



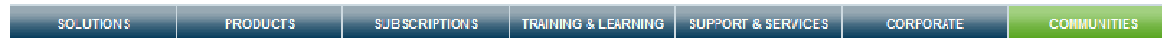
## Terrain Modeling with MicroStation and Civil Products at SELECTseries 3

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Product Manager, Bentley Civil  
15<sup>th</sup> November 2011

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# Be Inspired / A Year in Infrastructure



## Overview

[2011 Be Inspired Award Winners](#)

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## Roundtables

## Thought Leadership Presentations

## 2010 Photo Slideshow

## Year in Infrastructure

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## Be Inspired Awards Winners

Click category names to view finalists.

- [Connecting Project Teams](#)
  - Winner: Los Angeles Department of Water and Power
- Innovation in [Asset Lifecycle Information Management](#)
  - Winner: Southern Company
- Innovation in [Bridges](#)
  - Winner: HDR, Inc., T.Y. Lin International, and Jacobs Engineering
- Innovation in [Building](#)
  - Winner: UNStudio
- Innovation in [Campuses, Airports, and Military Installations](#)
  - Winner: Mott MacDonald - Arup Joint Venture
- Innovation in [Communications Networks](#)
  - Winner: Precision Contracting Services, Inc.
- Innovation in [Construction](#)
  - Winner: Jacobs
- Innovation in [Generative Design](#)
  - Winner: HOK and PLP Architecture
- Innovation in [Geotechnical and Geoenvironmental Engineering](#)
  - Winner: Jan De Nul NV
- Innovation in [Government](#)
  - Winner: Port of Helsinki
- Innovation in [Mining and Metals](#)
  - Winner: SEI Engenharia Ltda
- Innovation in [Multimedia](#)
  - Winner: I-IEA Associates
- Innovation in [Power Generation](#)
  - Winner: L&T - Sargent & Lundy Limited
- Innovation in [Process Manufacturing](#)
  - Winner: Qatar Petroleum
- Innovation in [Rail and Transit](#)
  - Winner: Hatch Mott MacDonald
- Innovation in [Roads](#)
  - Winner: Beam, Longest and Nett, L.L.C.
- Innovation in [Structural Engineering](#)
  - Winner: Stopford Projects Ltd
- Innovation in [Utility Transmission and Distribution Networks](#)
  - Winner: ENMAX Power Corporation
- Innovation in [Water and Wastewater Treatment Plants](#)
  - Winner: CDM
- Innovation in [Water, Wastewater, and Stormwater Networks](#)
  - Winner: General Directorate of IZMIR Water and WasteWater Authority

# Be Inspired 2011

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## Be Inspired

Thought Leadership in Infrastructure

AMSTERDAM 2011-11-8-9

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### Innovation in Multimedia

This category features projects that have deployed visualization capabilities to enhance the quality, productivity, or presentation of the project.

**Winner**  
I-TEN Associates  
Point Cloud Visualizations  
Portland, Oregon, USA

I-TEN Associates completed a series of visualizations to help special interest groups digitally preserve artifacts of historical interest. These videos are presented on websites and in other forums to showcase objects that may be otherwise lost. By creating a highly efficient workflow in the MicroStation environment, I-TEN produced an immersive experience in a fraction of the time and expense compared to established surveying and modeling methods.

**Finalist**  
Larsen & Toubro Limited  
Ammonia Synthesis Gas Generation Project  
Bharuch, India

Gujarat Narmada Valley Fertilizers Company (GNFC) awarded a \$220 million turnkey project to Larsen & Toubro Chemical Plants and L&T Engineering Mumbai to set up a 1,120 metric tons per day ammonia-equivalent, natural gas-based synthesis gas generation plant in Bharuch, India. MicroStation and its embedded Luxology rendering engine provided superior visualization of the project for both Larsen & Toubro and GNFC.

**Finalist**  
Washington State Department of Transportation - Visual Engineering Resource Group  
SR 20 Sharpes Corner Vicinity Interchange  
Anacortes, Washington, USA

State Route 20 is the only direct land access to Whidbey Island in Washington. The SR 20 interchange provides primary access to Anacortes and ferry services. These

# Commonality ?

- **Terrain Model**



Yet we consider this the provenance of the dirt diggers....

