

Geomatics Workflow Optimization

BASE achieves increased efficiency and decreased risk through automation



BASE's Story



Beirsto & Associates Engineering Ltd. (BASE) has been providing surveying and engineering guidance towards the growth and development of the communities they serve since 1963. BASE provides:

- Municipal Engineering
- Building Design Engineering
- Legal Land Survey
- Oil & Gas Survey

BASE offers a comprehensive list of services to its clients and is involved in all stages of their projects including: legal, design, construction and as-built survey; drafting services, multi-disciplinary engineering services and project management for all departments, including procurement and site supervision.

BASE is an industry leader. They were facing typical industry issues related to geomatics workflow and wanted to eliminate bottlenecks in their processes. BASE's processes were dependent on manual intervention and verification at many stages. Without complete automation, there was a lack of data flow and standardization between software and people. Finally, BASE could benefit from a data management platform for the whole workflow, so as to manage data from all processes. This would automate basefile creation, source/destination updates, consistency, tracking and management. A data management system would improve accuracy not requiring staff to track and check the hundreds to thousands of transactions and files generated on engineering projects.

BASE chose Cansel/SolidCAD because of their extensive experience in workflow optimization in a whole range of geomatics technologies.

The Project



Cansel and SolidCAD met with the Design and Survey Management team for a discovery session to understand their existing workflows, issues and future goals. Although BASE was doing well with their current manual practices, they needed a new workflow that would increase efficiency and reduce risk.

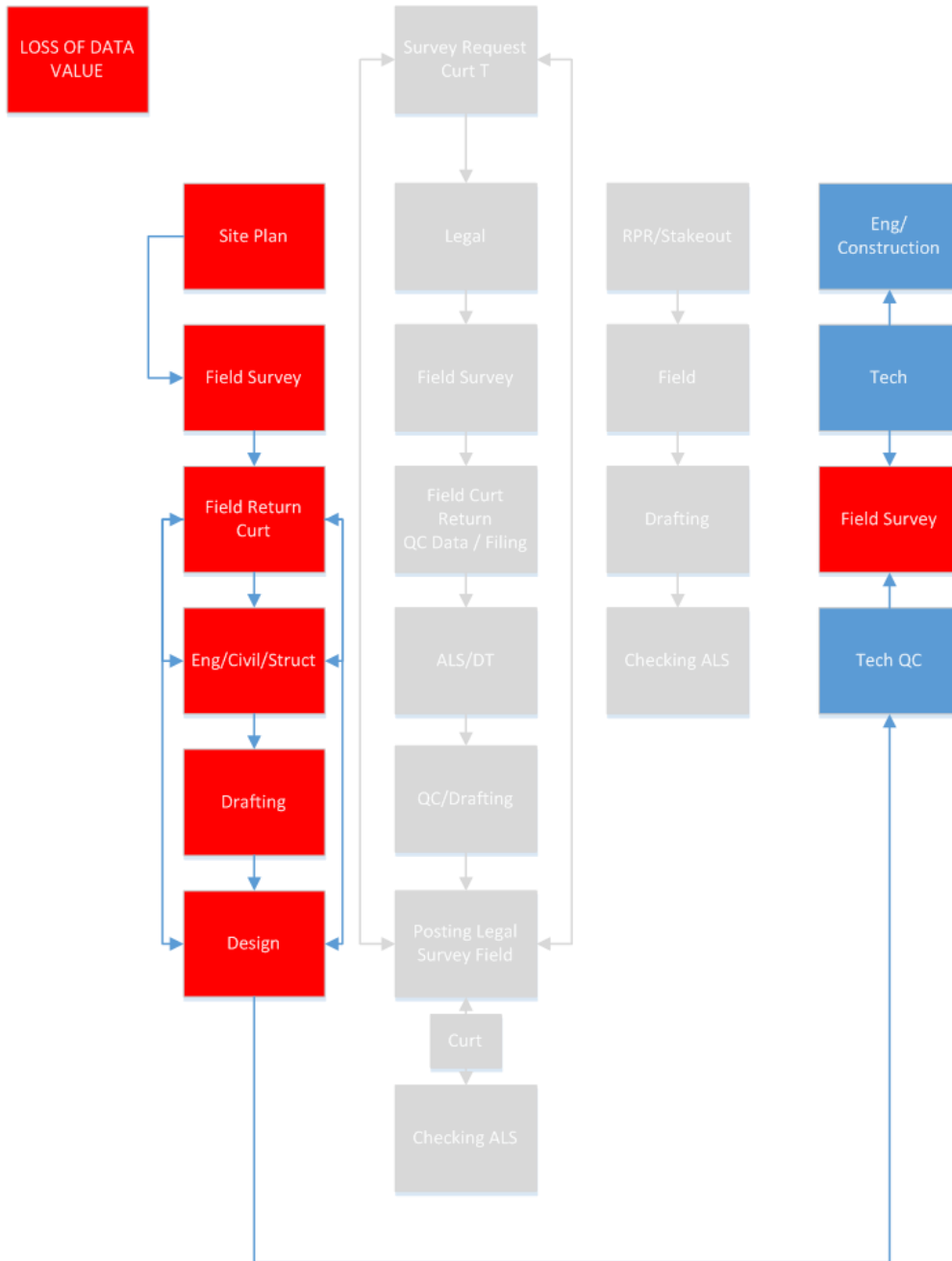
During the meeting, Cansel and SolidCAD identified three specific opportunities for their current workflow:

