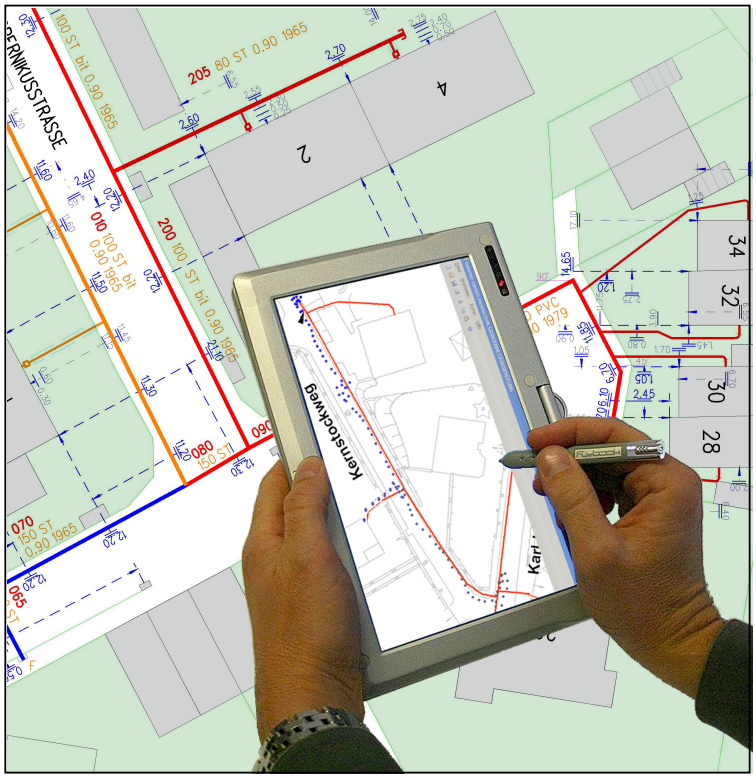
ingenieurberatung *Ing. Max Hammerer*

hammerer-system-messtechnik

Selective inspection of gas networks with mobile PC

Preparation - Documentation - Analysis - Interfaces



Safety and Economy by documented inspection management

Successful with PROFI

Programme for Pipe Network Organisation, Operation and Maintenance

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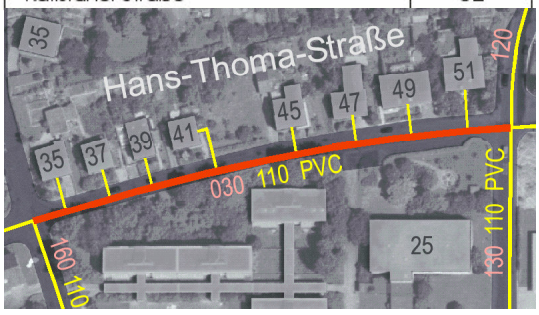
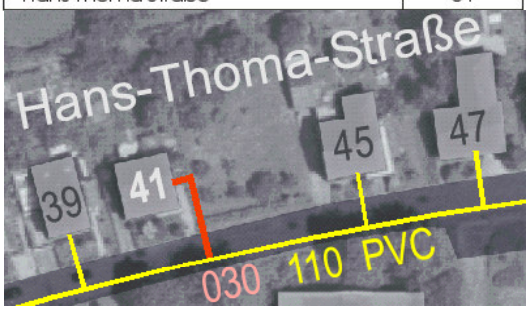
Selective inspection of gas networks with PC

For the inspection of gas networks the GIS provides numeric data of the pipes and service connections as well as the graphic display on the mobile PC. The inspection programme PROFI accesses the according graphic pipe data from the numeric data. This allows a clear display of pipes outside in the field. The documentation of inspection with the mobile PC follows the practical process: Pre-location of pipes and service connections and if necessary localisation. The inspection results are entered and stored directly in the mobile PC. The several inspected pipe sections are marked in the selection list. So, the inspector has a fast overview of the still upcoming inspection work. For the presumed failure location a protocol with sketch is generated directly on the PC. Graphical results are the inspected pipes or the failure dynamic of single pipe segments up to single streets or pipes. In complex pipe networks a visual overview of the network condition is available. The documentation of the inspection results is done in tables, lists and graphics for the inspection protocol, the performance control and the following condition evaluation.

