



# Building Better Infrastructure with CGS Labs Civil Solutions

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🌐 <https://cgs-labs.com/>



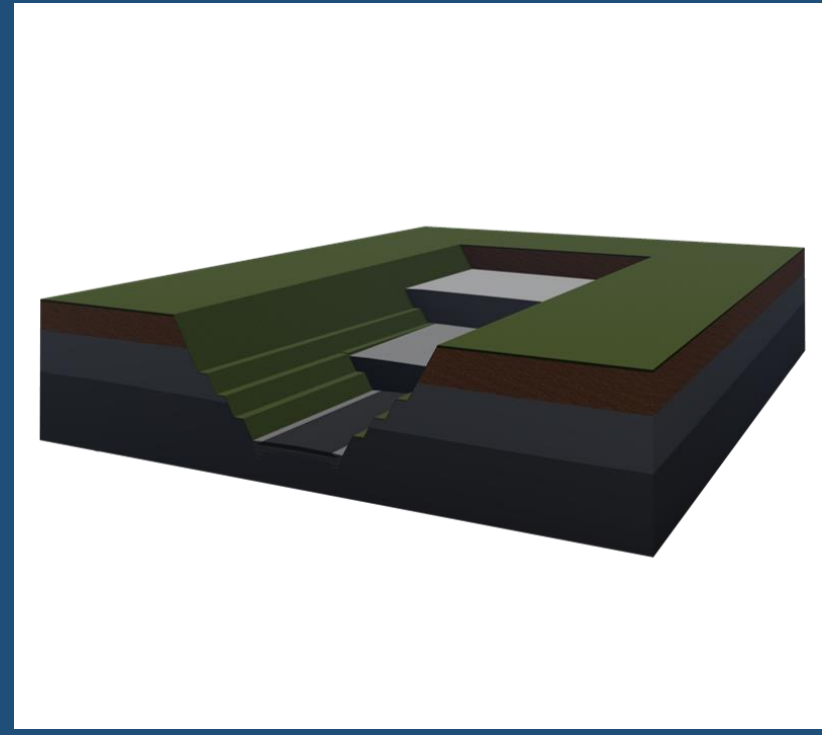
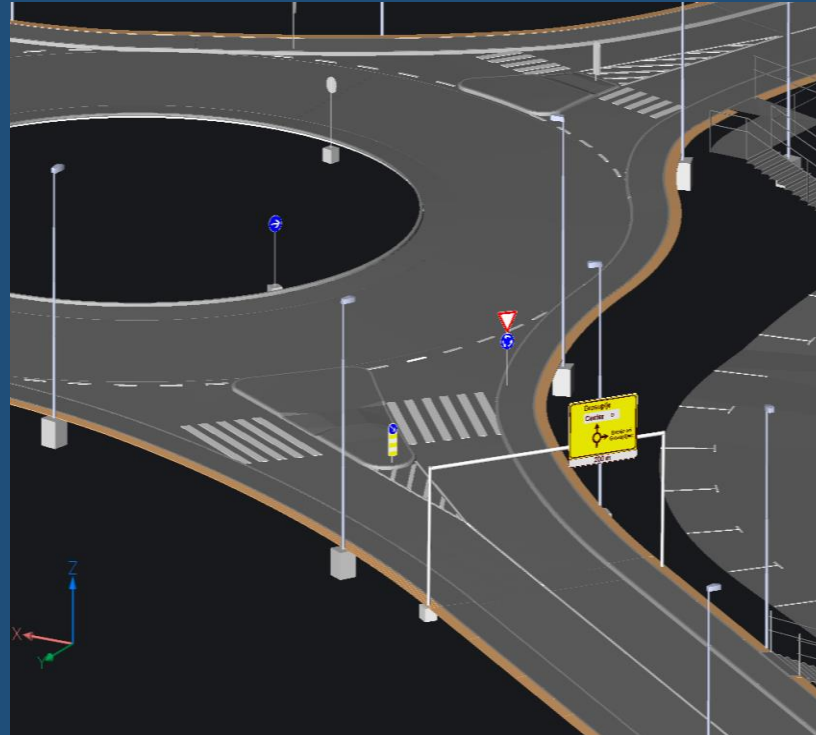
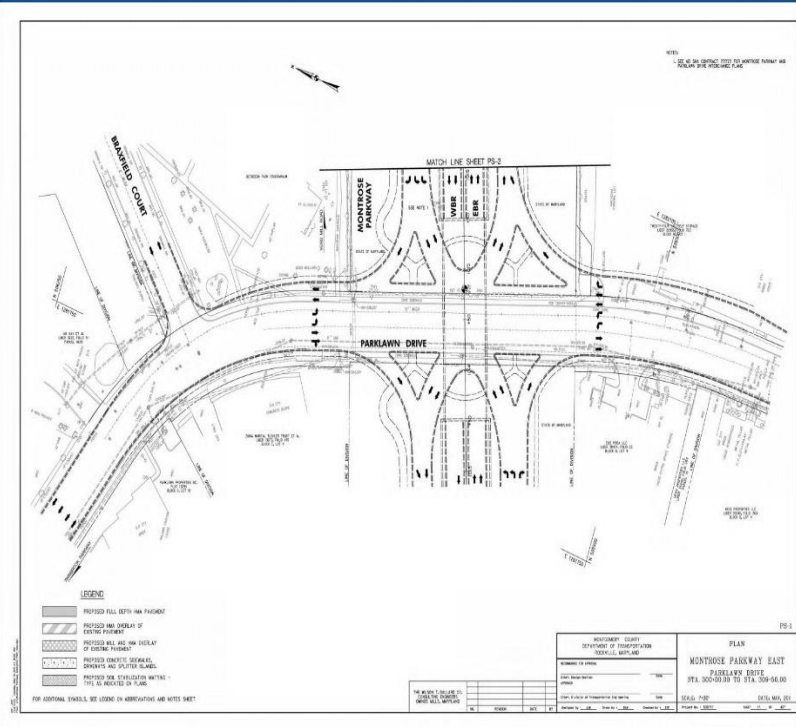


*"The road to success is always under construction."*

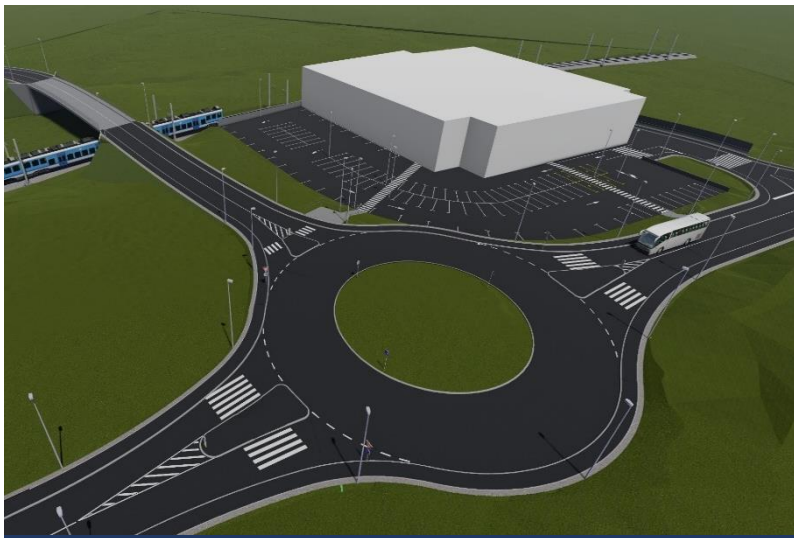
Lily Tomlin



# Design development







Plateia



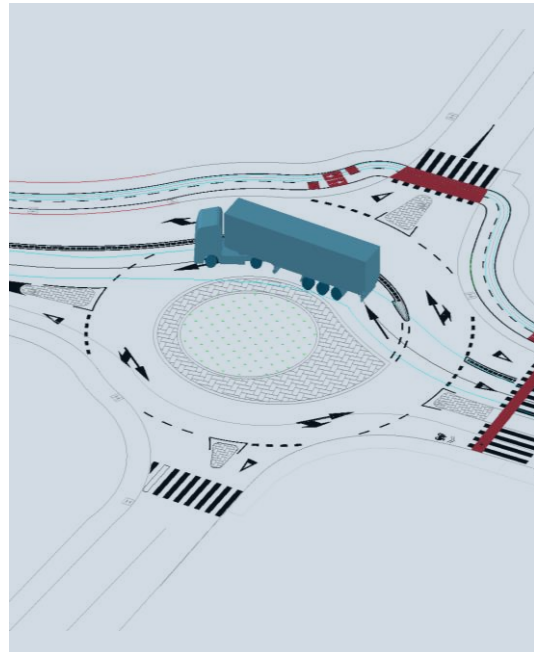
Ferrovía



Aquaterra



Autosign



Autopath



Power Path

CGS Labs Software Solutions  
(except Power Path) 2024  
runs on top of the 2018 - 2024  
version of **Autodesk AutoCAD**  
and **Civil 3D** as well as **BricsCAD**  
Pro, BIM, and Ult. V20 – V23.









BIM ready ROADWAY  
DESIGN solution



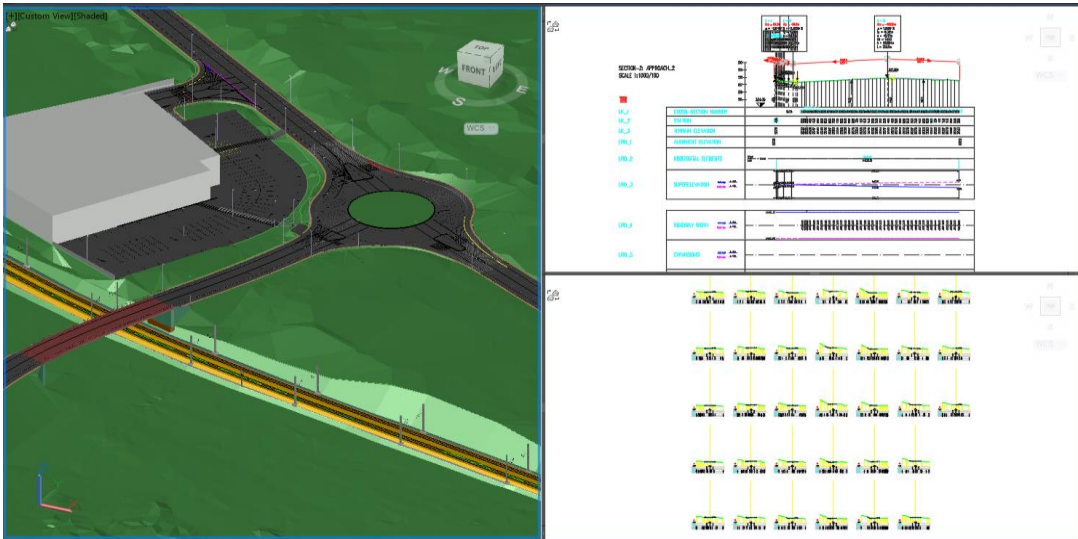
road designers,  
surveyors and  
contractors





# Advantages of Plateia

- From 2D to BIM-ready solution for road design and reconstructions (from preliminary to detailed design).
- follows a classic design approach.