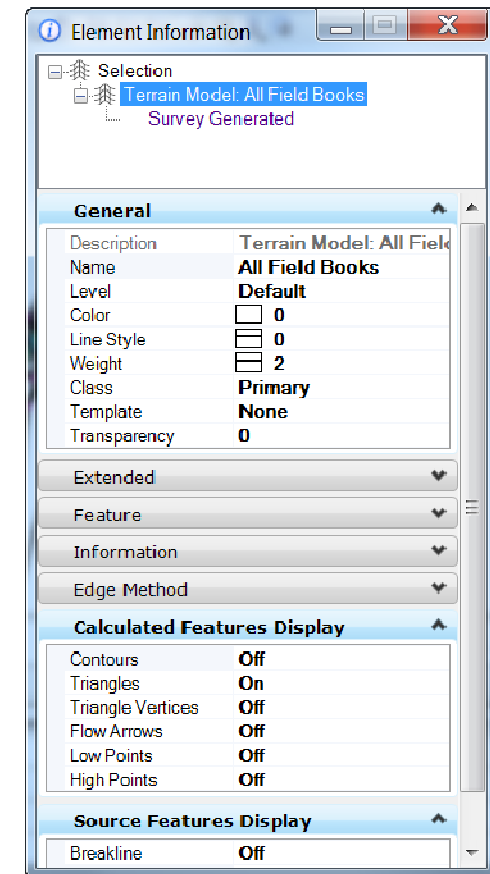
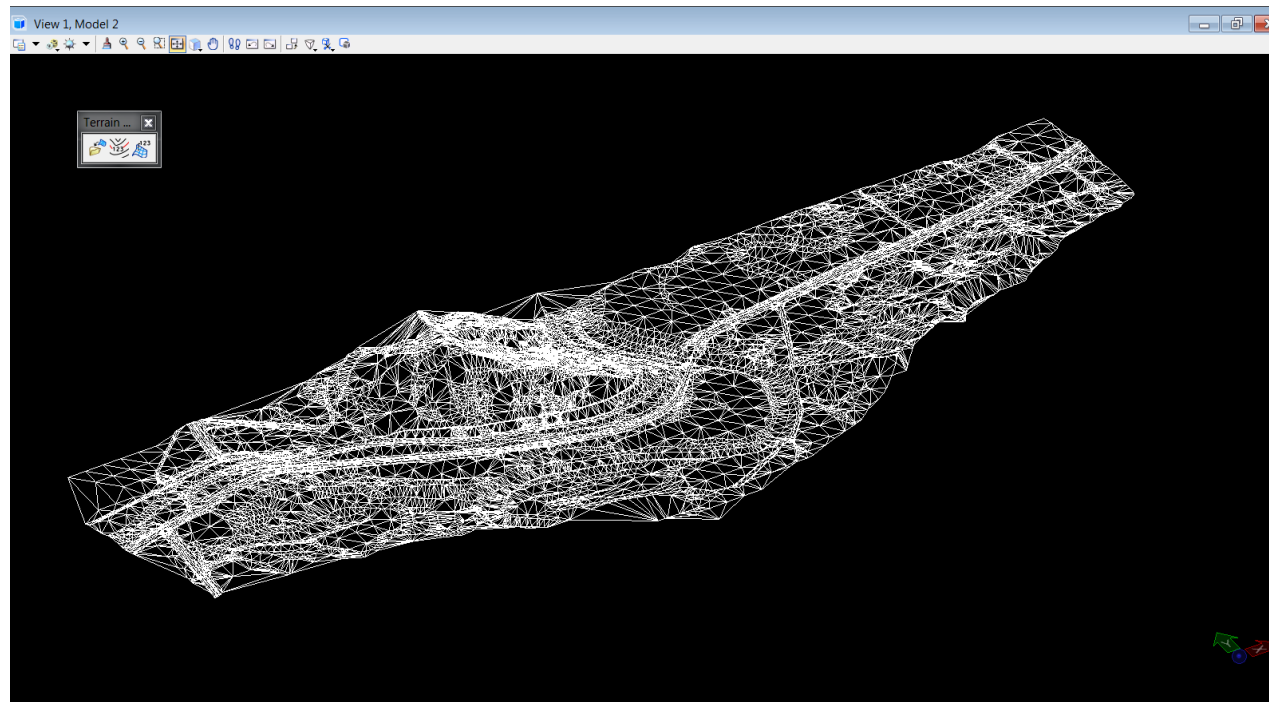
AKA Civil



# SELECTseries 3

- Microstation gets a new element type !

- **Terrain Model**



## **Terrain Model - What does this solve ?**

- **Shared access rather than conversion and distribution**
- **Achieve CAD standards**
- **Add additional annotation**
- **Interrogation / Analysis**
- **Visualisation**