STRASSE	Länge (m)
Hans-Thoma-Straße	107
Hans-Thoma-Straße	208
Hans-Thoma-Straße	181
Hans-Thoma-Straße	37
Heinrich-Heine-Weg	11
Johann-Sebastian-Bach-Straße	88
Karlsruher Straße	38
Karlsruher Straße	62

STRASSE	HAUS-NR
Hans-Thoma-Straße	35
Hans-Thoma-Straße	37
Hans-Thoma-Straße	39
Hans-Thoma-Straße	41
Hans-Thoma-Straße	45
Hans-Thoma-Straße	47
Hans-Thoma-Straße	49
Hans-Thoma-Straße	51





Access of pipe and service connection data in the graphic display

Ease of use with the mobile PC outside

Selective inspection of gas networks with PC

The documentation of the inspection is done with a mobile PC. GIS data is stored on the mobile PC for the orientation of the locating and localisation work. The software selective inspection of gas networks contains the following modules:

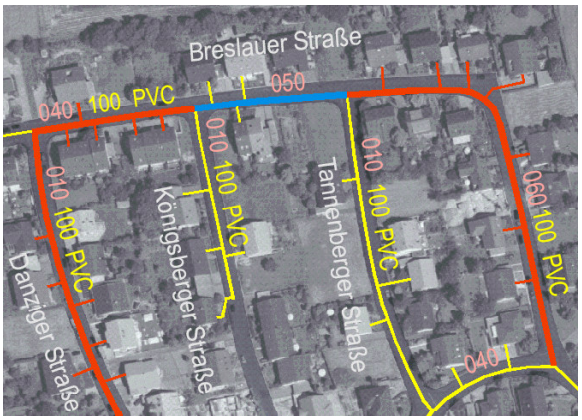
Preparation: Selective analysis of the pipe segments, which have to be inspected, partitioned by material groups, supply area and due date according to the given inspection interval. The result of the preparation can be displayed in the GIS on the mobile PC.

Documentation: Inspection of pipes and connections with documentation of the inspection results on the mobile PC outside. The inspected pipes can be displayed in the GIS. Creating and printing of digging sketches on site.

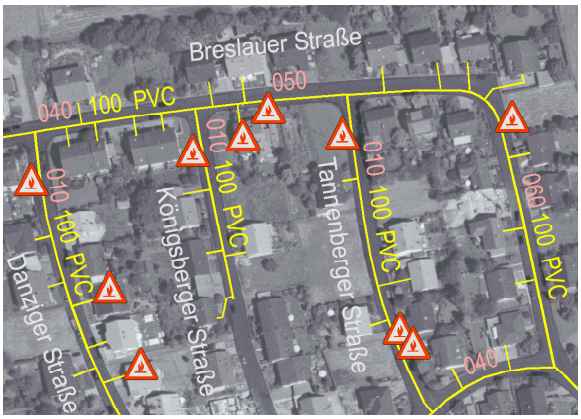
Analysis: The inspection results of all supply pipes and service connections are sorted by pipe sections in a list. The localisation results are sorted by streets in lists. The results can be displayed in the GIS. The analyses are the basis of the performance report and the inspection protocol.

Interfaces: Inspection data can be transferred to external programmes for further economic, operational and technical analyses. The master data are transferred from and to the mobile PC via interfaces for updating numeric and graphic data of the gas network.

Graphical examples for analysis results



Display of all inspected, partly inspected or not inspected pipes



Display of all repaired failures in the selected period

Selective inspection of gas networks with GPS management

The statistical failure dynamic (development of failures per km and year) in the whole network describes the condition of the pipe network imperfectly. Thus, the inspection of the gas network has to done area-wide with extensive documentation and high costs. The valid failure dynamic of particular pipe groups can be estimated from the failure statistic. From these results the inspection intervals according to DVGW guideline G465/I is determined. The inspection of the pipe network concentrates on those pipe groups with a high failure dynamic. Thus, the safety for operating the network increases significantly with only a small amount of necessary inspections. With the use of mobile PC and GPS management for the gas network inspection a systematic documentation including the proof of inspection is guaranteed. The GPS system confirms and documents the start and the finish of the inspection work of the defined pipe element and gives the staff the information about the position in the field. Prerequisite for this is the availability of numeric pipe and service connection data from the GIS. The inspection data is entered directly in the mobile PC and thus, is available for further analysis and documentation.