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28 May - 1 June 2023 in Orlando, Florida, USA

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Protecting
Our World,
Conquering
New Frontiers

Real-Time Mapping of the Waterways Network

no.11978

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Preface

Water is the primary good for excellence, fundamental for human life, the environment and the industries that surround us.

In a period of great global drought, Italy, like other countries has taken action against the waste of this commodity and raise awareness among the population about the responsible use of water.

In addition to the limited consumption for which every citizen is responsible for himself, wastes occur due to remote inefficiencies or malfunctions that are impossible to repair due to poor designs pipelines.

Our company, Geoservizi srls has undertaken to map water systems, joints and every feature of pipes to make the maintenance of the entire network and make the accessibility to information easier.

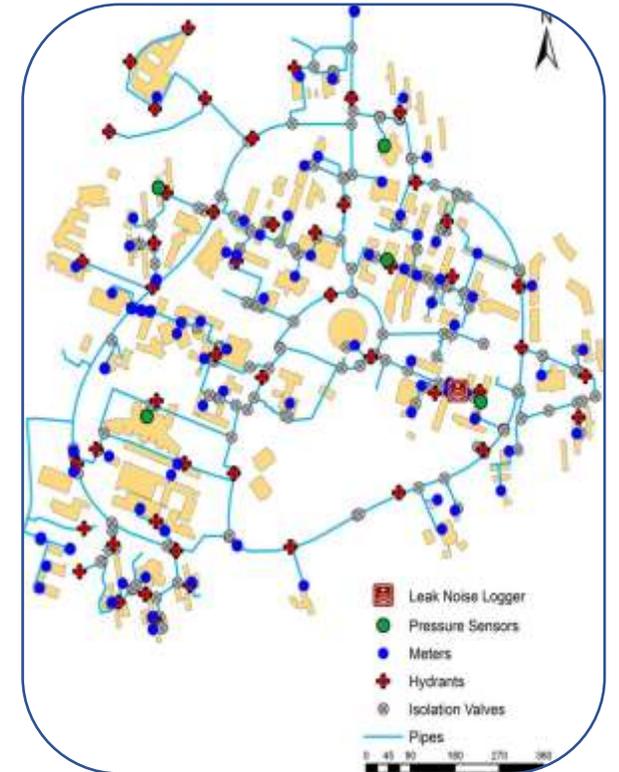


Introduction

Geoservizi Srls creates maps using a webGIS based on ESRI's ArcGIS in order to provide the contracting authority with an integrates mapping system that can be updated in real time at any time using ArcGIS and the support collector on tablets.

The mapping activity does not consist only in detecting the positioning of the network, but also in the direct survey of the various connections present on it, the sizing of pipes and the state of maintenance of the same as well as the housing elements, in order to provide a unique and complete tool for managing the entire system, with the possibility of exporting information on hydraulic design software.

In addition, the company assists the contracting authority, through and assistance system with leak detection, this type of intervention includes systematic and preventive leak detection on all water supply networks, sanitary and sewage systems, heating and district heating, industrial distribution networks and fire prevention systems.



What we do in Geoservizi srls?

Water network survey and census and GIS-based return

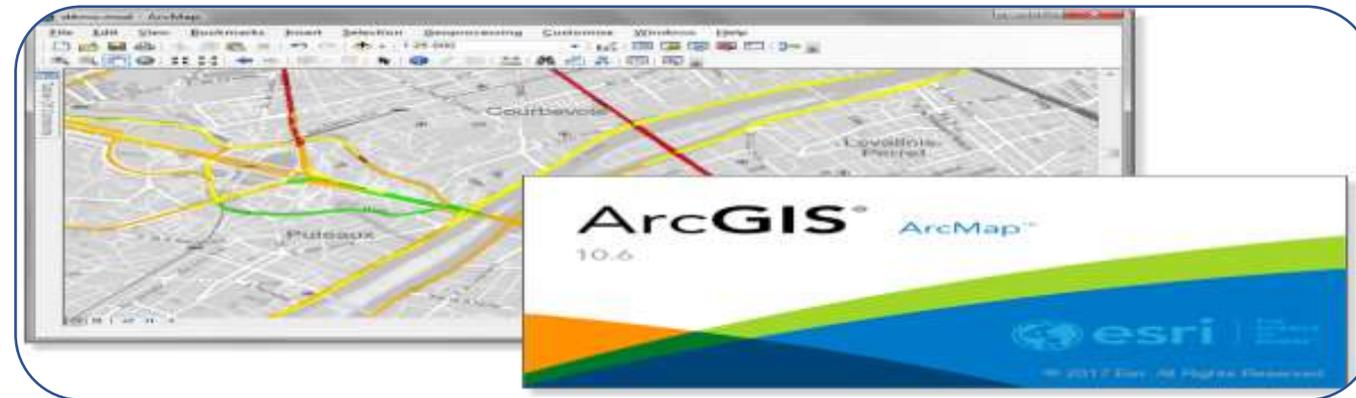
In recent years, due to the increasingly significant problems caused by drought and following decrease in the available water resource, and increasing sensivity has been created by service providers, who govern the integrated water cycle, towards a more accurate and punctual optimization of aqueduct networks. Hence, the idea of creating a cutting-edge company specializing in the field of surveying and mapping of the water network, with the simultaneous return of geometric dimensional and all other characteristics of the network, in order to create a unique and complete database to provide at the contracting client.



