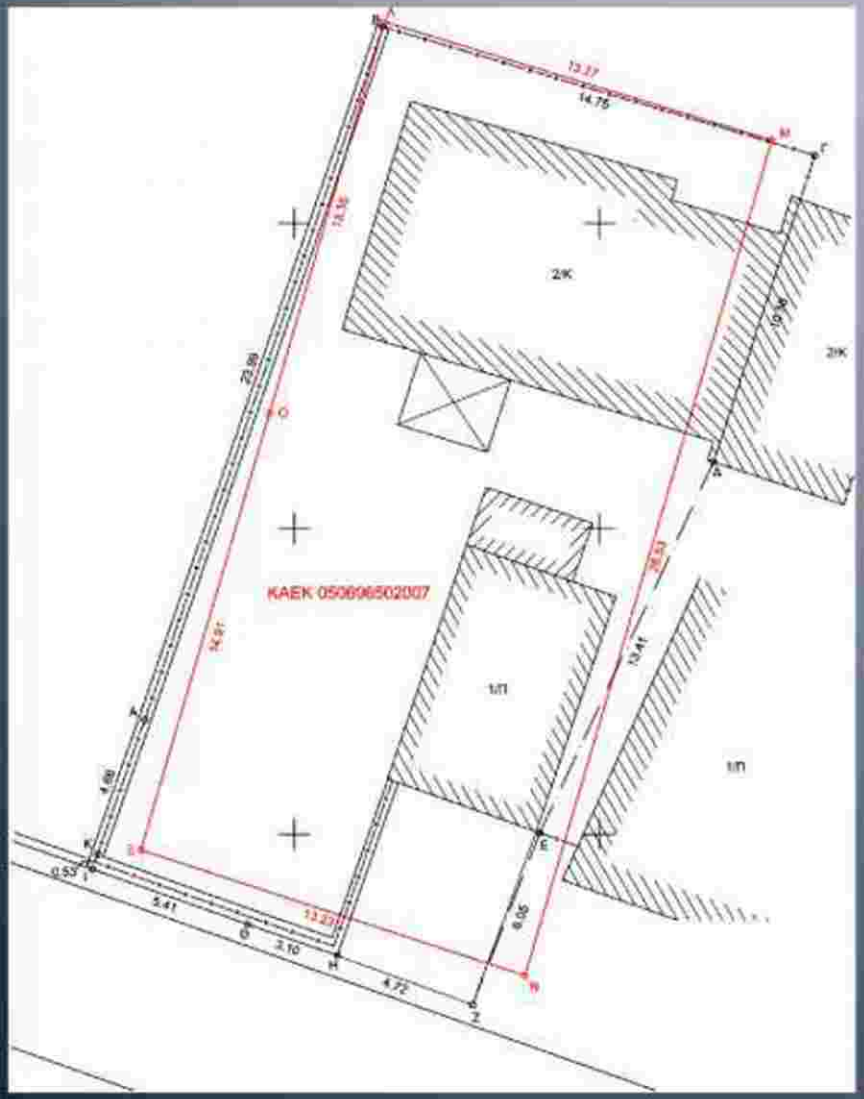
It is recognized by the long straight sections, the wide radius turns and the black line within the white tone of the gravel substrate which is interrupted by bridges.

