



- when it has to be **right** *Leica*
Geosystems

Van Gelder: Improving construction with vGIS's precision AR, ESRI ArcGIS and Leica smart antenna

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vGIS Inc.
www.vGIS.io



Using the vGIS precision AR platform to condense project schedules, simplify as-built documentation, and increase safety

Continued population growth and demand for electric vehicles in the Netherlands means that contractors like Van Gelder, a utility and infrastructure contractor, need to speed up production in an effort to expand the country's power grid. Dirk Bakker, senior geodata developer at Van Gelder, credits vGIS for eliminating the most time-consuming tasks in the development process: capturing existing field conditions and accurately recording progress as work is completed.

In partnership with vGIS, Van Gelder is revolutionizing how utility systems are designed and constructed. Even in today's highly technical world, engineers and contractors rely on outdated methods for documentation and data collection. Contractors use photos to document underground installations, but they are only two dimensional. After the work is complete, survey crews are called in to take measurements and elevations to ensure that the materials have been installed correctly and to note the installation depth for future use. Trenches



have to remain open for survey crews to document the work. If crews aren't readily available, it can slow down production and increase the danger to both crews and the public from open trenches. Additionally, contractor as-builts are often nothing more than inaccurate hand sketches that may not reflect the true location of the utilities.

Instead, Van Gelder's crews use the innovative and the robust tools in vGIS to speed up both the design and documentation of their work.

The “Sneek Tirns” Project

The Liander Net Expansion 10 Kilovolt project is designed to install 11 kilometers of new medium voltage electric infrastructure from the Sneek Substation to the village of Tirns. It includes replacing 3 electrical substations and building 4 new ones. Van Gelder has the contract for this portion of the larger nationwide grid update and is integrating vGIS into their project processes.

In the Netherlands, contractors must use “KLIC-Data” (Cables and Pipelines Information Center) to record the location of existing utilities and must update the



database as utilities are installed. Use of this system is mandatory to avoid damaging utility lines during excavation. Using vGIS, the team can meld the existing “KLIC-Data” with the planned route for the new utility lines and adjust and finalize the route in the field. vGIS uses augmented reality to integrate ArcGIS data, “KLIC-Data,” and the proposed route to choose the optimum path and finalize the design.

Next, the subsurface is assessed by excavating trial trenches at critical points. These locations are noted in vGIS, and each trench is documented with a field report (photos), reality capture (3D scan), and data collection (digitally recording the location of the utility using ArcGIS data). Once this detailed information is shared with the design team, the route is further refined into an executable design.

During the construction process, the team has access to both the design and the “KLIC-Data” through vGIS, helping to ensure safe excavation. New utility cables or pipes are documented in vGIS using the same steps as during the previous phase (field report, reality capture, and data collection). The entire reporting process is intuitive and easy to navigate for both contractors and other stakeholders. Once the new utilities are digitally recorded, the data is immediately available to

the project team through real-time integration between vGIS and ArcGIS. All team members can monitor progress through vSite and a project-specific web map. Using this process helps maintain transparency with clients, which enhances the collaborative process and builds trust.

- Better project planning
- Improved project execution
- Simple and precise as-built documentation

“

We can share it with our clients so we can all see what we are doing in the same area. By updating the data in real time, we can provide interim revisions throughout the project, with each section receiving approval along the way.”

van gelder Dirk Bakker, GIS Project Manager

The Van Gelder team has developed templates for data collection that are tailored to the specific tasks they perform. Using these templates, they can specify the data to be collected and the geoid used (NAP in the Netherlands) and synchronize each layer. The field team collects the specified data using the predefined templates, which helps maintain a clean ArcGIS database.

Once all the work is completed, information is handed over to the client quickly, as it is already available in vSite and ArcGIS. Van Gelder simply compiles it and delivers it in the customer’s desired format.

Using vGIS has simplified the process of documenting their work. “Our team has the tablet with the vGIS ready, so they can use it whenever they want,” said Bakker.” We scan the work, we collect the data, and we can get on to the next phase. We have the oriented images and the 3D reality capture to show as proof that the work was done.” Sharing the information is also easier, as it’s already digitized and geo-referenced.



An Engaging Interface

Bakker said the Van Gelder team spends a lot of time educating potential clients about the system and its advantages. “We are doing a lot of presentations with our clients and they all like what they see. They are all interested. The main question is always, ‘What’s the accuracy?’ And with vGIS and the Leica antenna, we can show that it’s within their requirements.”



The data really comes alive with the augmented reality. Before it was a point on a map, or a line on a map, or maybe not even a map but just coordinates. Now people see what we are going to do and exactly where the new work is going to be in the ground.”

“Users often start walking away with the tablet, noting the work that was completed previously. They’re very excited when they have the tablet in their hands.” Bakker noted that real-time data collection wasn’t a feature in other systems they looked at.

van gelder

Dirk Bakker, GIS Project Manager

In the year and a half since its implementation, Van Gelder has used vGIS to keep more than 40 projects on schedule, with 15 projects currently in progress. The company is compiling statistical data to quantify benefits, which will be shared in an upcoming case study.

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vGIS with the Leica Zeno FLX100 plus



Over 40 construction projects
completed with vGIS



vSite by vGIS Inc.

vSite by vGIS Inc. is a connected construction platform that leverages digital twin, augmented reality and cutting-edge productivity tools.

vSite integrates all your project data (CAD, BIM, GIS, point clouds, etc.), placing it in a geospatial context so that any user can instantly access and share critical information. It offers a 3D view of exactly what is being built and where, with layers of detail only Digital Twin and high-accuracy Augmented Reality can provide. It also allows construction crews to quickly document as-built and site conditions with oriented images, GIS data collection capabilities and 3D scans.

Used daily, it revolutionizes how work gets done.

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