Methodologies for conducting surveys

The GIS chosen to elaborate the final data is ESRI ArcGIS, which offers numerous advanced features, such as simultaneous multi-operator detection, real-time monitoring and updating of the progress of the detection operations and subsequent updating, hydraulic modeling of the plug-in for processing flow rate controls and possible network expansion, as well as identification of the critical problems.

Relevant operations are carried out through the use of the latest generation pipe finders, for the identification of the pipe in real time, and GPS instrumentation with RTK correction for geographic positioning also in real time

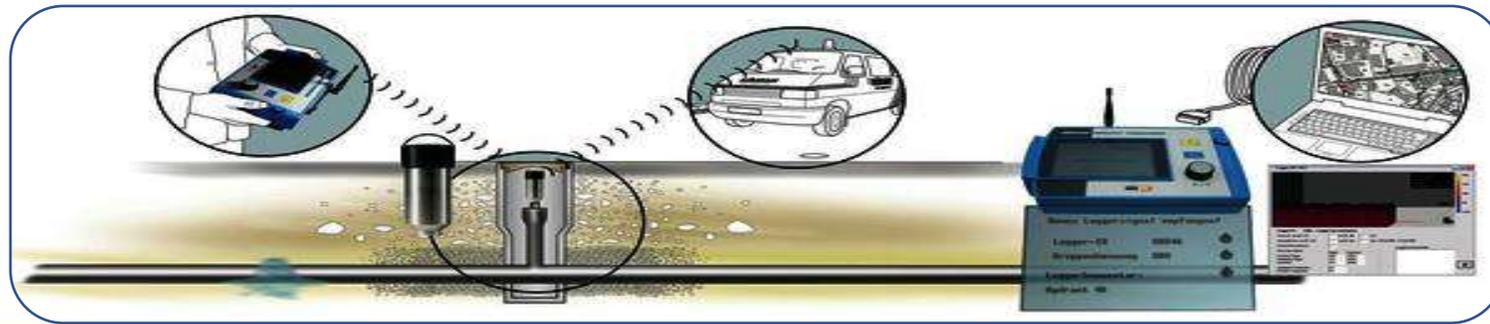


Problems encountered and solutions

In our work experience we found difficulties in positioning and tracing the polyethylene lines, given the high use of this material for excellent wear resistance, we went in search of tracing method that had to be reliable, economical and quick, as classic detection and monitoring techniques, such as georadar or even excavation probing, were expensive, destructive, and time consuming.

Thanks to the use of advanced detection systems, we are able to address any type of problem that may arise.

Despite the obvious advantage in using these systems, the administrations and bodies that manage the plants are still reluctant to use these systems, not understanding that by investing in these technologies there would be not only saving in terms of losses but also for future maintenance.

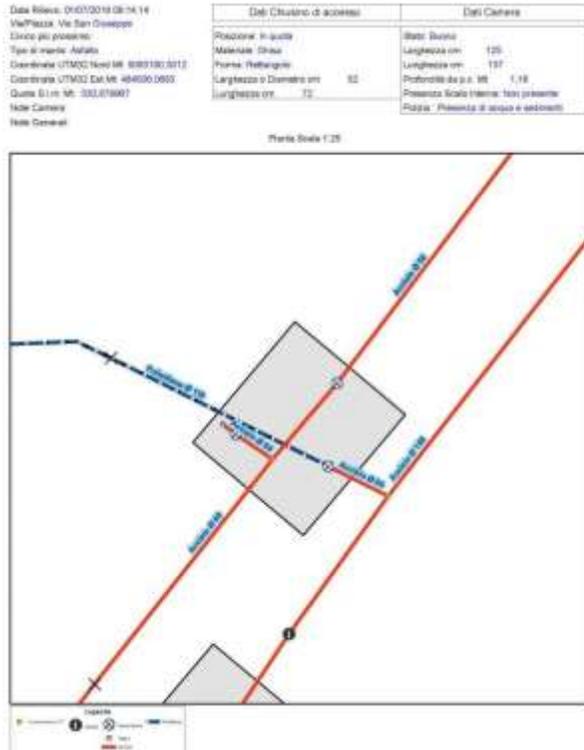


Final product and return

During the mapping of course monographs of the well are made with the population of all the information acquired, also communicating promptly to the contracting authority all the anomalies found during the survey phase, such as leaks or malfunctions on the water pipeline.



