PREVU3D

Streamlining Structural As-Built Modeling with Prevu3D

Case Study

How Tetra Tech Cut Modeling Time by 97% on a Complex Reservoir Restoration Project

TETRA TECH

About Tetra Tech

Tetra Tech is a global leader in engineering and consulting, delivering innovative solutions in the fields of environment, infrastructure, water, energy, and resource management. In Quebec, its Operations Technology & Innovation department leverages advanced digital tools like Prevu3D to streamline project workflows and improve modeling accuracy across disciplines.

The Context

As part of a reservoir restoration project, Tetra Tech was tasked with documenting and analyzing a complex rock wall structure showing signs of degradation. Due to the irregular geometry and extent of damage, the team required a precise as-is model to perform structural assessments and plan reinforcements.

The Challenges

Reconstructing the wall manually in Revit was initially estimated at 60 hours, given the lack of architectural references and the need to model every detail from scratch. The absence of a base model (architectural or structural shell) added to the complexity, especially in a brownfield context with limited design documentation.

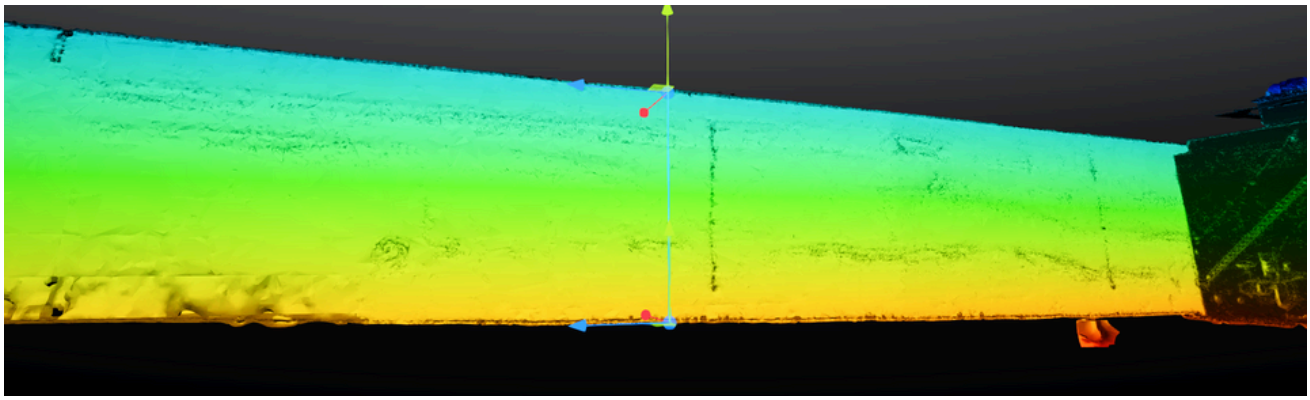
The Solution

Prevu3D's visual twin platform enabled the engineering team at Tetra Tech to turn scan data into editable 3D assets ready for CAD and BIM environments. For this project, the team used:

RealityPlatform to centralize and visualize high-resolution scan data (point clouds and meshes) in the cloud.

RealityPlan to crop and process the scan area specific to the damaged rock face.

RealityConnect for Revit (plugin) to import the meshed geometry directly into the Revit environment as editable native components—eliminating the need to manually trace over point clouds.



From Reality Capture to Revit Workflow Integration

Generate High-Res Mesh
Convert point clouds into high-res, textured meshes using RealityPlatform

Isolate Structures & Objects
Use RealityPlan to extract key assets as export-ready RealityAssets

Stream Directly into Revit
Import RealityAssets as native, editable components with RealityConnect

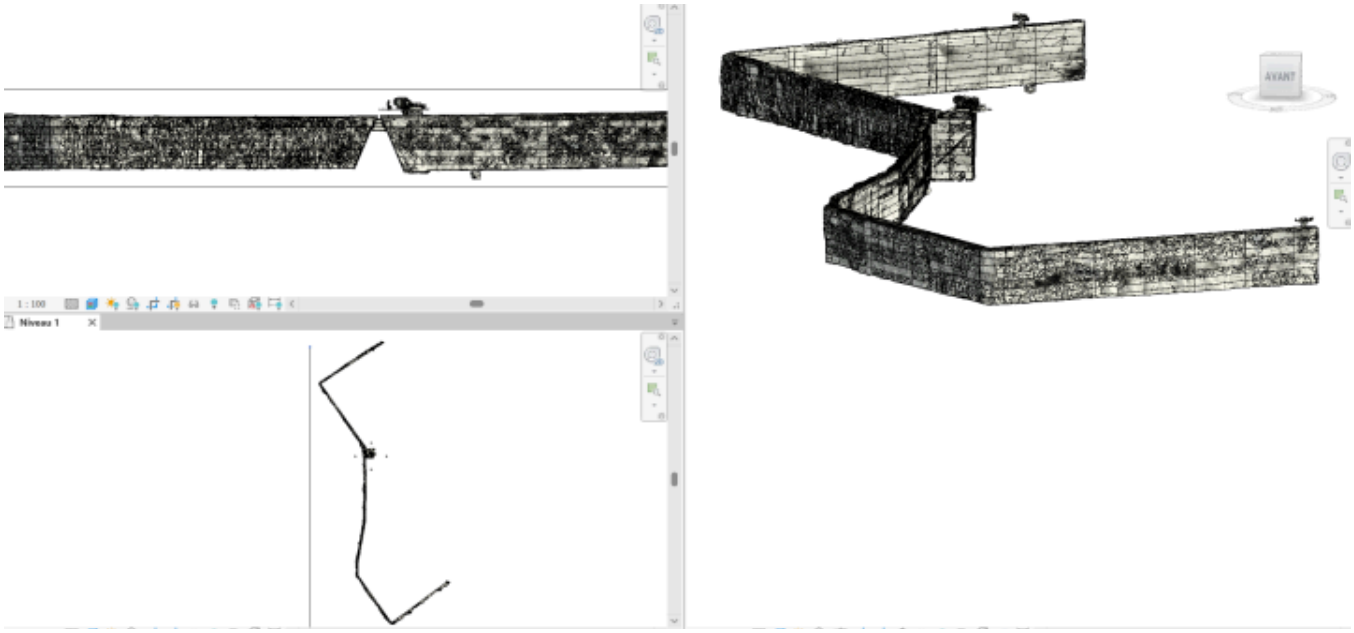
Share Existing Conditions Model
Deliver ready-to-use models to design teams for immediate work in Revit