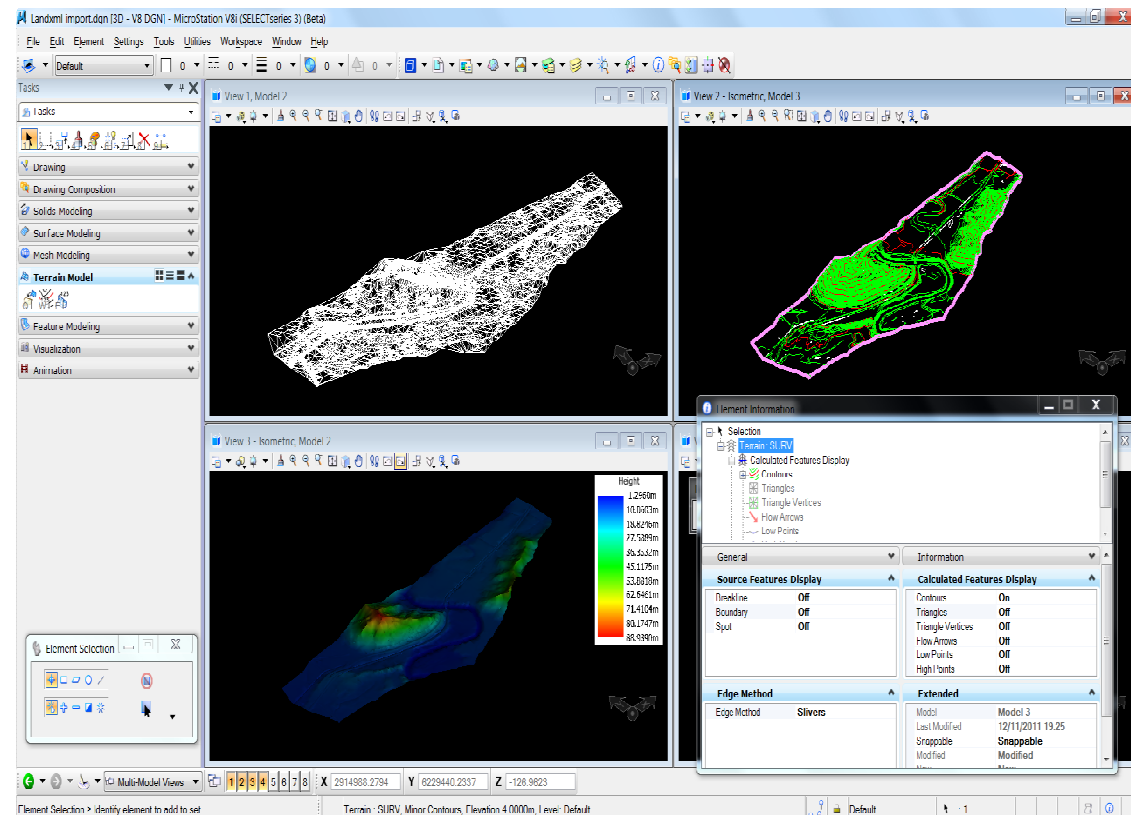
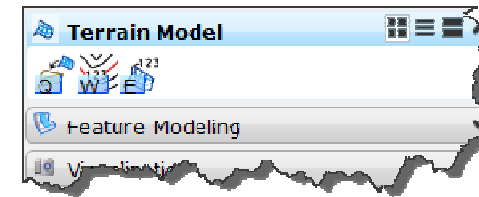
# Demo