Incorrect results of cadastral registries in urban areas

Incorrect results of cadastral registries in urban areas

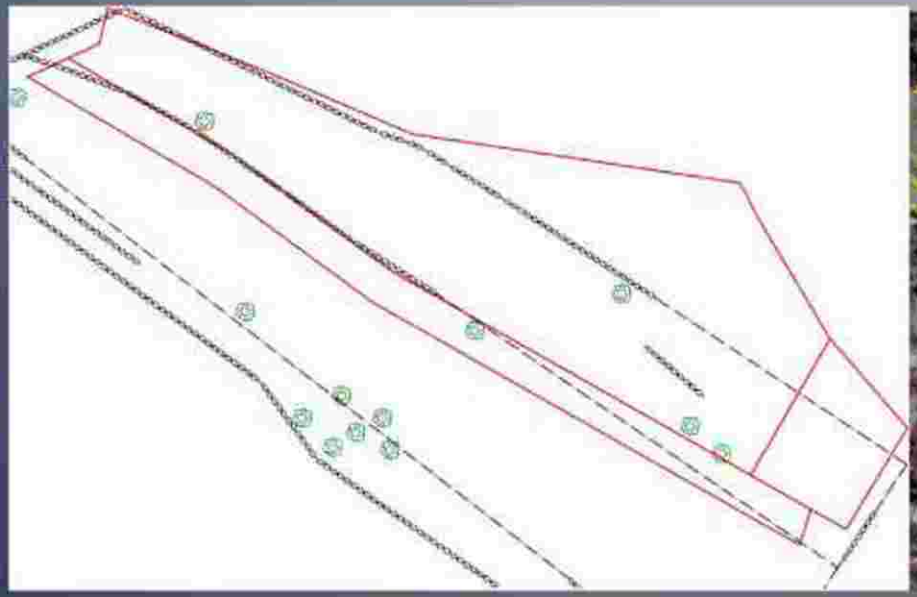


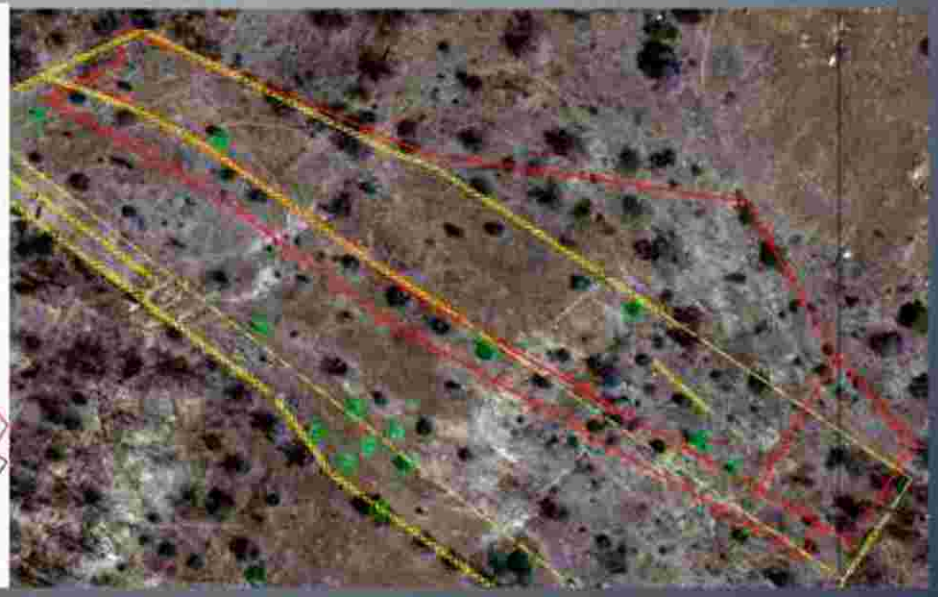
Incorrect results of cadastral registries in urban areas



