



**SVSOLID<sup>GT</sup>**

1D / 2D / 3D FINITE ELEMENT  
STRESS DEFORMATION MODELING

Determine the Stress State  
and Deformation of Soils Under  
Various Loading Conditions



**SOILVISION<sup>®</sup>**  
INNOVATIVE GEO-MODELING SOFTWARE

SVSOLID™GT is a 1D, 2D and 3D finite-element program for geotechnical earth structures. It can solve both simple problems and complex staged construction or excavation problems involving elasto-plastic soft-soil and rock behavior as well as consolidation of soils. SVSOLID™GT is designed for determining the stress state and deformations in soils under various loading conditions and is applicable to geotechnical, civil, and mining projects.

## FAST AND STABLE SOLUTIONS OF LARGE, COMPLEX NUMERICAL MODELS

The most significant change to any particular module within our SVOFFICE™5/GT software has been to the SVSOLID™GT module. SVSOLID™GT has been redesigned and utilizes the new SVCORE™ Finite Element Engine solver. Specifically designed to solve stress/deformation problems efficiently, the new solver has over 20 years of development experience behind it and allows for fast and stable solutions of large, complex, multi-dimensional numerical models. The design changes and technical advances in the software firmly position SVSOLID™GT as a premiere stress/deformation software package.

### The SVOFFICE™5 release of SVSOLID™GT contains the following specific improvements...

- **Staged construction/excavation model sequencing:** The new SVCORE™ Finite Element Engine allows for the creation of complex construction and excavation model sequences to calculate the settlement or expansion occurring in the real-world processes.
- **2D Quad Mesh Support:** Quad elements provide advantages in vertical flow calculations and stability in stress/deformation calculations.
- **Shear Strength Reduction (SSR) Slope Stability Modeling in 2D/3D:** Stable solutions of finite element slope stability models are available. SVSOLID™GT continues to complement the 3D SVSLOPE® limit equilibrium module resulting in the most advanced suite in the world for the solution of large 2D/3D slope stability models.
- **NEW Elasto-Plastic Strength Models:** several new elasto-plastic constitutive models such as Cam-Clay, Modified Cam-Clay, Von Mises, Drucker Prager, Mohr-Coulomb, Hoek Brown and Generalized Hoek Brown are available with the new solver.
- **Consolidation:** The solution of coupled small-strain and large-strain consolidation problems has been implemented in the new SVSOLID™GT package. Such solutions are available in 1D, 2D, and 3D.
- **Anchors:** SVSOLID™GT now implements the ability to model anchors in 2D and 3D for the analysis of retaining walls.
- **NEW SVCORE™ Finite Element Engine Solver:** Our new flagship solver offers robust performance for flow and stress/deformation problems. It passes compiled industry benchmarks and shows significant performance gains.
- **Stable 2D/3D Model Solutions:** The new SVCORE™ Finite Element Engine has been developed within the geotechnical engineering context and is suitable for the solution of large stress/deformation problems. SVCORE™ brings the added advantage of increased solution stability to solutions of large 3D problems involving millions of nodes.
- **Triangulated Surface Support:** the new solver offers advantages in handling complex 3D geometries. These can be represented by layered triangulated surface.
- **NEW High-Performance Graphics Engine:** the new 3D CAD graphics engine provides measurably faster overall operation, with the biggest performance increases in the areas of...
  - creation and adjustment of larger more complex models
  - quicker rotation and translation of objects
  - high quality/print-ready client visuals
  - improved CAD editing controls and responsiveness.
- **NEW SVDESIGNER™ Conceptual Modeling Software Package:** This brand new software program is tightly integrated within SVOFFICE™5/GT and allows for the representation and modification of complex 3D geometries, taking 3D modeling to a whole new level.