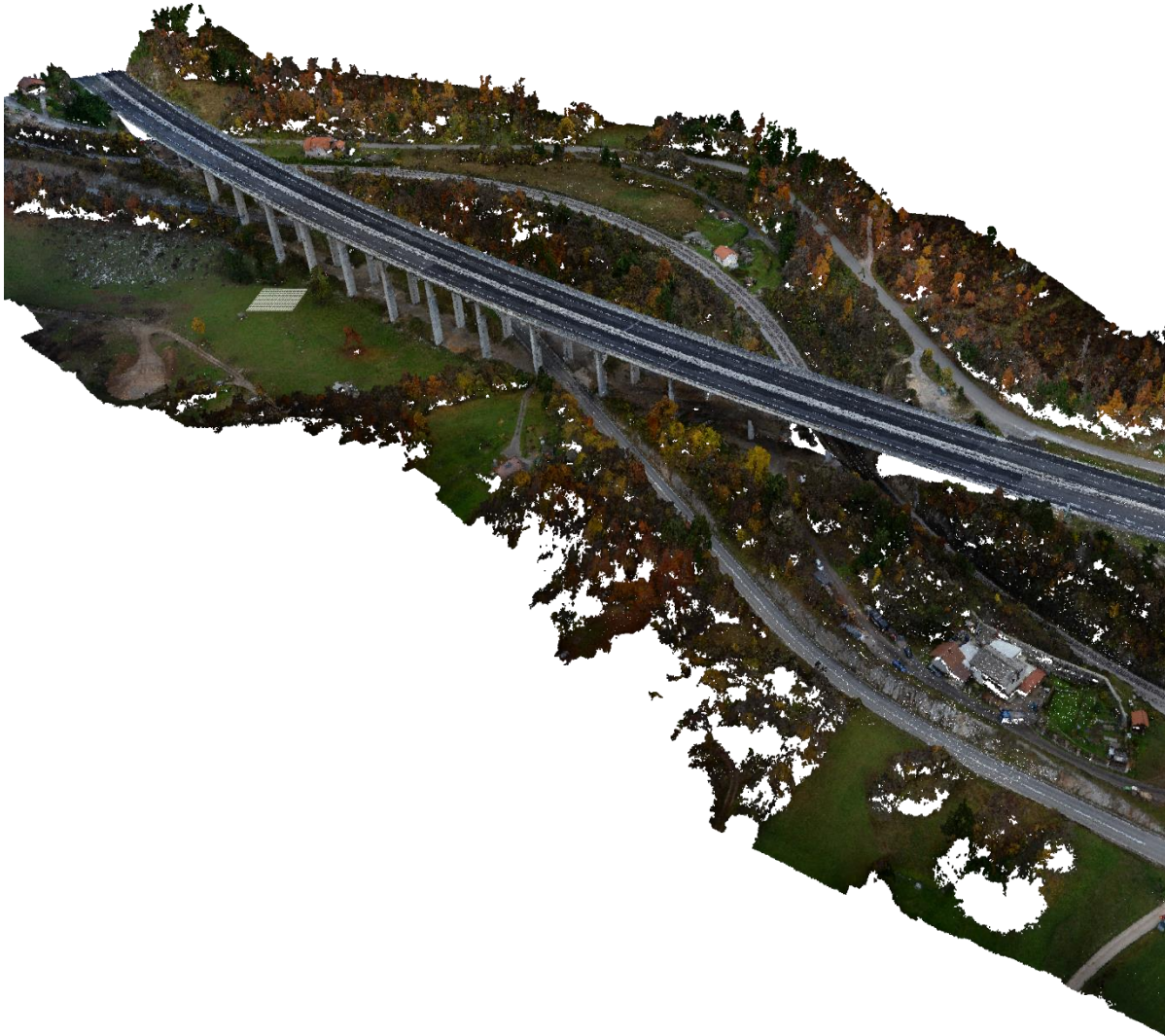
- compliance with standard requirements and regulations.
- enables quick modification.
- time-saving.

- BIM functionalities:
  - features for automatic and manual attachment of property sets.
  - IFC export and import.
  - clash analysis functionality.





## 1. Digital terrain model



- 1 CGS Labs surface
- 2 AutoCAD Civil 3D surface
- 3 BricsCAD surface
- 4 Native 3D faces
- 5 CGS Labs points

### 6 Point Clouds



Civil 3D

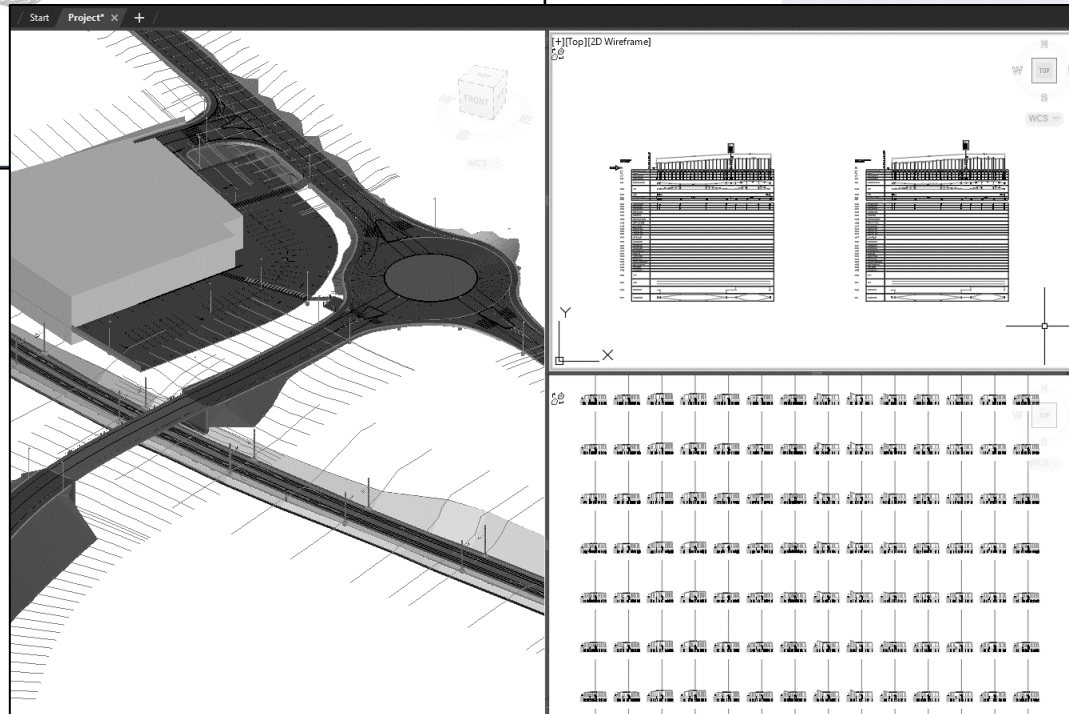
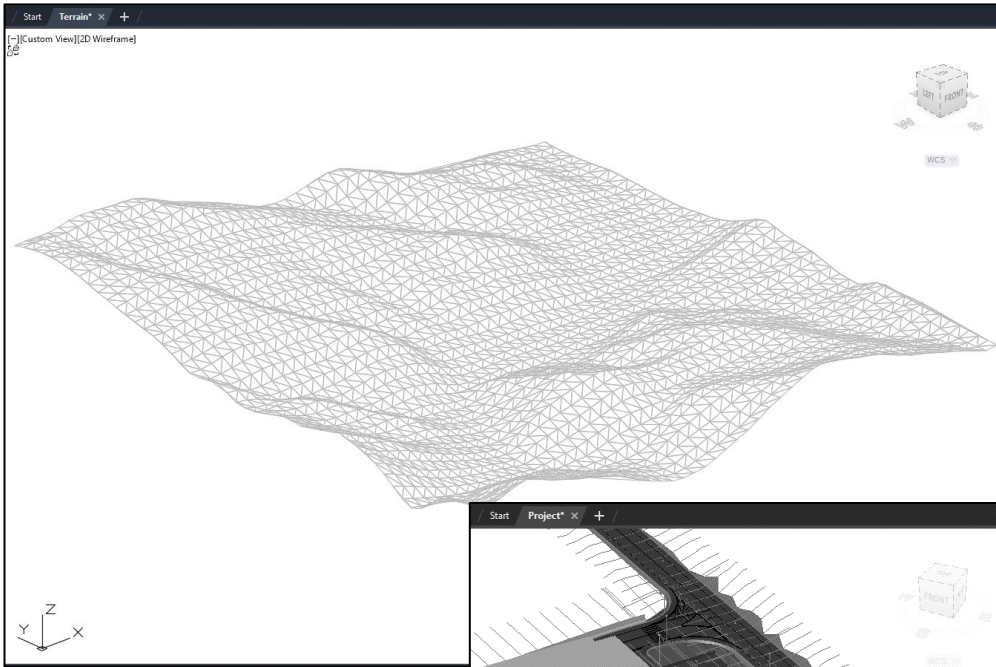


BricsCAD



# External Reference Surface

The surface is stored in an external DWG file.



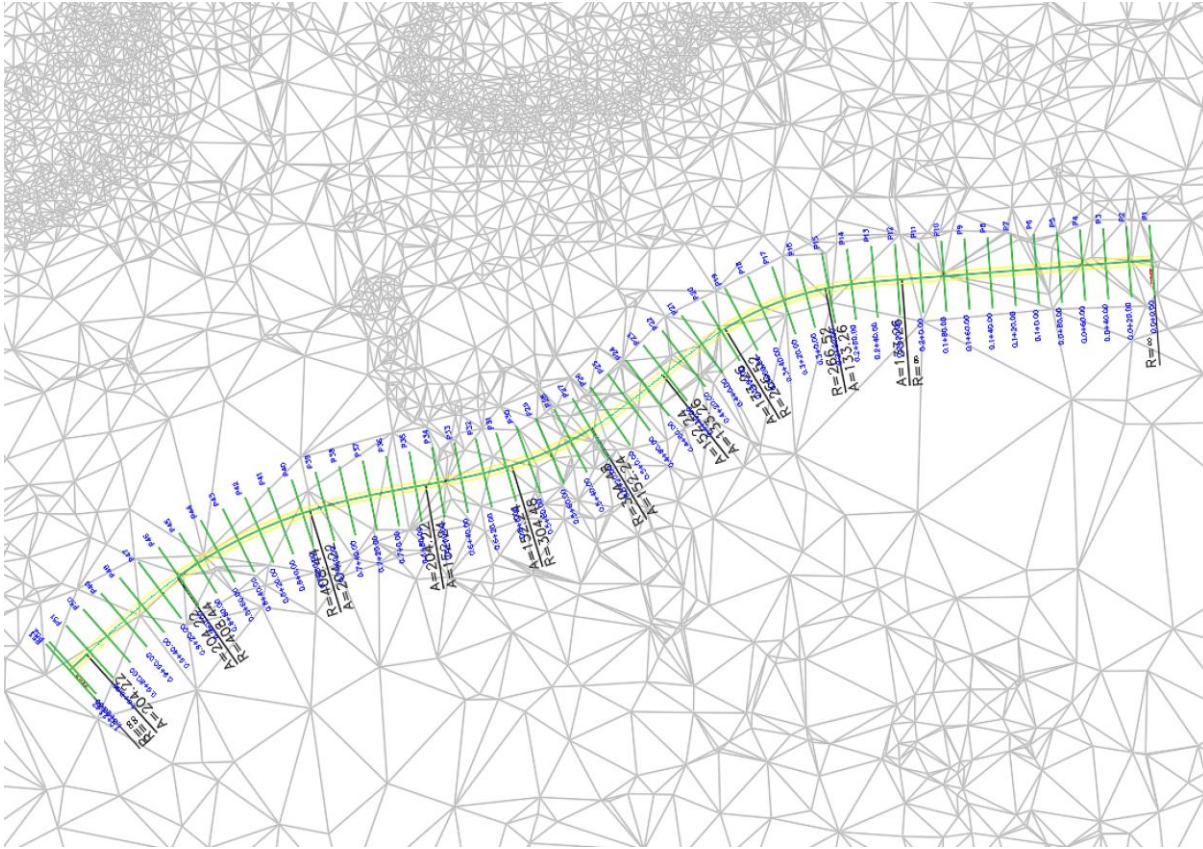
The advantages:

- smaller dwg files,
- better manageability and
- faster drawing manipulation.



