



## **Case Study** | **AtkinsRéalis**

# **Enhancing bridge replacement projects with 3D documentation and data visualization**

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vGIS Inc.  
[www.vGIS.io](http://www.vGIS.io)



## Overview

AtkinsRéalis (formerly Atkins, a member of the SNC-Lavalin Group) is a global leader in design, engineering, and project management. With a team of approximately 37,000 professionals operating in over 50 countries, AtkinsRéalis has delivered innovative solutions in more than 160 nations. From October 2020 to spring 2021, AtkinsRéalis provided construction administration and on-site resident services for the replacement of the Warsaw Road Swing Bridge, a critical part of the Trent-Severn Waterway in Peterborough, Ontario. Commissioned by Parks Canada, this project demonstrates how 3D documentation combined with advanced visualization technologies, such as augmented reality (AR), can tackle complex engineering challenges while enhancing efficiency and precision.



vSite AR with Leica FLX 100 Smart Antenna



Warsaw Road Swing Bridge in the Trent-Severn Waterway in Ontario.



Warsaw Road Swing Bridge during construction.

## The Project

Constructed in 1956, the Warsaw Road Swing Bridge is a twin to Peterborough's Maria St. Swing Bridge, accommodating an average of 10,000 vehicles daily. Engineering inspections determined that the bridge had reached the end of its useful life, prompting Parks Canada to initiate its replacement as part of a broader effort to modernize infrastructure along the Trent-Severn Waterway National Historic Site.

AtkinsRéalis was entrusted with overseeing construction administration and on-site services for this critical replacement project. To minimize public disruptions, much of the new bridge was prefabricated off-site and assembled on-site. This approach required meticulous coordination and innovative techniques to ensure project efficiency and success.

## Challenges

The project posed several logistical and technical challenges. Prefabricated bridge components underwent detailed inspections at every stage—delivery, assembly, and installation—to ensure strict compliance with construction plans. Mid-project design modifications further added complexity, necessitating additional reviews and on-the-fly adjustments.

The construction site also presented challenges related to utility management, with numerous assets such as overhead wires and subsurface cables to consider. Although these utilities were mapped and marked during the pre-construction phase, frequent mud accumulation and heavy equipment traffic often obscured markings, complicating utility management and elevating situational risks.

Overcoming these obstacles required a solution capable of integrating real-time data, enhancing visualization, and improving precision to streamline operations and mitigate risks effectively.

## Solution

To address these complexities, AtkinsRéalis implemented advanced technologies, including a LiDAR-enabled iPad for precise scanning and iPads/iPhones for immersive visualization. After evaluating multiple construction coordination platforms, the team selected vSite by vGIS for its advanced capabilities and seamless integration into the project workflow.

The vSite platform offered several standout features, such as one-button 3D documentation that pushed real-time 3D data to a web-based digital twin and centimeter-accurate augmented reality. The system is compatible with a wide range of data formats (including point clouds, BIM and GIS), and the ability to dynamically aggregate data into interactive 3D digital twin of the construction site. These capabilities enabled the creation of a unified project view, providing instant access to critical project information in a highly intuitive format.

By deploying vSite, AtkinsRéalis significantly enhanced project execution in **three key areas**:

- **Documentation:** Frequent 3D documentation with LiDAR-equipped iOS devices captured the site's progression with centimeter-level accuracy, creating a reliable digital record of ongoing work. These scans were visualized through vSite, allowing the team to monitor changes over time and conduct remote progress monitoring. The platform's built-in reality capture functionality further supported collaboration and ensured that all project phases were thoroughly documented.



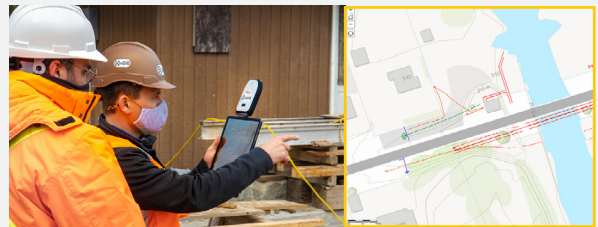
Viewing reality capture in the field with vSite AR.