Monografia Pozzetto Rete Idrica Codice Pozzetto: PZ23
Comune di Albizzate



Monografia Pozzetto Rete Idrica Codice Pozzetto: PZ23
Comune di Albizzate



The final map consists of the materialization of the water network containing all the data collected, which is delivered to the contracting station with the possibility of being overlaid with any other cartography available to the client, also it has the possibility of updating it in real time through any tablet, or even by the operator himself who performs extraordinary maintenance or new lines.

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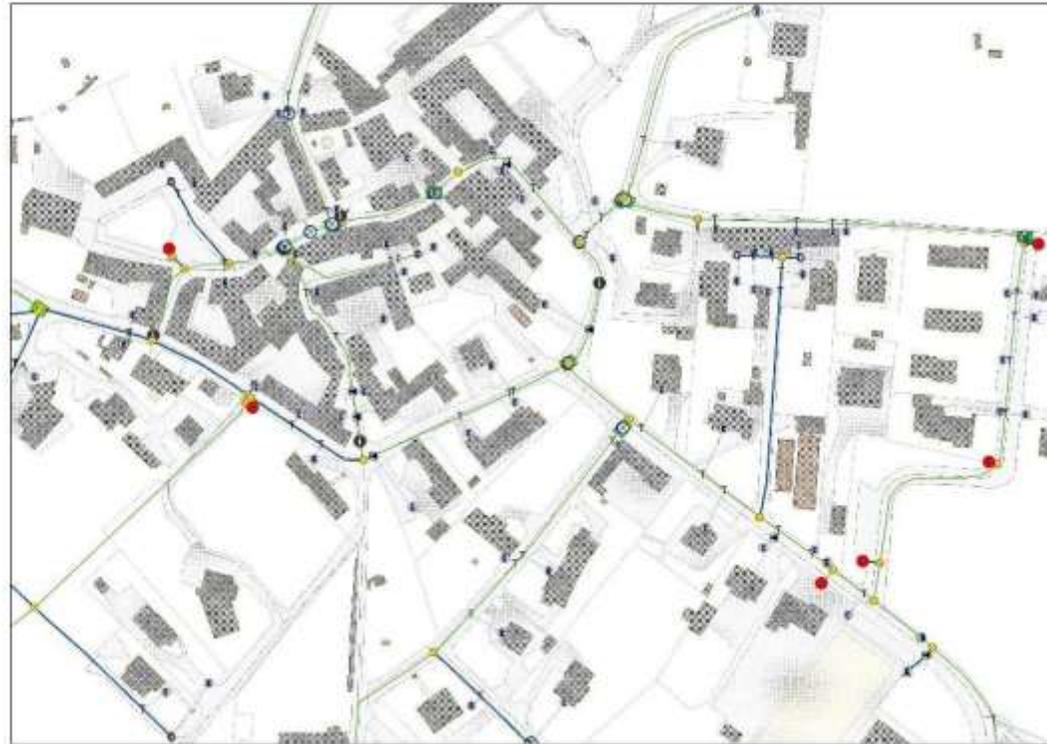
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- Legend**
- Altitudine
 - Pista di atterraggio
 - T P Accostamento
 - Canalone
 - Rilievo_Archi
 - Altitudine
 - Singolo
 - Pozzo
 - Canalone
 - Punto di controllo
 - Rilevato separatore e struttura scos
 - Ponte
 - Stazione
 - Stazione T
 - Iniettore di pressione
 - Guida idraulica
 - Conoscenza T
 - Nesso di transizione tra canali
 - Canale
 - Congettura di tubo paria
 - Collegamento con tre appi conosci
 - Conoscenza T (Cosa Agnoli)
 - Scurto passato in foglio Agnoli
 - Ringe
 - Conoscenza e post-ville
 - Sbordatura
 - Scarico
 - Clivio (tratto n. 1) - Rilevato il perico
 - Rilevato a scivolo
 - Rilevato con scivolo
 - Fontana
 - Rilevato
 - Stazione
 - Mappa
 - Tappo
 - Canalone con riletto integrato
 - Rilievo_Archi**
 - Canalone
 - Attendibilità**
 - rilievo con situazione
 - da abito
 - rilievo indiretto
 - rilievo collimazione
 - rilievo_Gravata
 - Grafo_Stradale**
 - nel caso rilievo
 - VERIFICATA**
 - S
 - rilievo_Archi
 - Area_Gravata

Stralcio restituzione comune di Crosio della Valle

Scala 1:1000



THANK YOU

GRAZIE

REFERENCES/CONTACTS

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