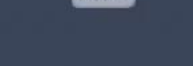


## 2. Alignment



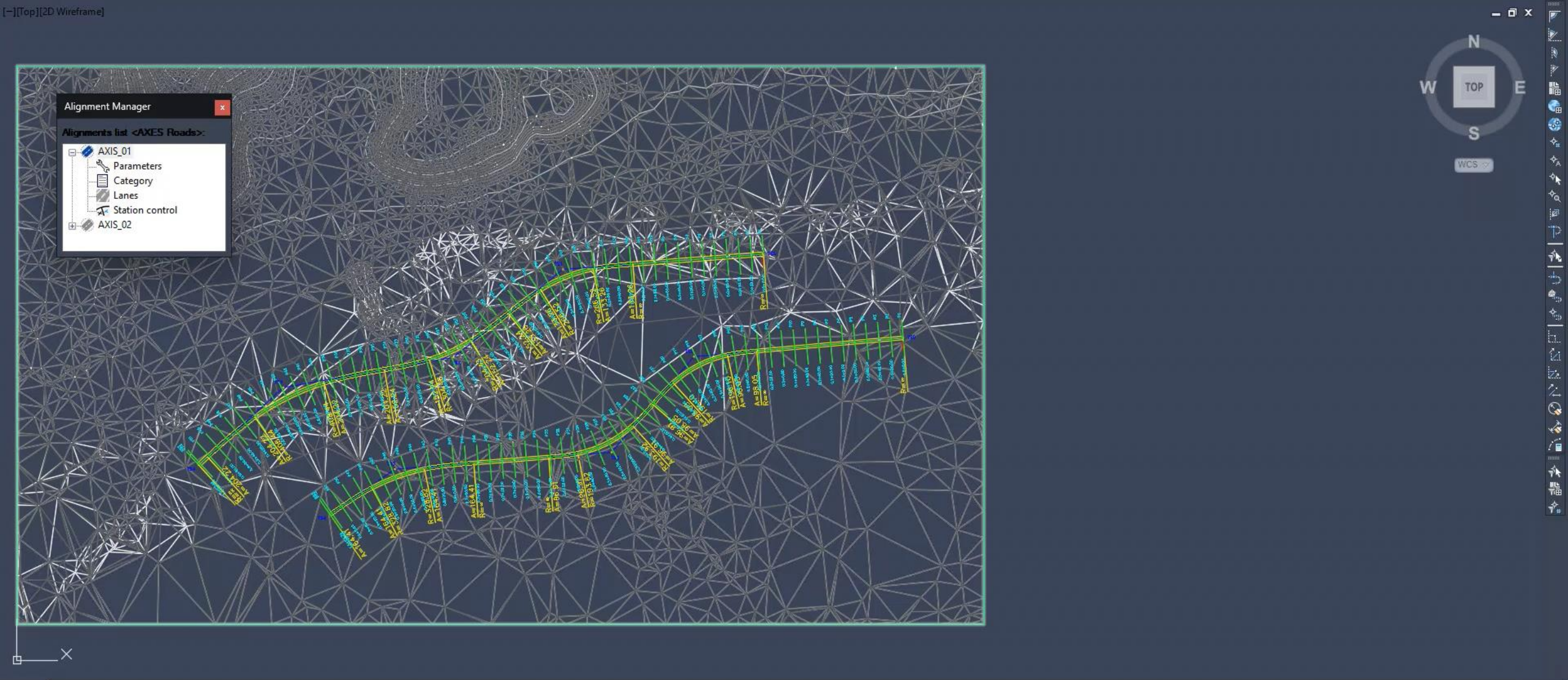
- 1 Tangent polygon
- 2 Floating elements
- 3 Stick method
- 4 BestFit analysis
- 5 Convert polyline to TP
- 6 Convert pline to alignment
- 7 Convert to floating elements
- 8 Parallel alignment





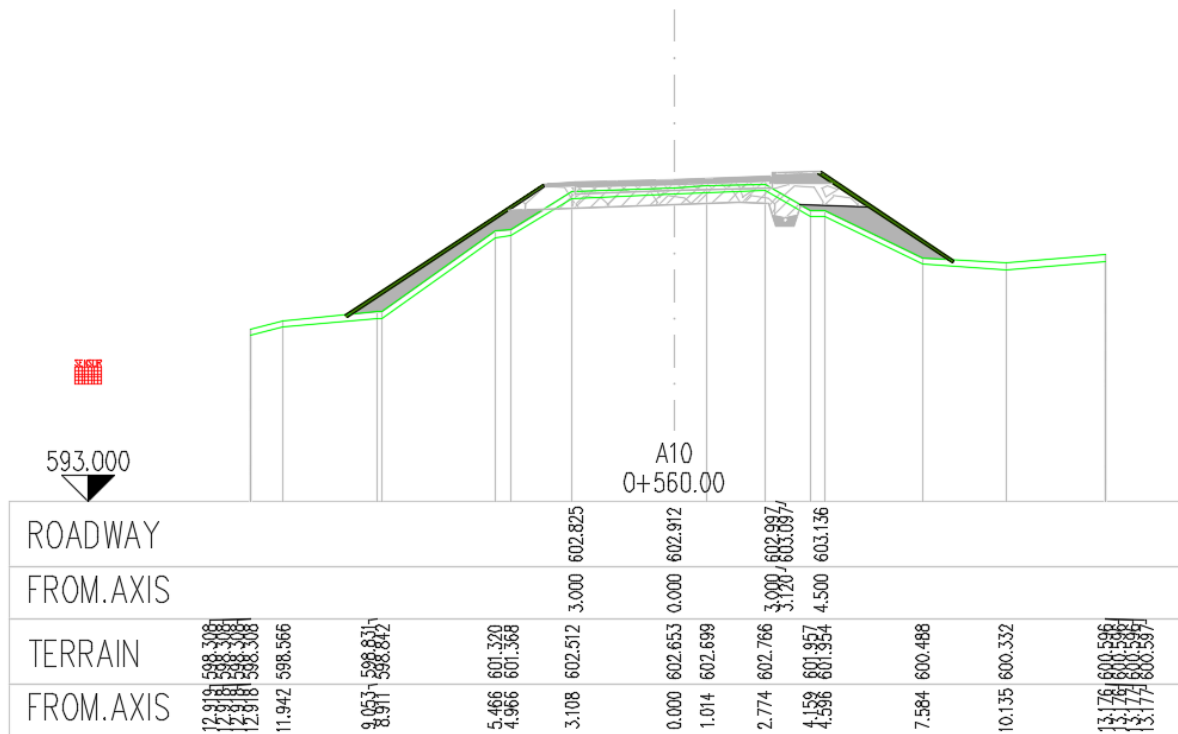
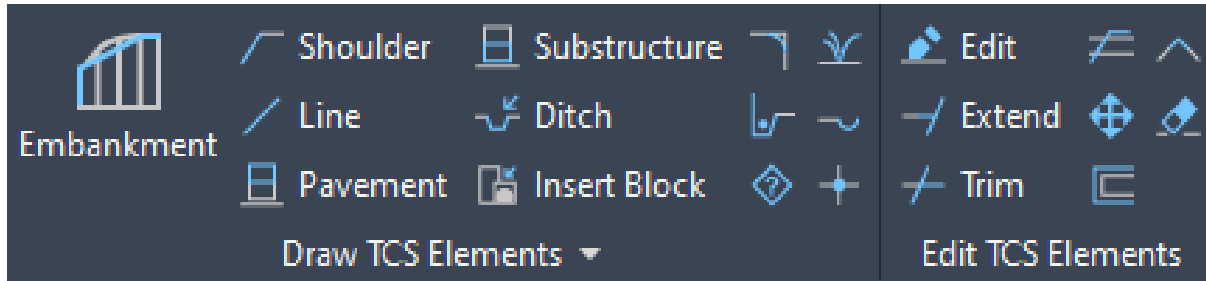