Skip Manual Remodeling
Bypass time-consuming reconstruction with editable, high-fidelity mesh assets

Preserve Full Fidelity
Maintain texture, geometry, and accuracy for modeling and analysis

Focus on High-Value Work
Free up time for coordination, analysis, and design validation

This structured approach eliminates redundant remodeling efforts and enables rapid asset reuse with improved project consistency.

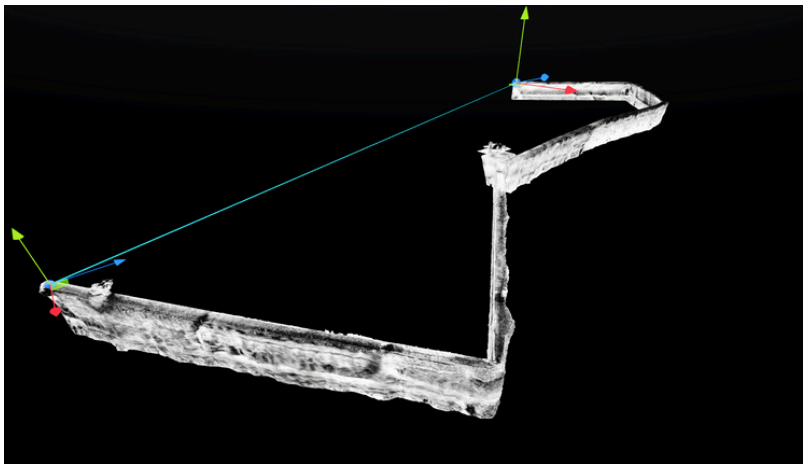


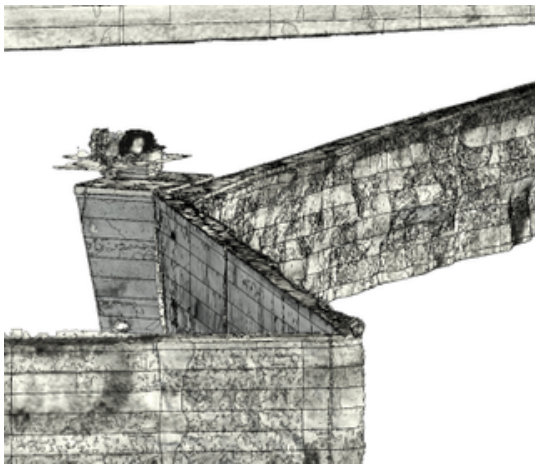
Meshed RealityAsset imported into Revit
This view showcases a textured mesh generated from 3D scan data, seamlessly integrated into Revit for enhanced design and coordination workflows.

Results

Using Prevu3D's tools, the wall was meshed in just 2 hours, a **97% time reduction compared to manual modeling estimates**. The mesh served as a high-fidelity reference for design validation and structural assessment, eliminating unnecessary field revisits and resource bottlenecks.

> **The ability to quickly convert scan data into an accurate model not only reduced labor time but also improved precision, ensuring a more reliable structural assessment.**





Project Results

1. **Massive Time Savings:**
Reduced modeling from 60 hours of manual work to 2 hours of fully automated meshing—with no human interaction required.

2. **High Accuracy**
Mesh-based modeling improved geometric fidelity in a context where precision directly impacts structural evaluation.

3. **Reduced Labor Costs**
Avoided the need for full remodeling by high-cost BIM resources.

4. **Cloud Collaboration**
Teams used Autodesk Construction Cloud to work from a shared model without loading massive point cloud files locally.

5. **Optimized Revit Performance**
Lightweight RealityAssets minimized project file size and prevented Revit crashes or long load times.

6. **Flexible Asset Reuse**
Imported geometry was reclassified and augmented in Revit for future engineering use, with connectors added for integration with MEP systems.

Key Metrics from Prevu3D Integration on Reservoir Restoration Project

97% Modeling Time Saved	**90%** Improved Accuracy	**85%** Reduced Labour Costs
80% Faster Collaboration	**75%** Better Revit Performance	**70%** Reusable BIM Assets