Incorrect results of cadastral registries in agriculture areas

Incorrect results of cadastral registries in agriculture areas

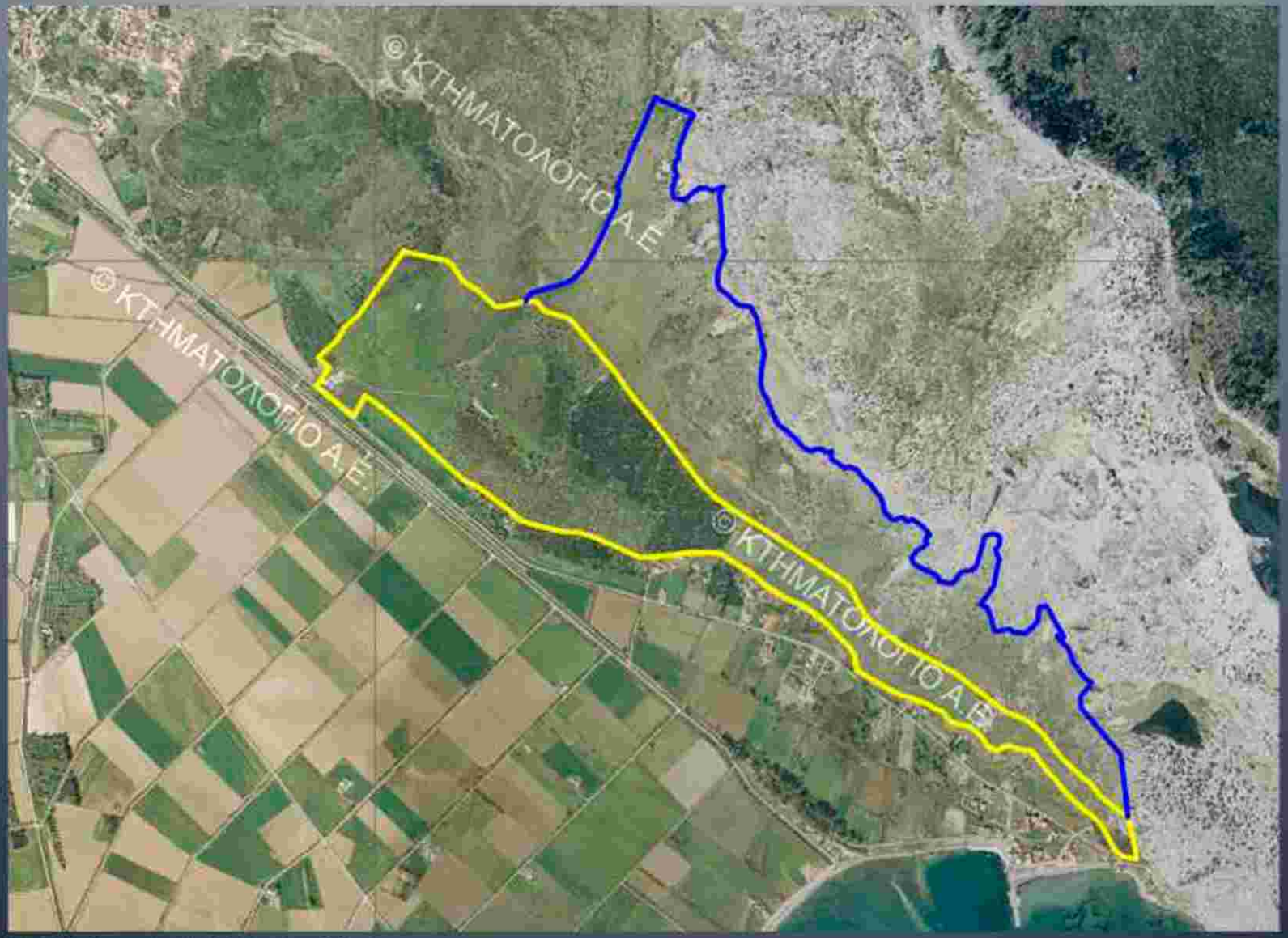




Why such errors occurs?

- Small scale photographs or satellite data
- No visibility under trees, shadows and high objects
- The owners did not submit topographical drawings
- Lack of correct legislation frame
- The professional associations did not push the state to legislate correctly
- Companies use young or unskilled personnel for financial reasons

Incorrect court decisions on land registry



Surveying results on the ground

Conclusions

- The surveyor needs to decide when data collecting from the ground is necessary
- We should not avoid data collection from the ground in order to save money or time etc
- Data collection on the spot should be done by experienced surveyors who know to “read” the ground.

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