- Terrain Modelling

# MicroStation SELECTseries 3 – Terrain Model

## Summary of tools

- LandXML import
- Terrain Display Themes
- Analysis Tools
- Annotation tools

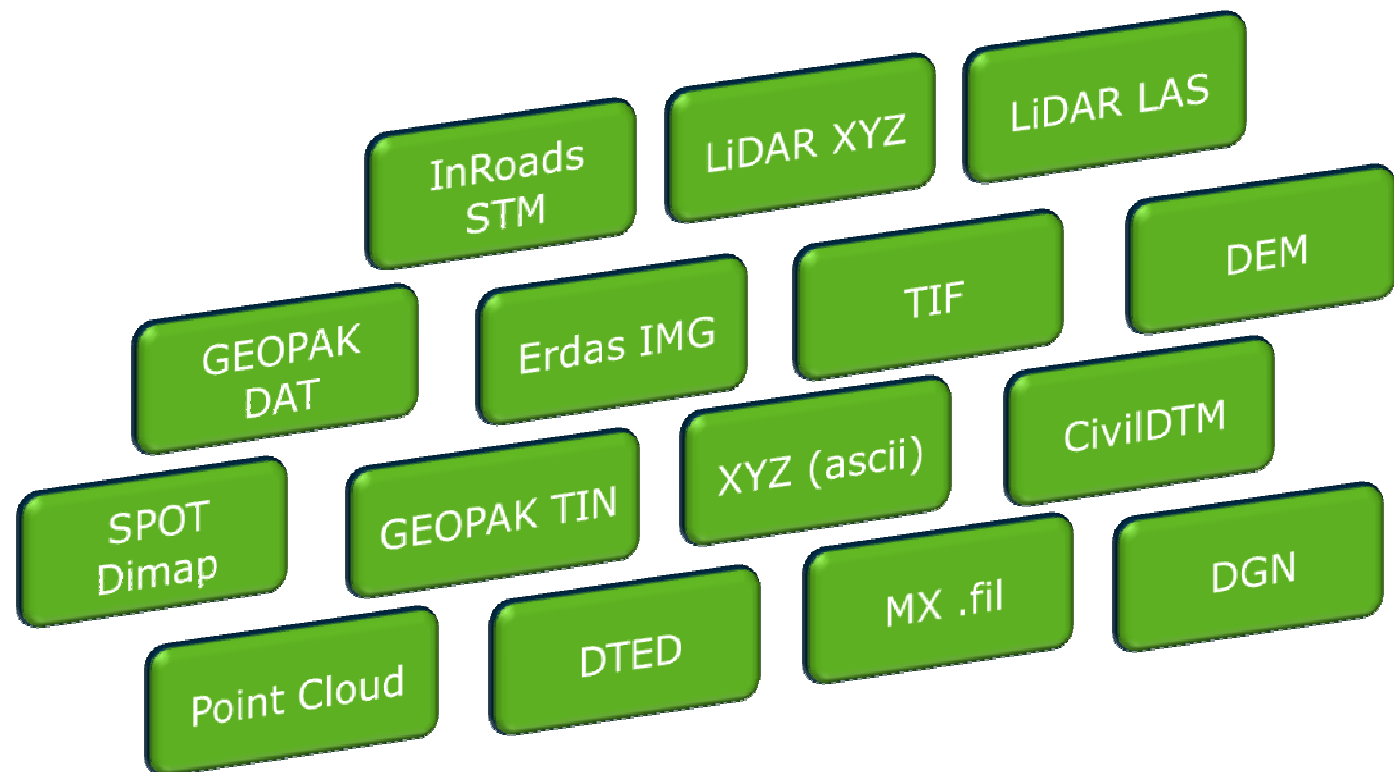
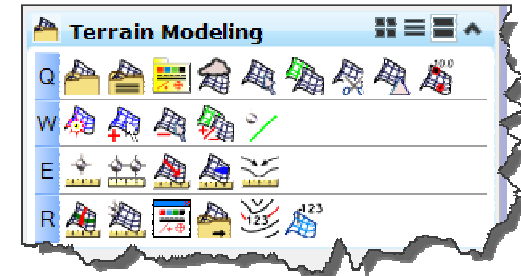




# MicroStation SELECTseries 3 – Terrain Model

## Vertical Product enhancements

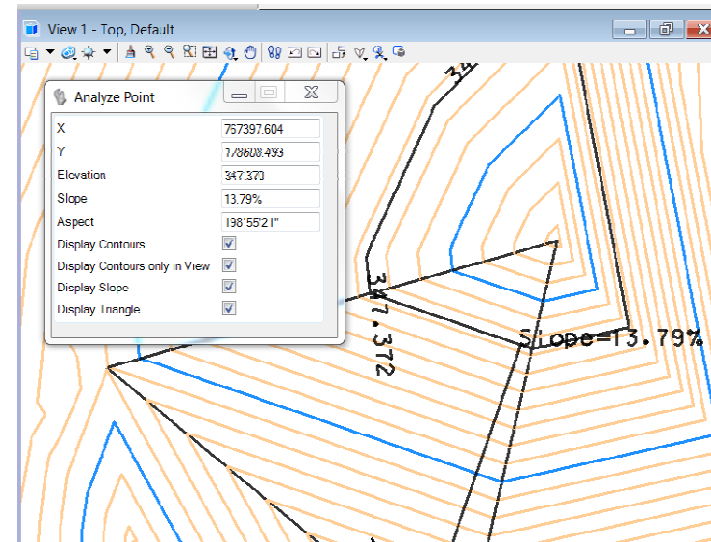
- Extensive import options
  - Binary File
  - Graphics



# MicroStation SELECTseries – Terrain Model

## Vertical Product enhancements

- Extended Analysis Tools
  - Volumes
  - Points
  - Trace Slopes
  - Ponds
  - Watershed
- Reporting tools
  - Duplicate Points
  - Crossing Features
- Export
  - Native Civil Products
  - LandXML



The screenshot shows the 'Terrain Model Report Dialog' window with a table of intersection points. The table has the following columns: Intersection Point, Level On Feature 1, Level On Feature 2, Level Difference, and Feature Type 1.

Intersection Point	Level On Feature 1	Level On Feature 2	Level Difference	Feature Type 1
767881.767, 179802.367	313.161	312.189	1.275	Breakline
767881.860, 179781.050	311.745	313.354	1.609	Breakline
767002.707, 179760.940	311.390	313.078	2.488	Breakline

# Demo

- Terrain Modelling
- Survey

# Thank You!

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Are there any questions?