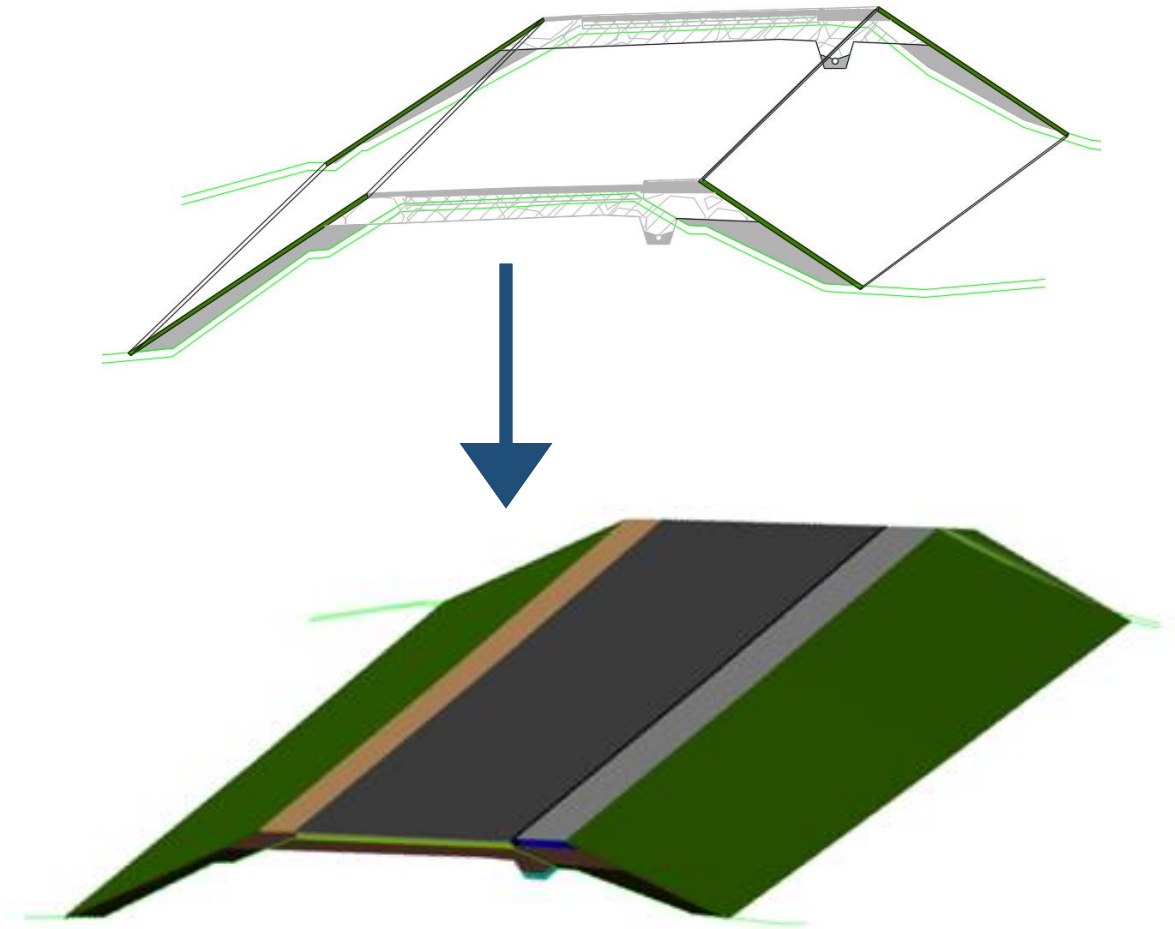


# Workflow in Plateia

### 3. Cross-sections

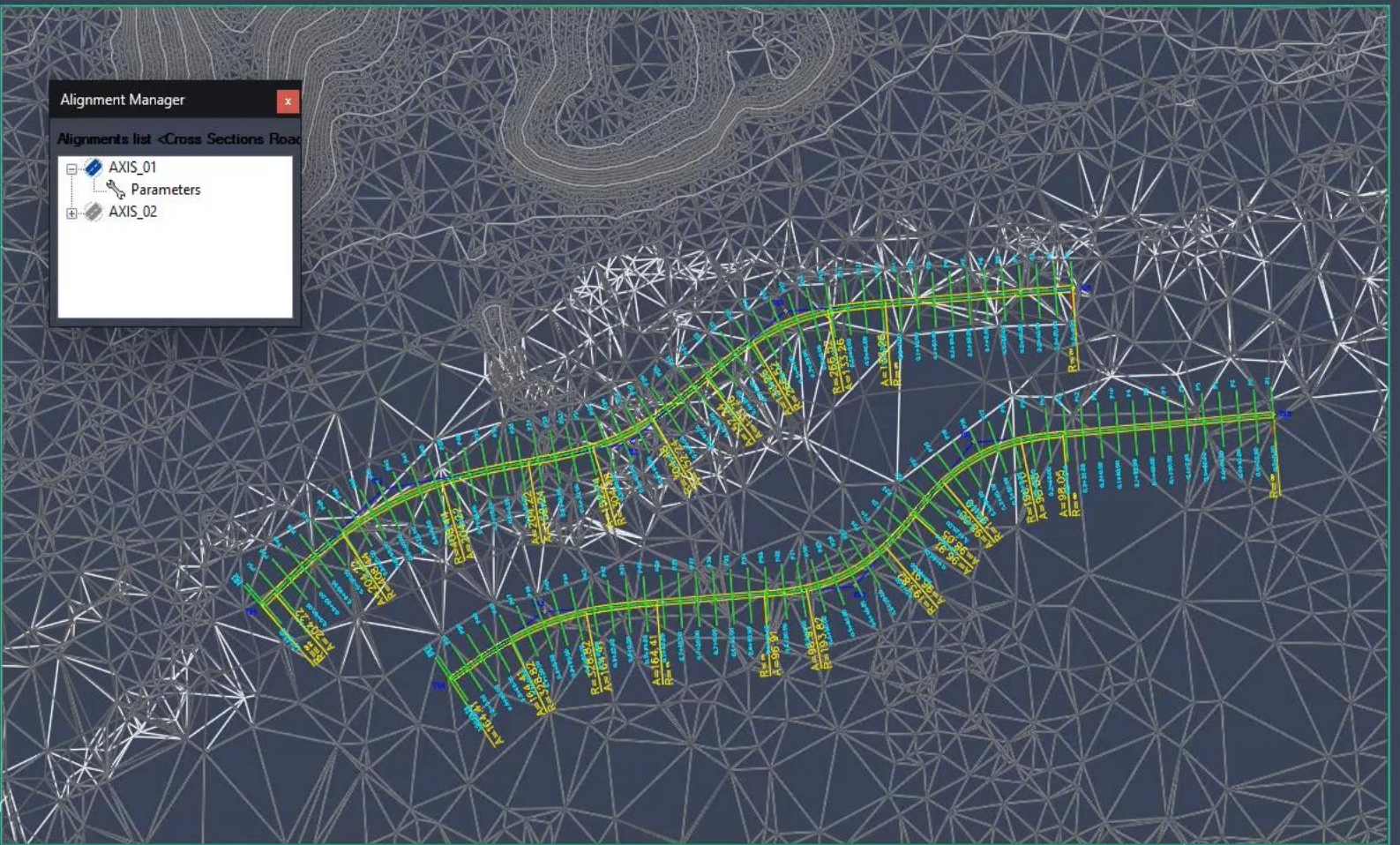


## 4. Model





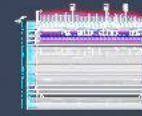
[Top][2D Wireframe]



Alignment Manager

Alignments list <Cross Sections Road

- AXIS\_01
  - Parameters
- AXIS\_02



# References





# The construction of a roundabout on Tampka and Kopernika streets, Warsaw



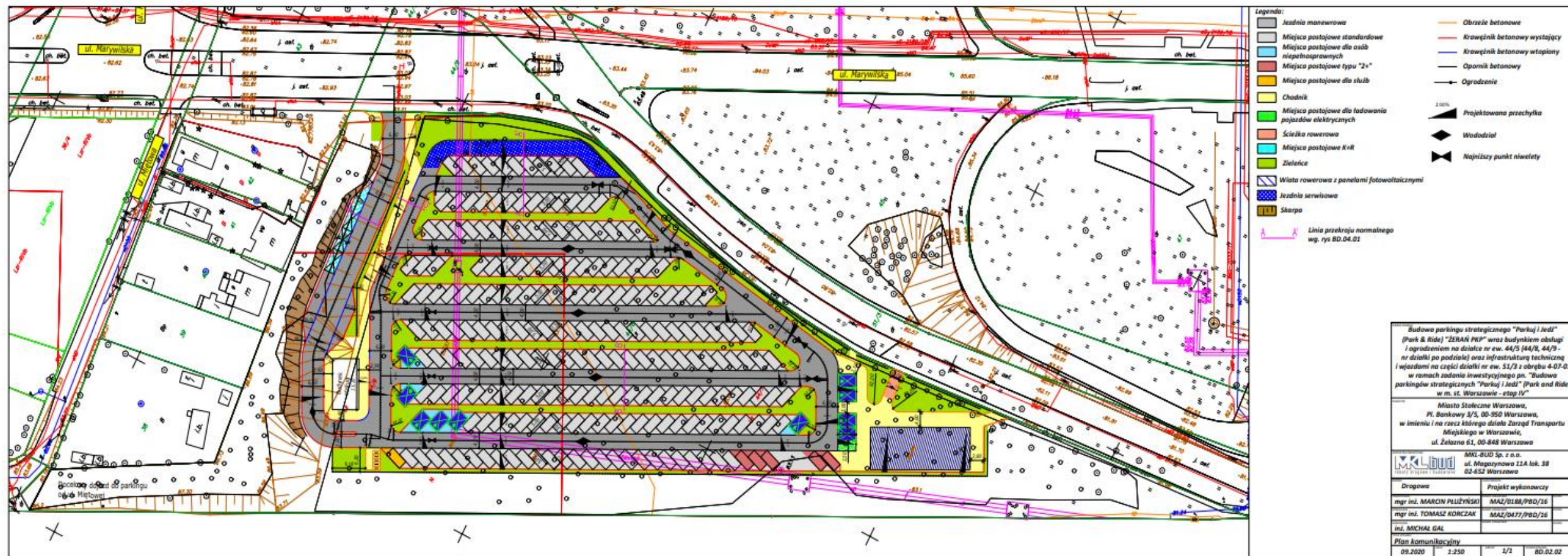


# The construction of a "Park & Ride" parking lot





# The construction of a "Park & Ride " parking lot



DESIGN COMPANY | MT-Projekt Sp. z o.o.

LOCATION | Warszawa, Poland

SOFTWARE | Plateia, Autopath

" If you have multiple projects at the same time, this means that you have to visit the terrain frequently. But if your project is created with PLATEIA, you open the drawing and everything is perfectly clear! „ —Michał Gal, designer



# Complex BIM models

## Research projects:

- main road G2-102, section 1034 Spodnja Idrija – Godovič, KM 13,100 – KM 13,200 BCP, arrangement of the “Petkovšek” roundabout at G2-102/1034, local road, three-way intersection “Šebalk” and sidewalk at R1-207/1057.
- BIM model of a double-track railway line and a roundabout.
- water flow regulation in Aquaterra

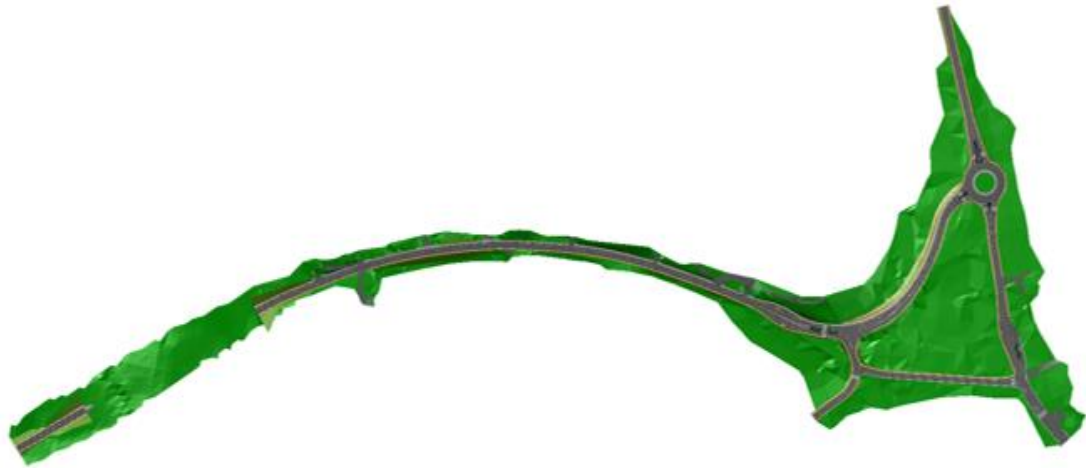
## Actual projects:

- preparation of project documentation for the reconstruction of part of the section on highway A1, including the replacement of the viaduct Dolgi most VA0045 in km 0+295 and VA0046 in km 0+280, **Slovenia**.
- reconstruction of road III/35724 in the area of Borová and Oldřiš municipalities, **Czech Republic**.
- reconstruction of a settlement in **Panama**.