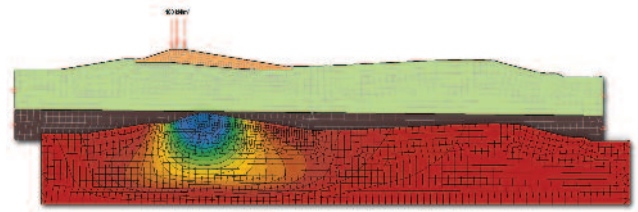
## Key features and capabilities of SVSOLID™GT:

- Many elasto-plastic constitutive soil models
- Staged construction/excavation model sequences
- Slope stability modeling with shear strength reduction (SSR) method
- Modeling of small-strain and large-strain consolidation
- 3D Triangulated surface support (TINS)
- SVCORE™ - new high-performance, stable finite element solution engine
- 1D/2D/3D solutions for various geometry configurations
- SVOFFICE™ Manager with Learning and Expert modes
- Re-organized Menu System
- Easy to use with highly efficient workflow
- Extensive QAQC program

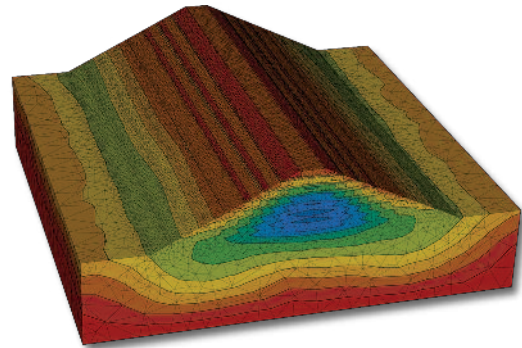
## Common Applications:

- Construction and excavation models
- Consolidation of soft clays beneath earth structures
- Design of foundations and earth dams
- Tailings consolidation
- Design of slab-on-ground structures for shrinking and swelling soils
- Design of underground tunnels and mine workings
- Design of cantilevers and retaining walls with anchors
- Design of flood control structures
- Pore-water pressure generation effects can be included by coupling SVSOLID™GT with SVFLUX™GT
- Slope stability issues can be examined by combining SVSOLID™GT with SVSLOPE®

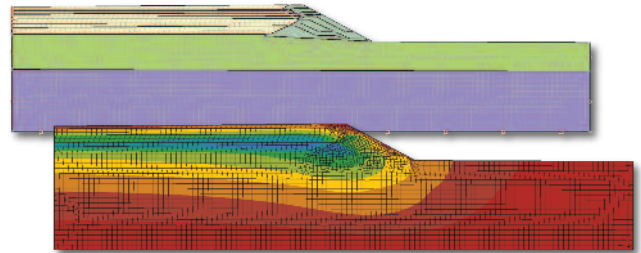
POWERED BY  
**SVCORE**™  
FINITE ELEMENT ENGINE



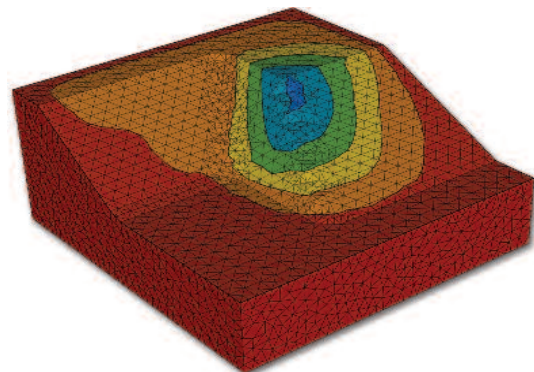
2D analysis of shallow foundation under load.



3D analysis of earth dam construction stages.



2D analysis of tailings dam construction.



3D shear strength reduction analysis.

THE MOST VERSATILE SUITE  
OF MULTI-DIMENSIONAL  
GEOTECHNICAL ANALYSIS TOOLS  
WE HAVE EVER DEVELOPED.

WE HAVE REDEFINED THE  
"NEW" STANDARD... AGAIN.

**EXCITING NEW FEATURES!**

SVOFFICE™5 introduces new features, speed, precision and functionality that have not been available in any other geotechnical analysis software until now.

SVOFFICE™5 boasts a completely new Manager with "Learning" and "Expert" user modes to get you up and running even faster; a completely reimagined and modern Soil Properties database application; a new user friendly 3D model geometry builder and visualizer...SVDESIGNER™; improved user interface for a more intuitive streamlined workflow; an entirely new graphics subsystem to handle more complex geometry, speed up workflows and allow for high resolution output of visuals; and the power of the new SVCORE™ Finite Element Engine uniquely suited to analyzing and solving complex models in challenging scenarios.

What we haven't changed is our commitment to keep developing leading-edge software at a breakneck pace, exceptional technical support and user training.



**SOILVISION®**

120 - 502 Wellman Crescent T: +01 306 477 3324  
Saskatoon, SK S7T 0J1 CANADA F: +01 306 955 4575

soilvision.com • contact@soilvision.com