1. Enhanced Integration Between Stages of the Process
Enhancing interoperability resulting in the ability to leverage data through each phase decreased the reliance on manual processes that may risk data loss or misinterpretation.
2. Reduce Manual Checking and Management
Leveraging interoperability, this reduced time spent for employees to check and rebuild data value.
3. Developed Object-Based Design and Stakeout
CAD systems configured to receive, design and provide stakeout objects for survey equipment. These objects and supporting data are provided to field crews based on standardized stakeout plans making this process as efficient and comprehensive as possible by meeting the business and technical stakeout requirements.

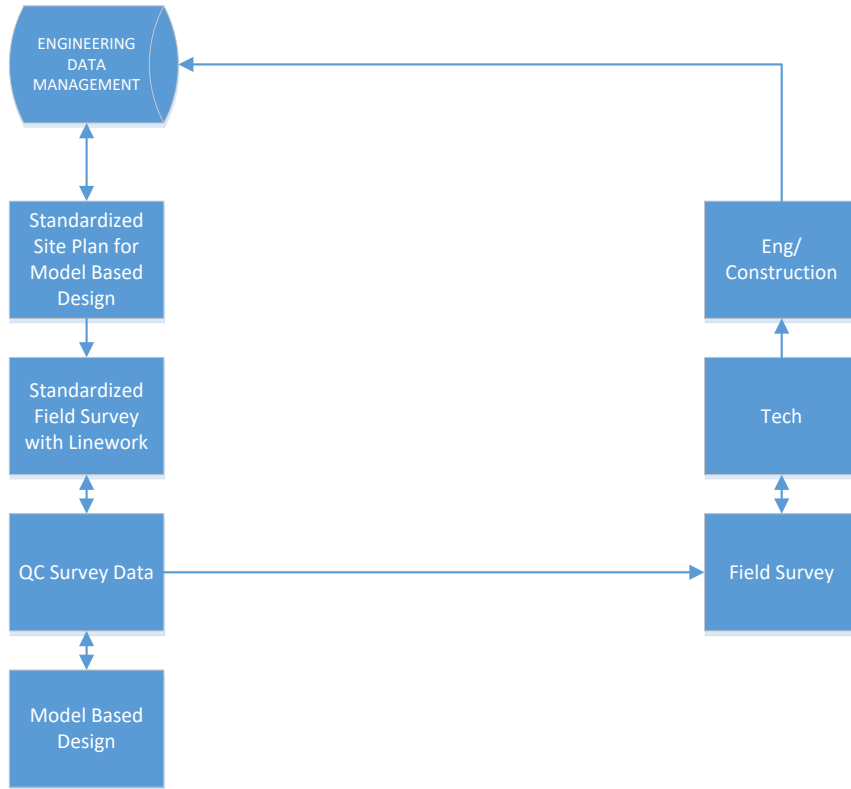
Cansel/SolidCAD worked with BASE to study their current survey, design and stakeout for construction processes along with supporting datasets and comparing to industry best practices. This work involved reviewing existing files, personnel, equipment and deliverable to determine the most effective change management for BASE for immediate and future requirements. This led to the creation a strategic roadmap eliciting immediate and future requirements within the vision, goals and objectives of the company.

