vSite
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# Case Study | Van Gelder

## Improving construction with vSite precision Augmented Reality

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## Summary

Van Gelder, a utility and infrastructure contractor, was able to successfully reduce utility and infrastructure project costs, minimize risk, and share digitized as-built documentation, all within 24 hours using the vSite augmented-reality efficiency tool. The project cost savings relative to software costs were estimated to provide a 20:1 ROI.

## Background

In the Netherlands, there is increasing pressure on the power grid as the population and demand for electric vehicles continue to grow. To meet this demand, utility and infrastructure contractors are required to speed up production to expand the power grid capacity. Van Gelder, a leader in the Dutch market, utilized vGIS's augmented reality efficiency tool, vSite, to meet the increased demand. Van Gelder's aim, throughout the process, was to optimize planning, accelerate execution, and streamline the as-built documentation process. The team believed that using the vSite software could eliminate or minimize the most costly and time-consuming tasks. After a successful pilot phase, the software was deployed to over 50 construction projects, resulting in reduced complexity and risk, as well as significant time and cost savings.

## Van Gelder

Van Gelder is a full-service infrastructure contractor specializing in the design, construction, management, and maintenance of aboveground and underground infrastructure. The Van Gelder team includes over 1,750 highly skilled employees who focus on a wide range of infrastructure projects.

## Challenge

On the whole, the engineering, construction, and contractor sectors still rely on outdated methods for planning, executing, and documenting projects:

- **Planning:** Traditional planning and reference tools in 2 dimensions, such as paper maps and plans, are still commonly used. These instruments do little to simplify complex worksites. In addition, these tools do not provide a full picture of the worksite, potentially leading to escalated issues, rework, redesign, downtime, or additional site visits when unexpected or unforeseen situations occur.
- **Execution:** During project execution, everyday tasks can take longer than expected because of traditional paper-based project plans or work packages. Orientation, alignment, and quality control often rely on the team's familiarity with the project site. Additionally, accurate measurement and validation typically require survey crews to be brought to the site. During this time, trenches need to remain open, which increases project risk and liability.
- **Documentation:** Documenting project progress and the final state is important but often relies on paper-based methods, complemented with sketches and/or photos, leading to a slow and potentially incomplete or inaccurate process.

Van Gelder was looking for a single, easy-to-use solution for planning, executing, and documenting infrastructure projects that mitigated the challenges of traditional workflows.

## Solution

Van Gelder decided to adopt the vSite efficiency tool, which utilizes augmented reality and digital twin technologies. The team was able to deploy the software effectively at all stages of the project.

- **Planning:** During planning, the Van Gelder team was able to accelerate the workflow by viewing the project and worksite in 3 dimensions using vSite web-based digital twins and augmented reality. This comprehensive view of the subsurface infrastructure allowed for the optimization of the cable route and quick decisions when obstacles or hindrances occurred. Moreover, the simplified view of the network allowed the team to easily meld existing utilities with the planned route for new utility lines, accelerating the timeline for the design drawings. To improve the pre-construction plans, the vSite system can overlay additional information into the model, including locations of trial trenches at critical points, oriented images (images that preserve their location and viewing angle), 3D scans (reality capture), and augmented reality–based GIS data collection (digitally recording the location of the utility using ArcGIS data). Once the comprehensive package is completed, it is instantly shared with the entire team, and if updates are required, the team automatically receives the latest version.

vSite by vGIS Inc. Automatic Updates

- **Execution:** During construction, every crew was equipped with construction-grade augmented reality views of the project that provided centimeter-level accuracy. This holographic projection of the project onto the exact location on site allowed crews to:

  - ✔ **Complete tasks faster**, since they could see what needed to be built and the exact location, thus reducing the likelihood of errors.
  - ✔ **Excavate safely,** since they knew where to dig and how much space was available around the existing subsurface infrastructure.
  - ✔ **Make decisions faster** when the unexpected occurs, since they had a complete view of the worksite, thus reducing the need to escalate issues and questions up the chain of command.
  - ✔ **Quickly validate and conduct QC** as work progresses, since they could compare what had been built to what should have been built in real time, reducing the need for validation by survey teams.