# Reconstruction of the main road, intersections and roundabout



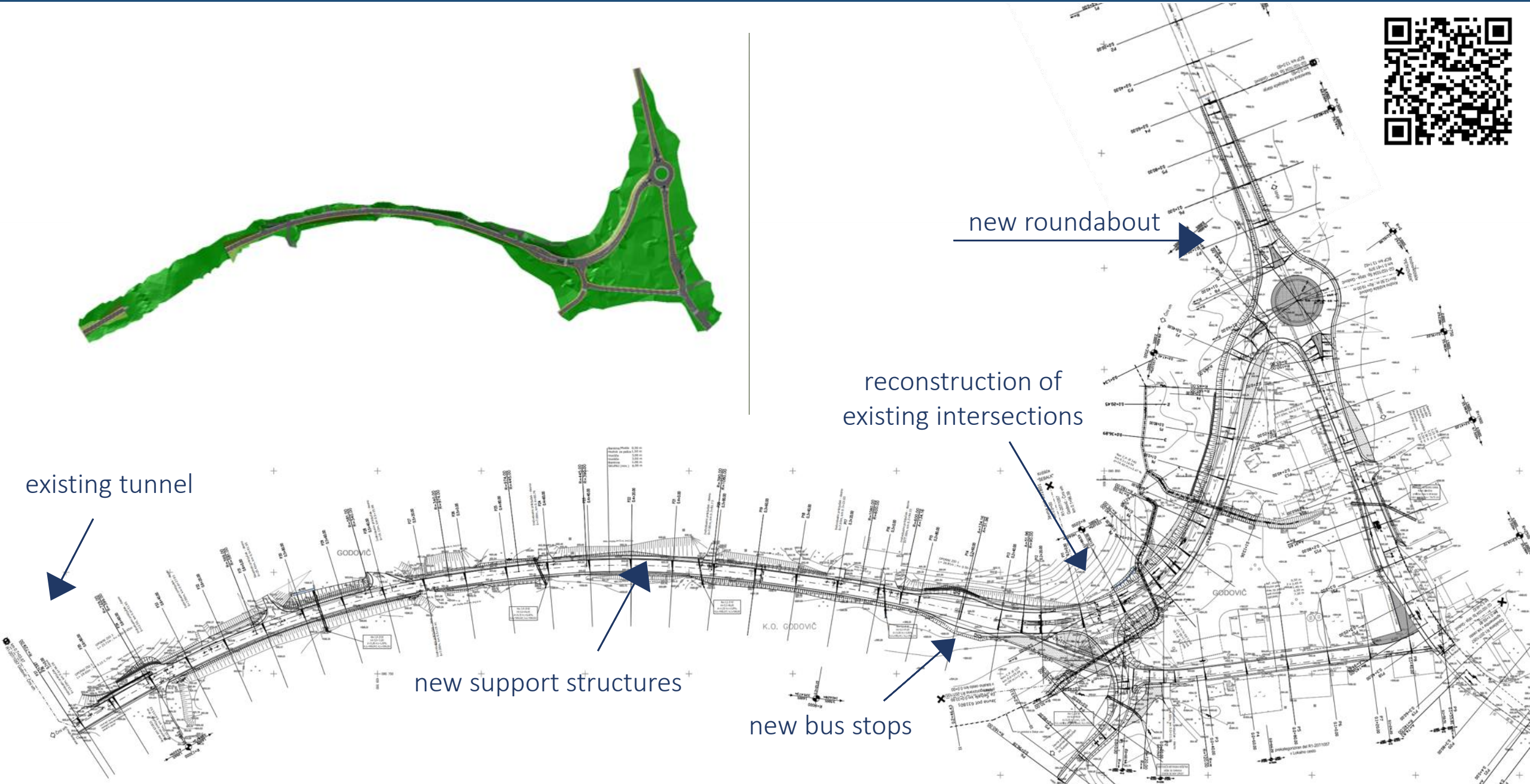
new roundabout

reconstruction of  
existing intersections

existing tunnel

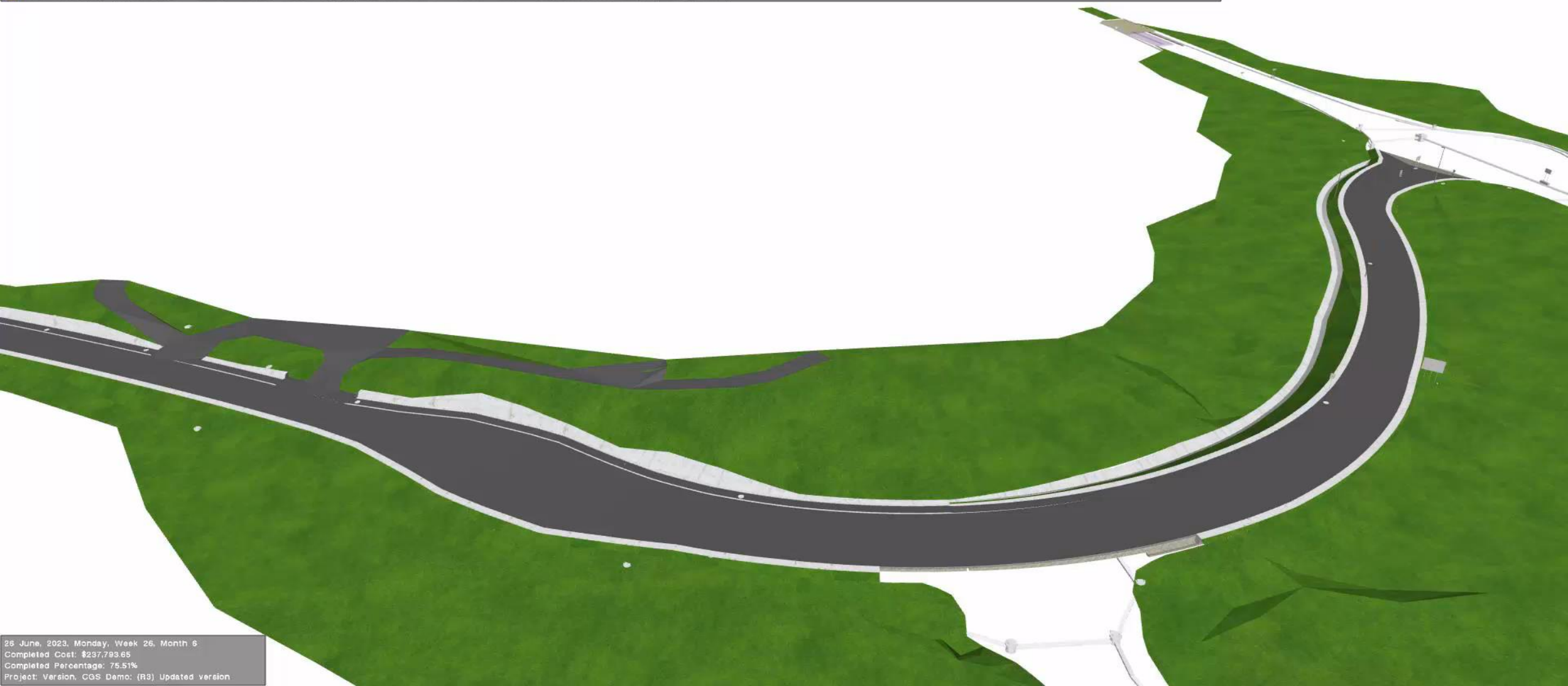
new support structures

new bus stops



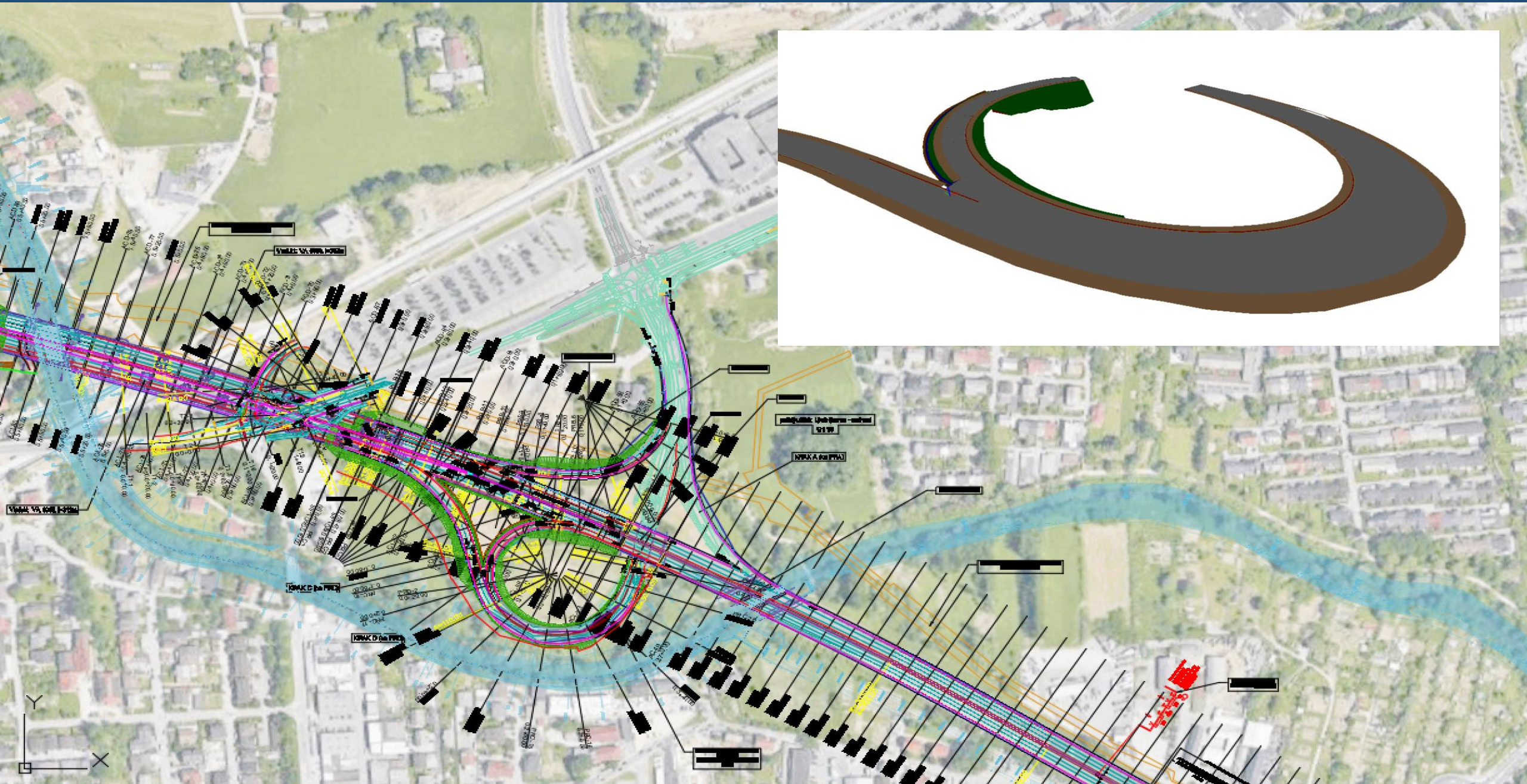
# 4D and 5D simulation in Bixel Manager

CGS Demo : (R3) Updated version -> 10 005 - Izdelava posteljice -> OS B -> 20 <= StacionazaZacetek m (Num) < 40 (1) (12.50%)
CGS Demo : (R3) Updated version -> 10 006 - 12 001 - Zunanja ureditev -> OS A -> 640 <= StacionazaZacetek m (Num) < 660 (12.50%)
CGS Demo : (R3) Updated version -> 10 103 - 60 005 - 70 002 - 80 004 - 80 005 - 10 002 - 10 004 - Zasipavanje kanalskih rovov in jaskov in ureditev planuma tal -> OS B -> 40 <= StacionazaZacetek m (Num) < 60 (1) (12.50%)
CGS Demo : (R3) Updated version -> 20 000 - Izdelava nevezane nosilne plasti enakomerno zrnatega drobljenca iz kamnine v debelini do 20 cm (d=20cm) -> OS B -> StacionazaZacetek m (Num) < 20 (1) (12.50%)
CGS Demo : (R3) Updated version -> 20 001 - Izdelava nosilne plasti bituminizirane zmesi AC 22 base B 50/70 A3 v debelini 10 cm -> OS A -> 1000 <= StacionazaZacetek m (Num) < 1020 (12.50%)