After this initial work, Cansel/SolidCAD worked with BASE to implement a standardized system, workflow and documentation based on industry best practices that integrated with the existing BASE platform. Finally, Cansel/SolidCAD trained staff in the system and assisted BASE staff with pilot projects, post implementation support and strategic planning.

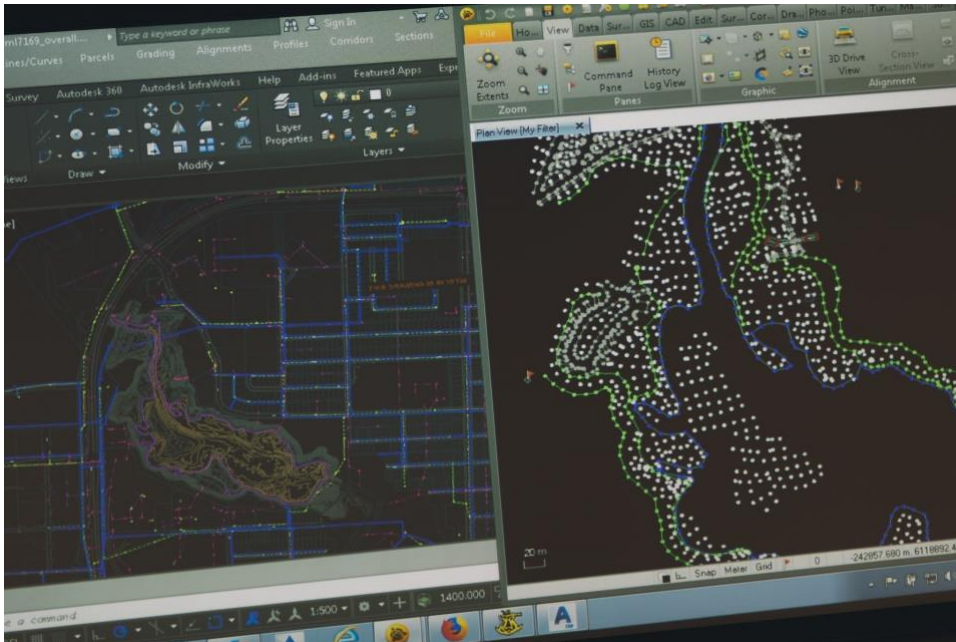
The figure below shows the survey/design/stakeout/construct process followed by BASE prior to workflow optimization. The red rectangles show those processes where data value loss occur forcing BASE to manually input information to the next process.



After workflow optimization, their new processes became streamlined and automated as shown below.



The Result



BASE has achieved more efficiency and less risk by implementing survey methods that tie directly to design objects and output to stakeout objects. This maximizes the use of surveyor's time in the field, links survey data directly to model based design templates for both survey and stakeout. The model based design uses templates to standardize road, parcel and utilities design and outputs survey objects for stakeout. The system is supported by an organized file and database system including automated updates from external sources, such as municipal and provincial and a managed historic library of survey data directly accessible to anyone who requires access.

BASE continues to benefit from workflow optimization after the initial project. In the longer term, BASE will build on the efficient, risk averse system by implementing data management systems tied directly to their core survey, design, stakeout, construction and management businesses. As a result, enhanced project coordination through lifecycle management will solidify existing processes and provide a solid platform to incorporate new and visionary solutions. It is recognized that data management solutions are required to be implemented by BASE in the foreseeable future.

They will also establish their BIM platform by first developing 3D Modeling and Visualization capabilities and collaborating civil engineering, architecture and structural areas to a unified model with multiple scenarios accessible from the cloud. Photogrammetry and laser scanning utilizing terrestrial and UAV technologies will support this endeavor. All will be securely accessible

to clients, collaborators and staff using web mapping, cloud based modeling, mobile device integration and data management systems.

BASE continues to refine and expand their processes utilizing their standardized platform and strategic roadmap to grow into horizontal and vertical markets.

This case study demonstrates the benefits of analyzing, standardizing, streamlining and optimizing geomatics workflow, i.e. high efficiency, low cost, low risk and a platform to build for future needs. After applying these engineering industry best practices to their projects, planning and communication was enhanced substantially across the company and improved both their decision-making processes and implementation of other management tools.

It helped reemphasize BASE's status as a leader in their industry and improved the way they service their clients in Western Canada.

The Workflow Optimization service described in this white paper is just the tip of the iceberg in terms of the optimization services Cansel/SolidCAD offers. Visit us on the web (<https://www.cansel.ca/>) to find out more.