



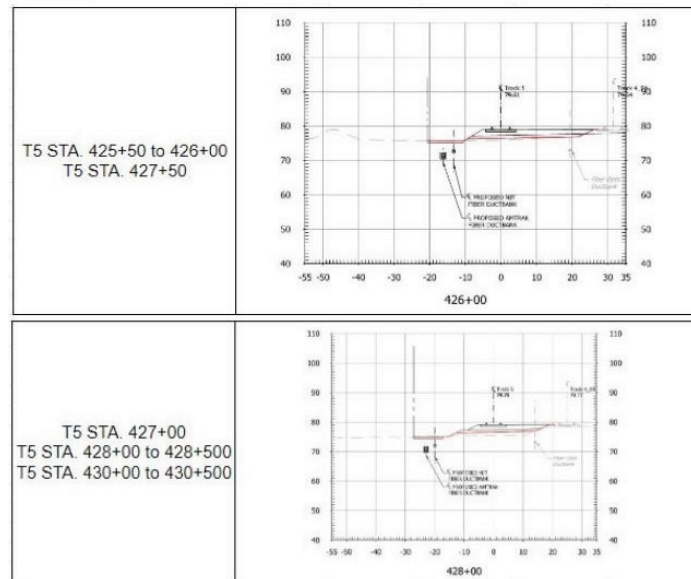
# Rail Corridor Terrain Modeling Using InfraWorks

(Infra modelling, BIM & VDC Coordination Services)

CASE STUDY



TECHTURE



Data Sorting - Sorting of similar cross section  
at different stations

**Client** : General Contractor

**Team Size** : 4 Nos. (BIM engineers & BIM Coordinators)

**Disciplines** : Civil

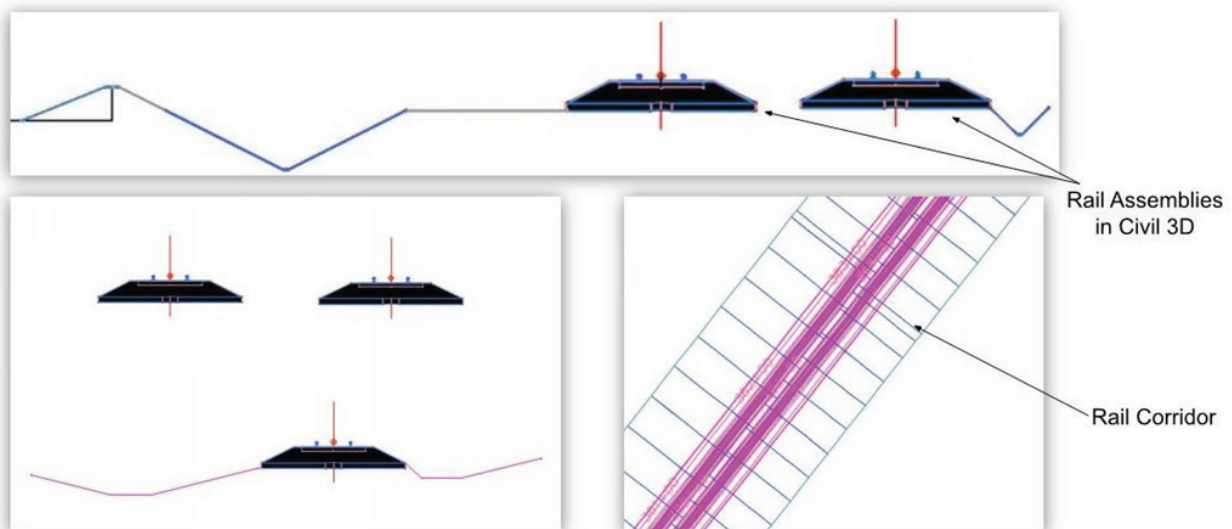
**Duration** : 12 Months

**Scale** : -

**Software** : Autodesk Civil 3D &  
Autodesk InRoads

**Type** : Infrastructural

**Location** : New Jersey, USA



Rail Corridor and Cross sectional assemblies

## Project Overview

The initiative involves developing a comprehensive digital terrain and rail-subgrade model to support infrastructure planning. The work includes creating an accurate existing-conditions surface, preparing rail-specific sub-ballast geometry, establishing corridor-based cross sections, and generating reliable cut-fill quantities. The aim is to enable informed engineering decisions, quantify earthwork requirements, and optimize design validation.

## Scope & Deliverables

- Development of a terrain model in InfraWorks and extraction of the corresponding TIN surface into Civil 3D.
- Creation of sub-ballast bottom surface tailored to the rail corridor alignment.
- Cut-fill calculations using the sub-ballast design surface against the existing InfraWorks surface.
- Preparation of a cut-fill report covering station range ST 196+00 to 434+00.

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## Challenges

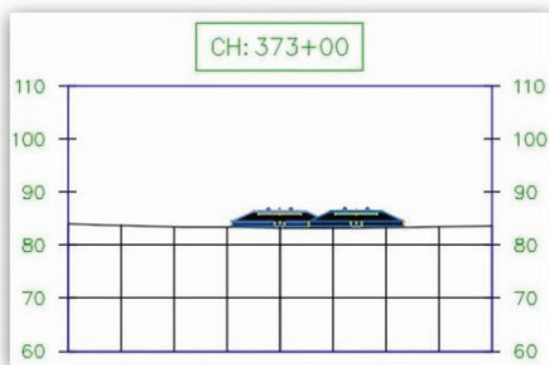
- Consolidating and sorting heterogeneous cross-section data from multiple stations to ensure uniformity.
- Aligning rail corridor assemblies consistently within Civil 3D to maintain section accuracy.
- Ensuring precise integration between InfraWorks terrain data and Civil 3D surfaces without geometry distortion.
- Generating dependable cut-fill outputs across a long alignment while maintaining model performance

## Techture Approach

- Streamlined data sorting to categorize repetitive cross-sections and improve modeling efficiency.
- Built rail corridor and assemblies in Civil 3D for accurate section-based computation.
- Developed a highly detailed InfraWorks model to serve as the existing topography foundation.
- Created dedicated sub-ballast and rail-specific surfaces for precise volumetric analysis.

## Benefits

- Enhanced accuracy in earthwork estimation leading to more informed construction planning.
- Streamlined digital workflows reduced manual coordination and repetitive work.
- Improved visualization of existing and proposed rail conditions to support decision-making.
- Reliable, station-wise cut-fill reporting to assist schedule, cost, and feasibility assessments.



Rail Cross sectional details