CGS Demo : (R3) Updated version -> 20 002 - 20 007 - 20 003 - Izdelava obrabne in zaporne plasti -> OS A -> 900 <= StacionazaZacetek m (Num) < 920 (12.50%)
CGS Demo : (R3) Updated version -> 20 006 - Izdelava bankine iz drobljenca, široke nad 1,00 m -> OS A -> 580 <= StacionazaZacetek m (Num) < 600 (12.50%)
CGS Demo : (R3) Updated version -> 40 013 - 40 014 - 40 005 - 40 004 - 40 006 - 40 003 - 40 001 - 40 000 - Ograje in prometni znaki -> OS A -> 200 <= StacionazaZacetek m (Num) < 220 (6.25%)
CGS Demo : (R3) Updated version -> 50 007 - 50 006 - Kandelabri -> OS A -> 80 <= StacionazaZacetek m (Num) < 100 (6.25%)
CGS Demo : (R3) Updated version -> 60 007 - 70 003 - 70 005 - Čiščenje terena in vodov -> OS A -> 560 <= StacionazaZacetek m (Num) < 580 (12.50%)



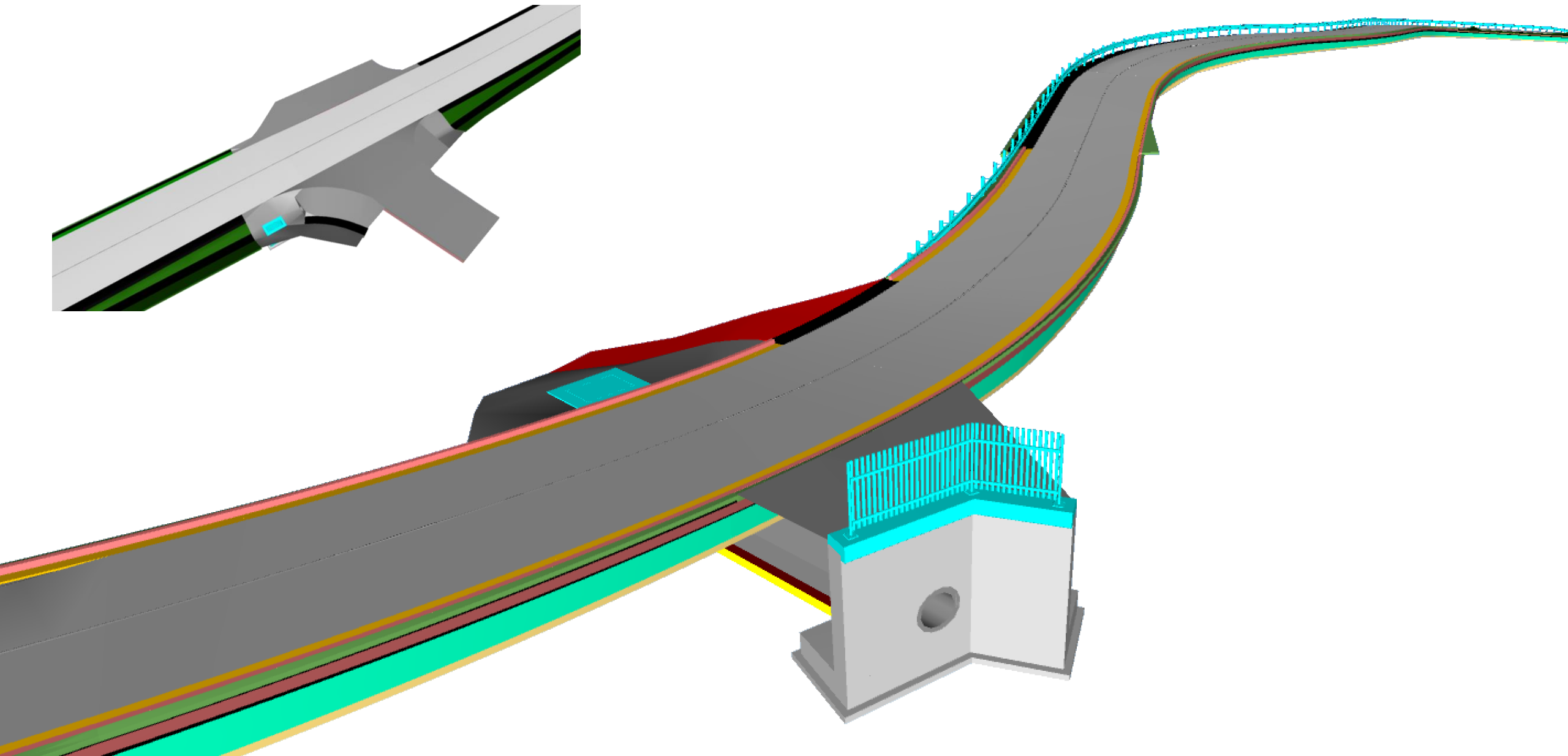


# The reconstruction of part of the section on highway A1, Slovenia



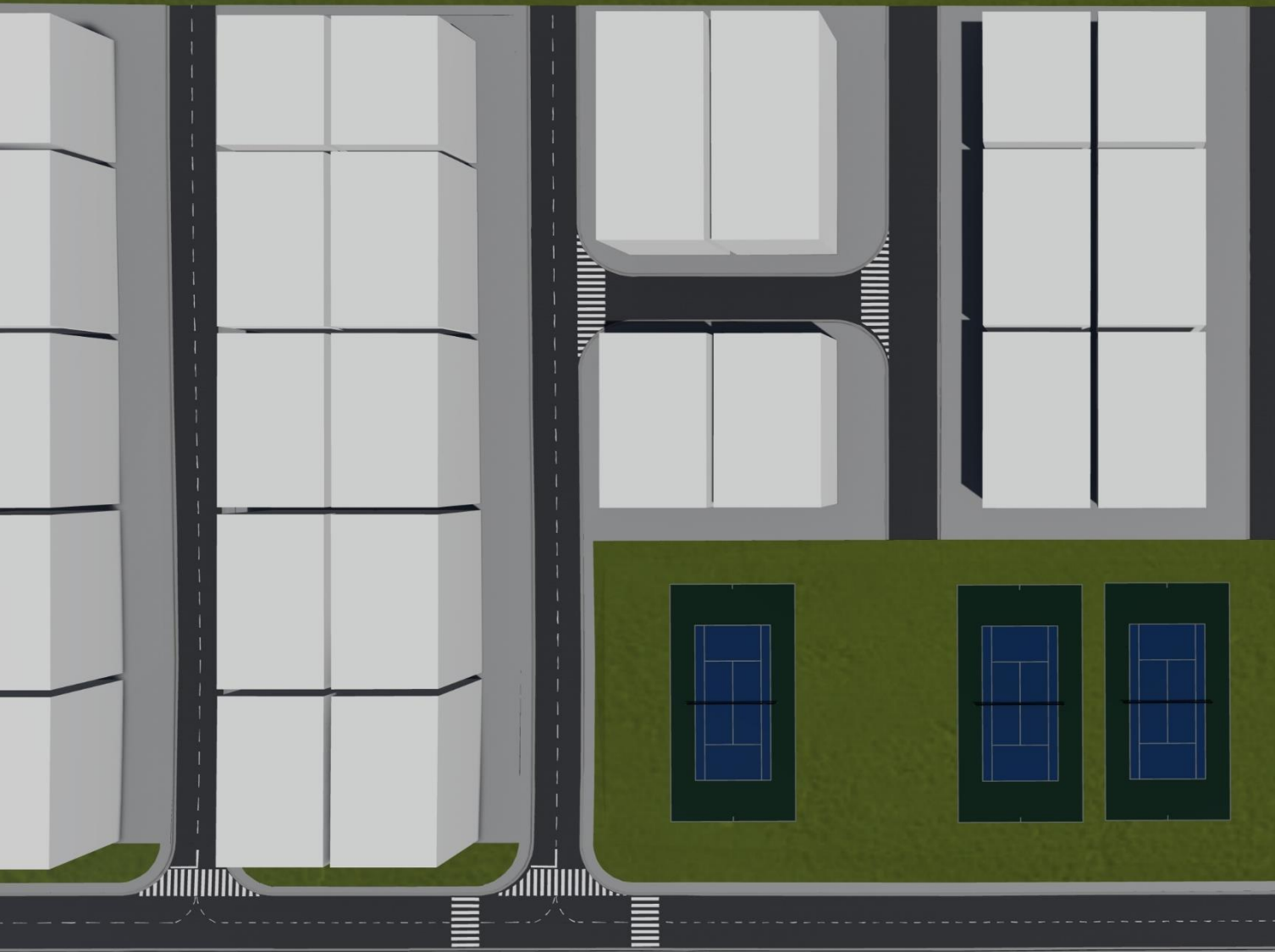


# Reconstruction of road in the area of Borová and Oldřiš municipalities





# Reconstruction of a settlement in Panama







traffic sign and road  
marking design  
software



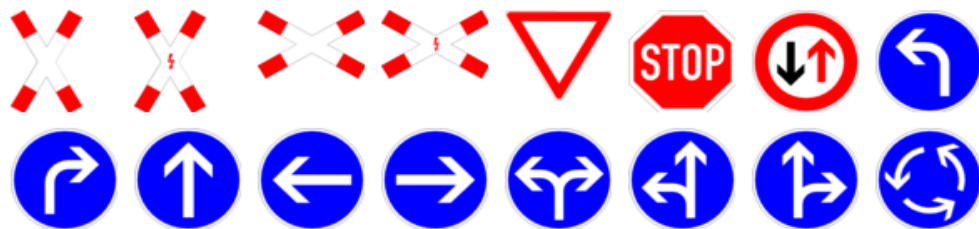
road designers,  
traffic engineers,  
architects





# Advantages of Autosign

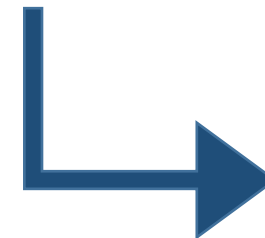
- country-specific road-signalling libraries defined by national guidelines.