- **Documentation:** Once the installation of the cables was completed and validated, the team could quickly move to digitally documenting the progress and as-built drawings. The vSite system allows for real-time upload and sharing of oriented images, 3D scans, and data collection. The entire reporting process is intuitive and easy to navigate for contractors and other stakeholders. The data is immediately available to the project team through real-time integration between vSite and Esri ArcGIS. All team members can monitor progress through vSite and a project-specific 3D web map. This process helps maintain transparency with clients, enhancing collaboration and building trust.

As a result of the partnership with vSite, the Van Gelder team was able to complete, validate, and document sections of work within 24 hours.

## Results

By integrating vSite into their process, Van Gelder streamlined its workflow, reduced complexity and risk, and saved time, ultimately reducing the cost of the project.

Using a 3-dimensional model greatly reduced project complexity, simplified processes, and condensed schedules and coordination. The ability to visualize subsurface items, avoid existing structures, and close trenches within a workday greatly reduced site risks. Errors were either avoided, minimized, or mitigated.

By equipping every crew with vSite, the Van Gelder team accelerated task completion throughout the project and made decisions more efficiently. Direct integration of vSite with in-house systems, such as Esri ArcGIS, avoided manual data transformation and conversion. Once all work was completed, information was quickly handed over to the client, as it was instantly available in vSite and ArcGIS. In addition, the digital documentation, construction-grade augmented reality, and centimeter-level accuracy allowed Van Gelder to eliminate the need for surveyors on the project.

Minimizing complexity, risk, time, and staff resulted in significant cost reductions. Van Gelder achieved savings in the tens of thousands of euros during the project and estimates a 20:1 return on investment using the vSite software.

**van gelder**

20:1 Return on Investment

### Return on Investment

The company realized a **20:1 ROI** after deploying the system, driven by optimized workflows and reduced overhead costs.

### Survey Crew Visits

The organization **eliminated up to 100% of survey crew visits** needed to document as-built conditions, cutting both travel expenses and time on-site.

### Reporting Improvements

The time to prepare client reports for invoicing **dropped from two weeks to just two days**, accelerating billing cycles and enhancing transparency.

### Compliance Improvements

The team **sent accurate records to government authorities within 24 hours**, significantly improving compliance and reducing regulatory risks.

> “**Before**, it was a point or a line on a map. Now, people see what we are going to do and exactly where the new work will be in the ground. We use vSite to scan the work, collect data, and get on to the next phase.”

**Dirk Bakker,** GIS Project Manager

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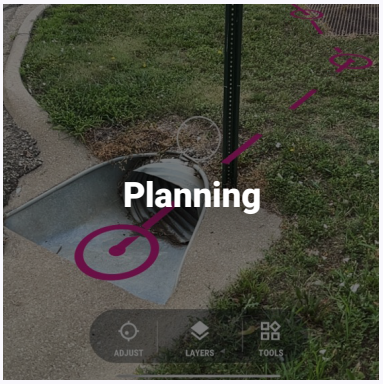
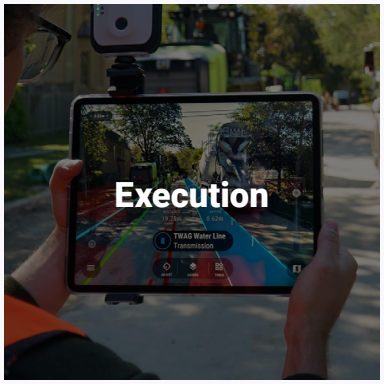
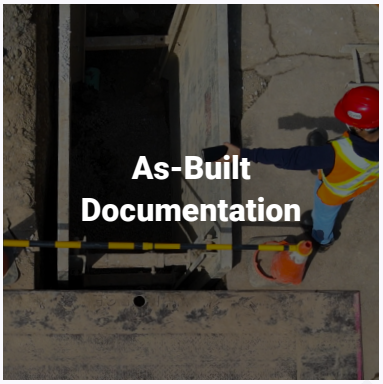
Plan. Execute. Document.
The ultimate productivity tool for utilities

# vSite by vGIS Inc.

vSite (www.vgis.io) is an efficiency tool for the construction, engineering, and architect space that uses augmented reality and digital twin to allow customers to quickly view projects in 3D, accurately validate, and digitize as-builts with scans and photos.

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