- **Real-time QC:** The vSite platform enabled precise visualization of BIM models, allowing the team to compare evolving designs with as-constructed conditions. This capability ensured that any discrepancies were quickly identified and addressed. Up-to-date BIM models were displayed as augmented reality overlays, making design reviews faster and more effective.



Performing QC with augmented reality.





- **Situational Awareness:** Managing utilities on-site posed a significant challenge due to the dense network of overhead wires, subsurface cables, and other assets. Mud and heavy traffic often obscured critical road features, increasing the risk of utility strikes. By integrating utility data sourced from local providers into Esri ArcGIS Online, vSite created real-time AR overlays that allowed the team to quickly and accurately locate assets, reducing risks and improving situational awareness.



Using vSite's real-time overlays with ArcGIS Data.

## Results

The integration of vSite into the Warsaw Road Swing Bridge project delivered measurable benefits:

-  **Improved Validation**  
Designs and infrastructure were validated more efficiently, reducing delays related to **design reviews by as much as 25%**.
-  **Time Savings**  
Repetitive site tasks were streamlined, **with up to an 80% reduction** in the effort required to re-mark utility locates.
-  **Reduced Utility Marking Requests**  
Enhanced situational awareness and minimized disruptions, **cutting utility marking requests by 50%**. Crews could refresh markings using Augmented Reality instead of relying on frequent external requests.
-  **Comprehensive Documentation**  
3D reality capture provided an accurate, detailed, real-time record of progress, **accessible to all project stakeholders**.



Document. Inspect. Collaborate.  
The ultimate jobsite coordination platform

These results highlight how vSite transforms infrastructure projects by streamlining workflows, enhancing situational awareness, and mitigating risks. Its survey-grade accuracy and real-time data visualization ensure that critical project elements are executed with precision, fostering greater efficiency and collaboration across teams.

By unifying data from BIM, GIS, and reality capture into a single interactive view, vSite empowers project teams to confidently address challenges with agility and accuracy.

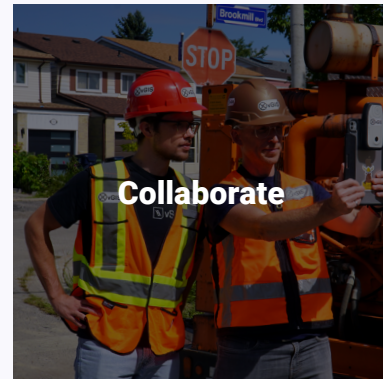
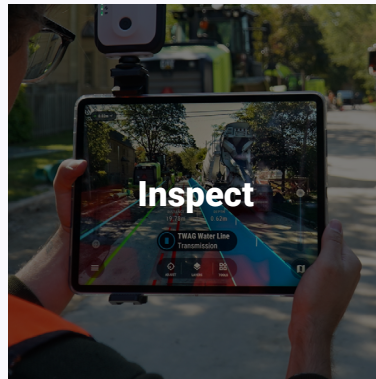
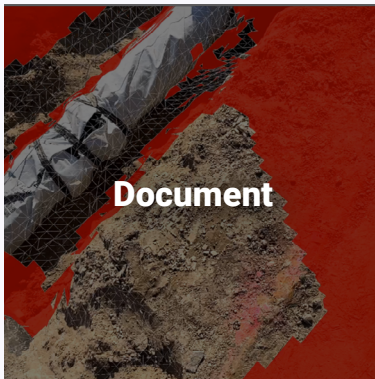
As demonstrated in this project, vSite is an indispensable tool for delivering infrastructure projects safely, efficiently, and with simplified documentation, setting a new standard for project excellence.



Document. Inspect. Collaborate.  
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# vSite by vGIS Inc.

The vSite platform standardizes data collection, improves speed and accuracy of documentation, and enables real-time insights.



Contact Details

## For more information

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