- fast insertion of traffic signs into the layout.
- traffic signs are linked to the alignments of the road and include its information.
- street furniture (cones, bollards,...) and tools for parking lot design.



- reports (signs listing, quantities take-off, and export to Excel feature).
- Google Maps Import and Export to Google Earth.
- easy creation of 3D traffic signs, road markings and portals + BIM functionalities (Metadata, clash analysis, IFC export/import).





swept path analysis  
and vehicle turning  
simulation software



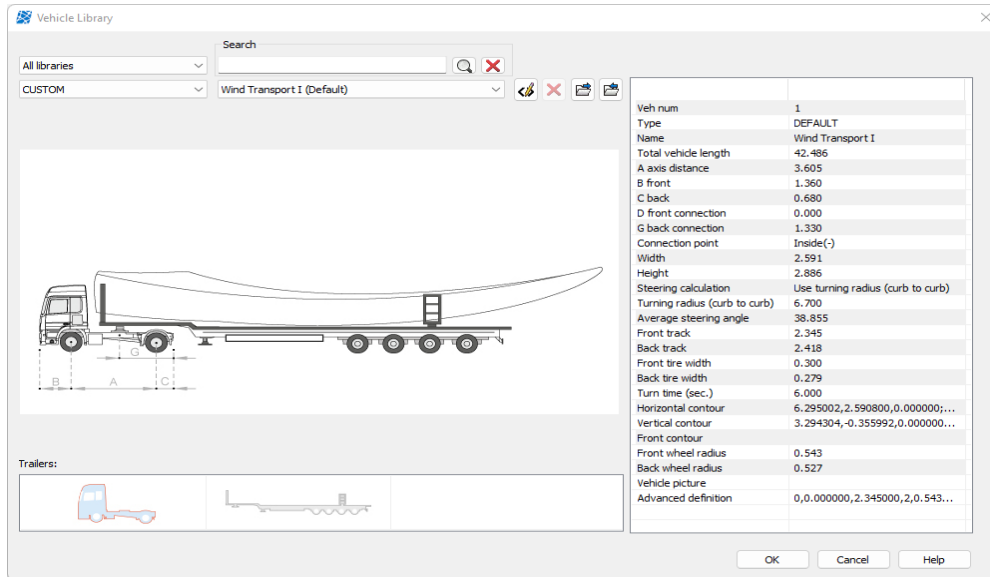
civil engineers,  
transportation  
professionals,  
architects



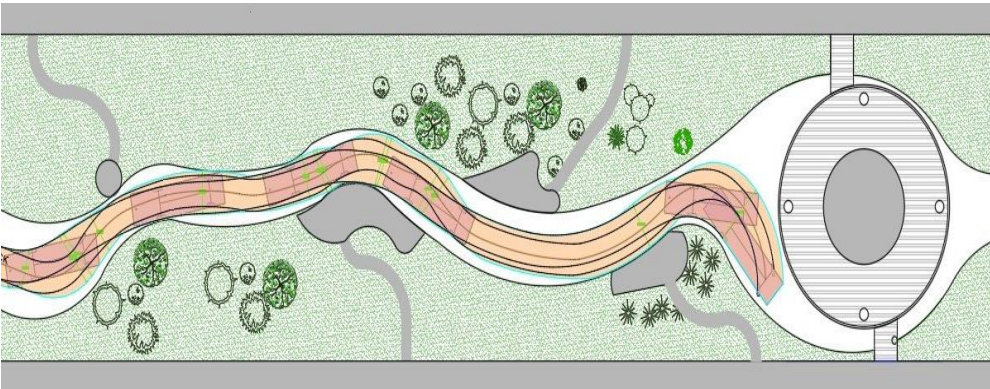


# Advantages of Autopath

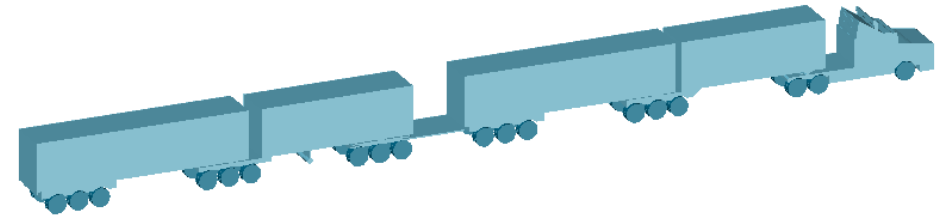
- vehicle libraries



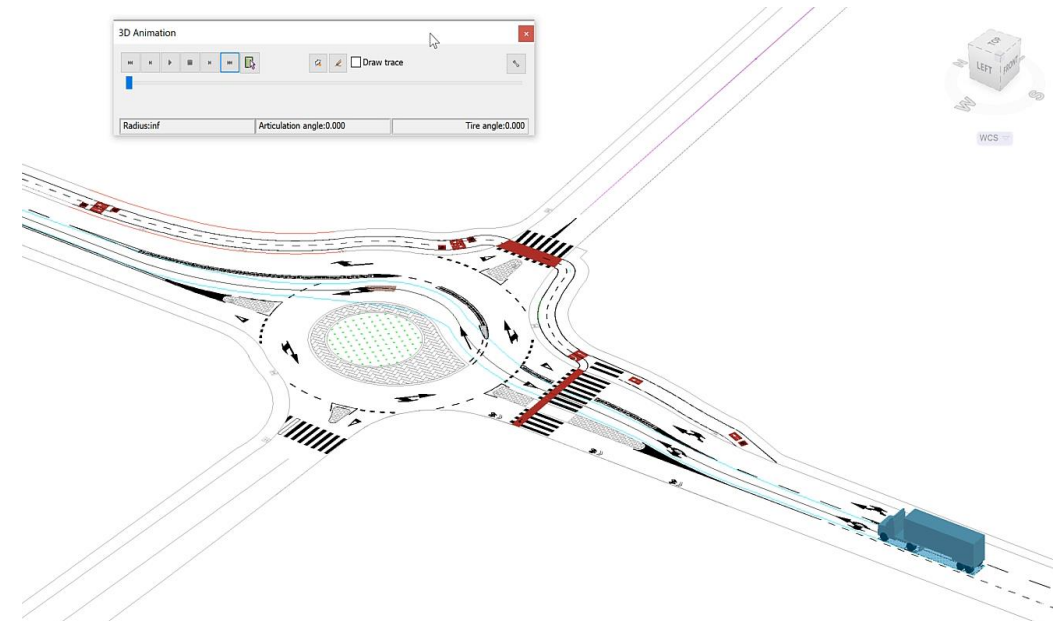
- swept path analysis and reports



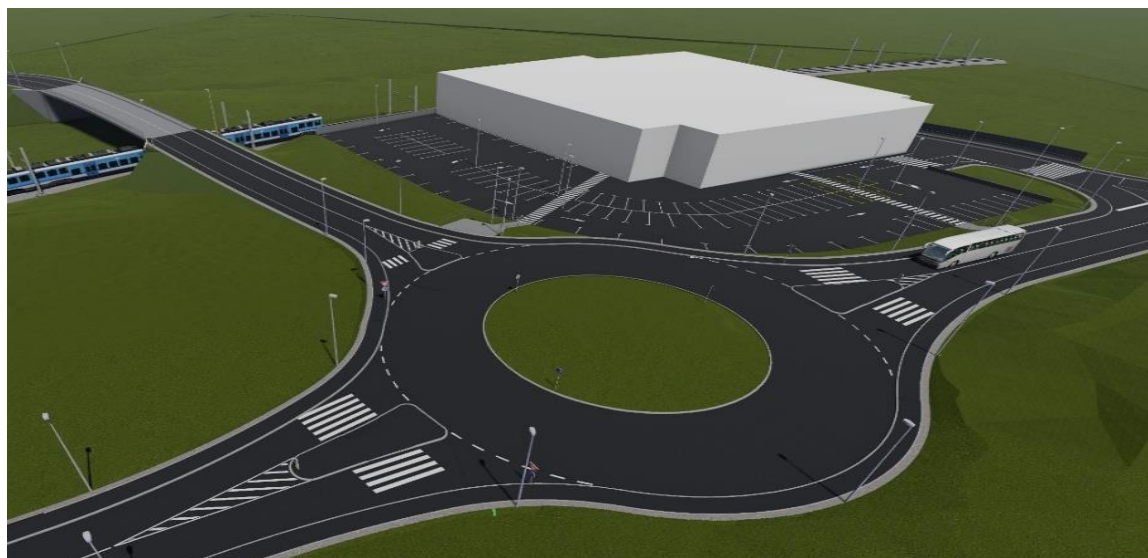
- 3D vehicle modelling creation option



- 3D vehicle animation feature



# Select the version according to your needs



Plateia



Plateia Standard



Plateia Professional

(Plateia Standard + Autosign)



Plateia Ultimate

(Plateia Professional+ Autopath + BIM)



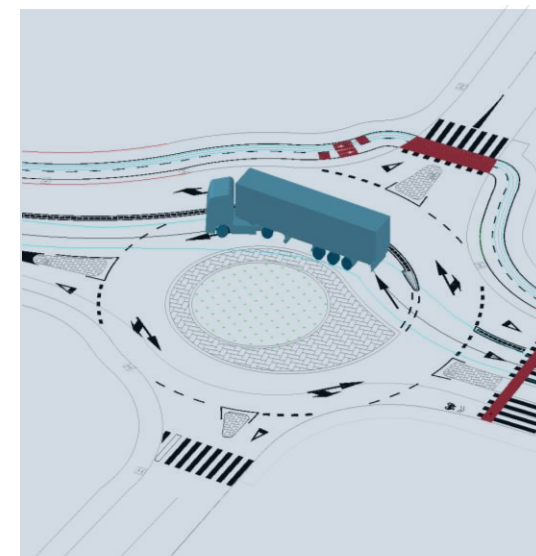
Autosign



Professional



Ultimate



Autopath



Professional



Ultimate

Site Design

Traffic Collection





BIM ready RAILWAY  
DESIGN solution

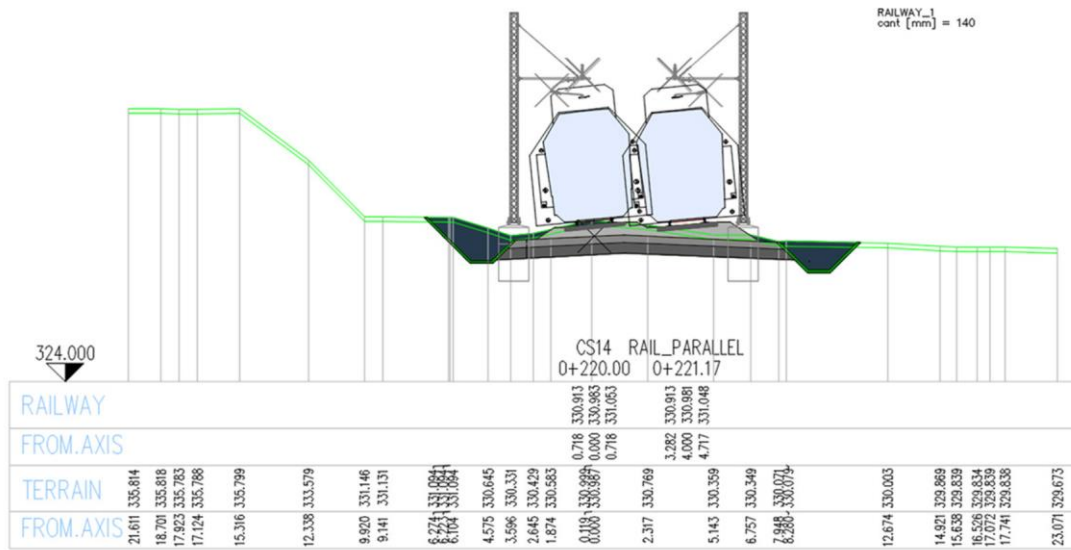


railway designers,  
surveyors and  
contractors



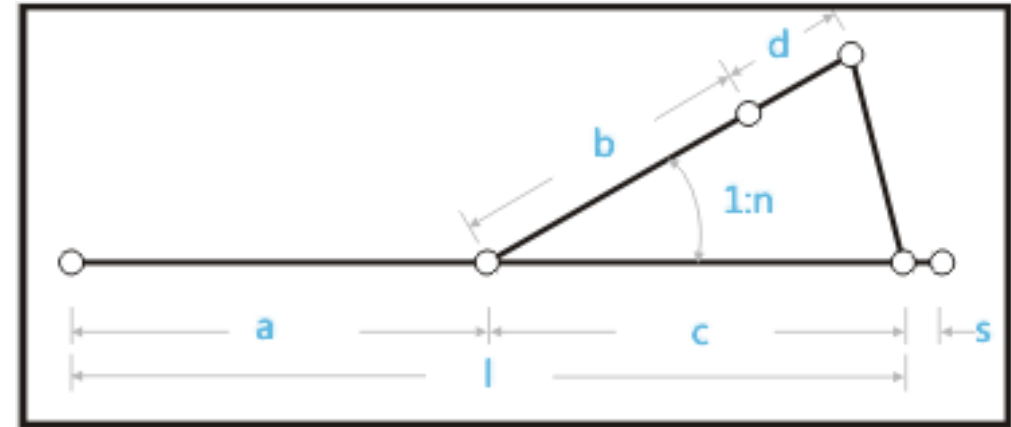
# Advantages of Ferrovia

- compliance with standard requirements and regulations.



- it supports many spiral types.

- a huge library of turnouts



- export to Plasser Theurer, tamping machines





# References



**TIRING**

ADT | ΩMEGA



**Slovenske železnice**

# New railway line Gradec – Sveti Ivan Žabno



## IZGRADNJA NOVE ŽELJEZNIČKE PRUGE ZA PRIGRADSKI PROMET NA DIONICI GRADEC –

DESIGN COMPANY	LOCATION	SOFTWARE	DESIGN OBJECTS	
Granova	Bjelovar, Croatia	Ferrovía	1 bridge over river	2 railway stations
			5 roadway overpasses	3 railway stops
			1 roadway underpass	2 level crossing
			railway and road culverts	9 km of new connection roads





BIM ready channel /  
river engineering  
design software



hydrological  
engineers,  
environmental civil  
engineers



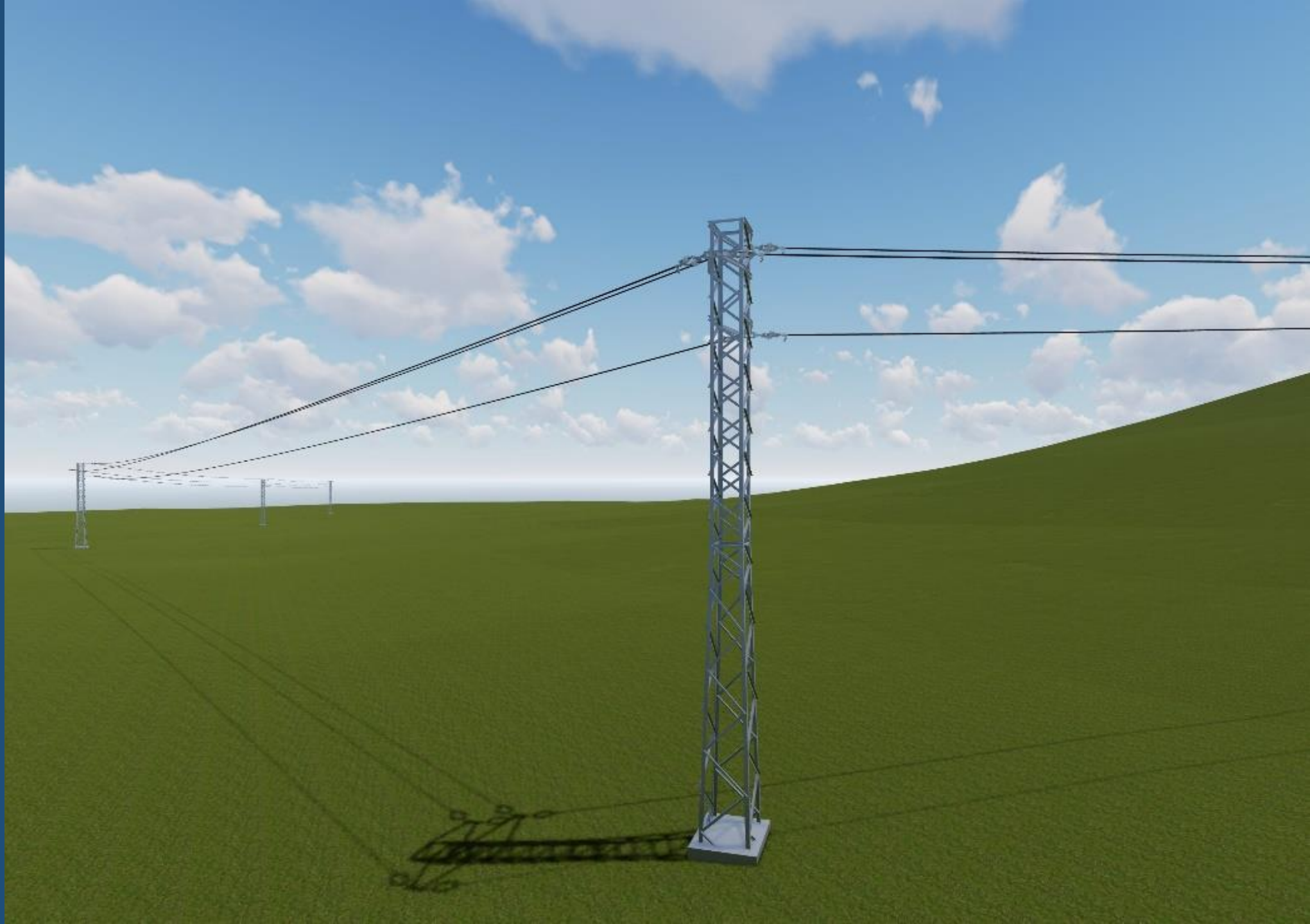




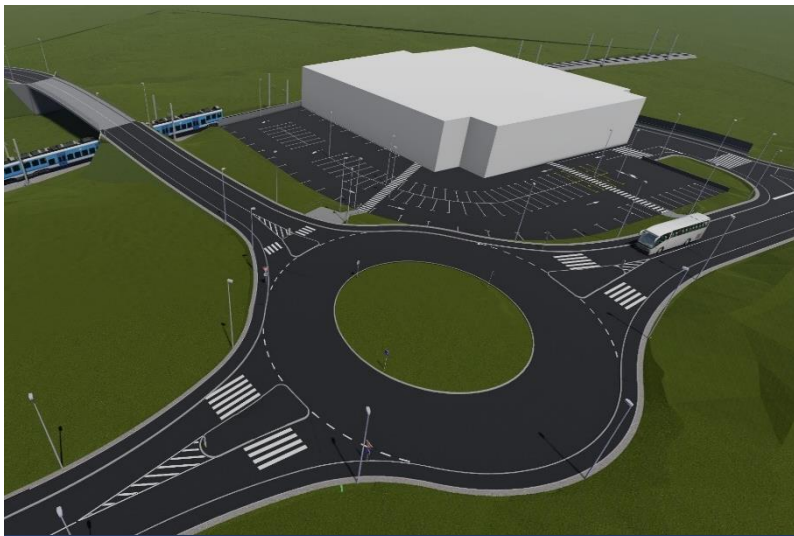
designing new and  
existing power lines



electrical engineers,  
consultants,  
contractors







Plateia



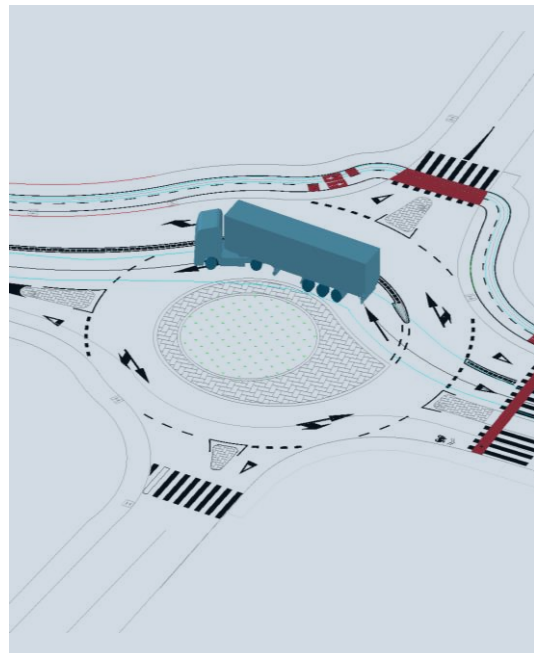
Ferrovía



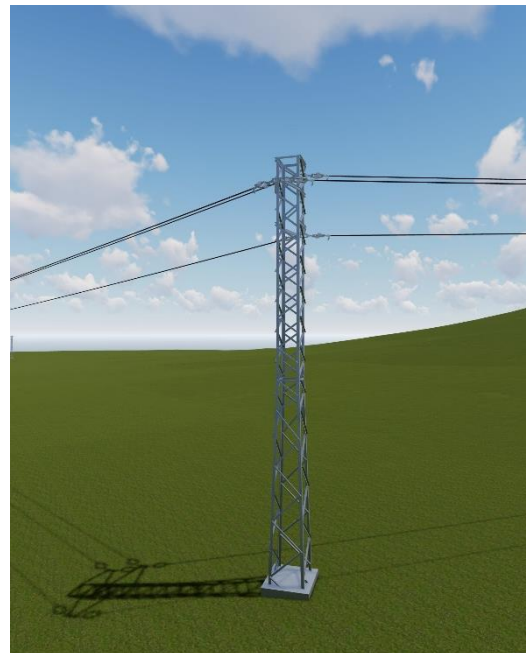
Aquaterra



Autosign



Autopath



Power Path

