TERRITORIAL AND ENVIRONMENTAL OPTIMISATION : HOW TO KEEP TRACK USING GIS

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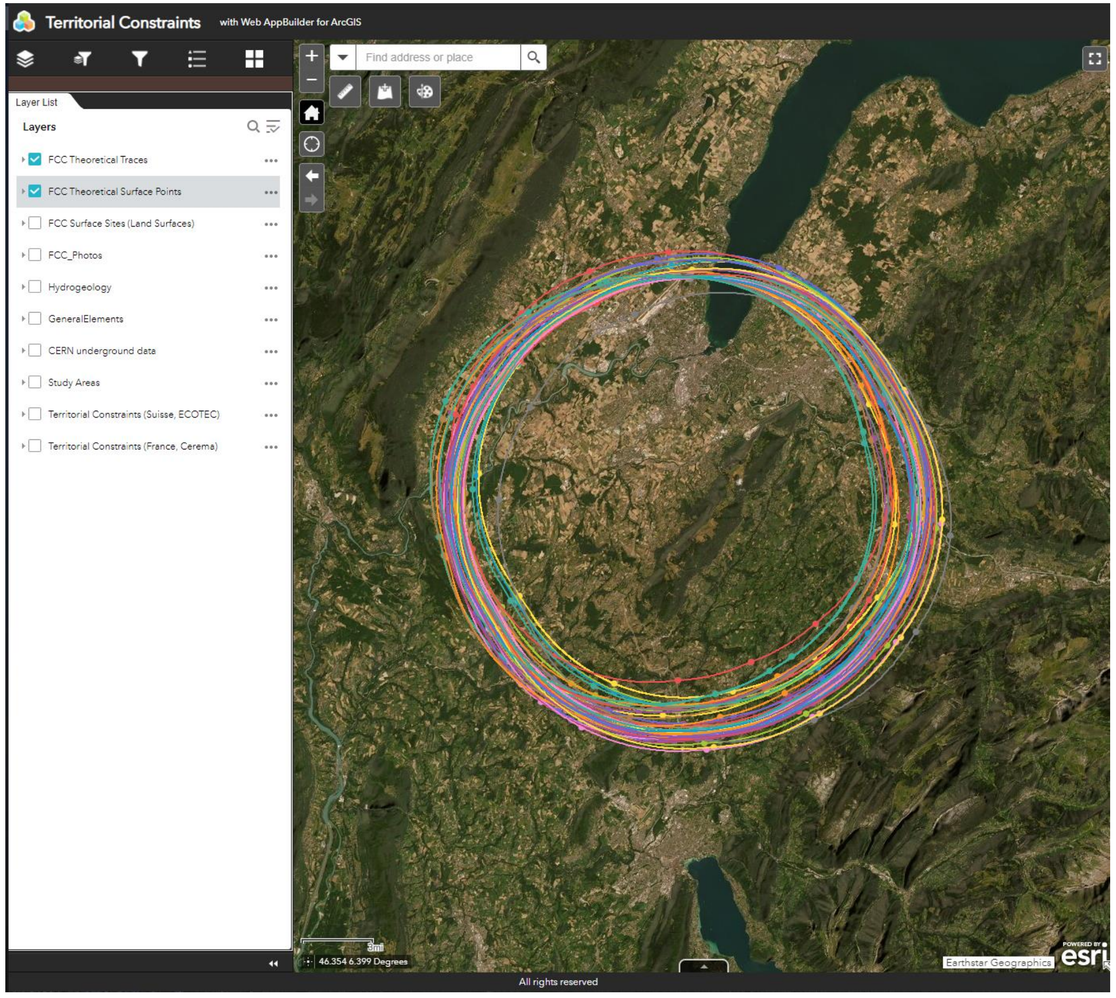
11:10-11:30

The web-based application: A window to the project data storage

1. **Introduction**
2. **How to describe a scenario?**
3. **A tool to analyse scenarios**
4. **A tool to keep track of information**
5. **A tool to add associated information**
6. **A tool to compare results and open discussion**
7. **Access**
8. **Conclusion**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the European Union's Horizon 2020 research and innovation programme under grant agreement No 951754.

Introduction



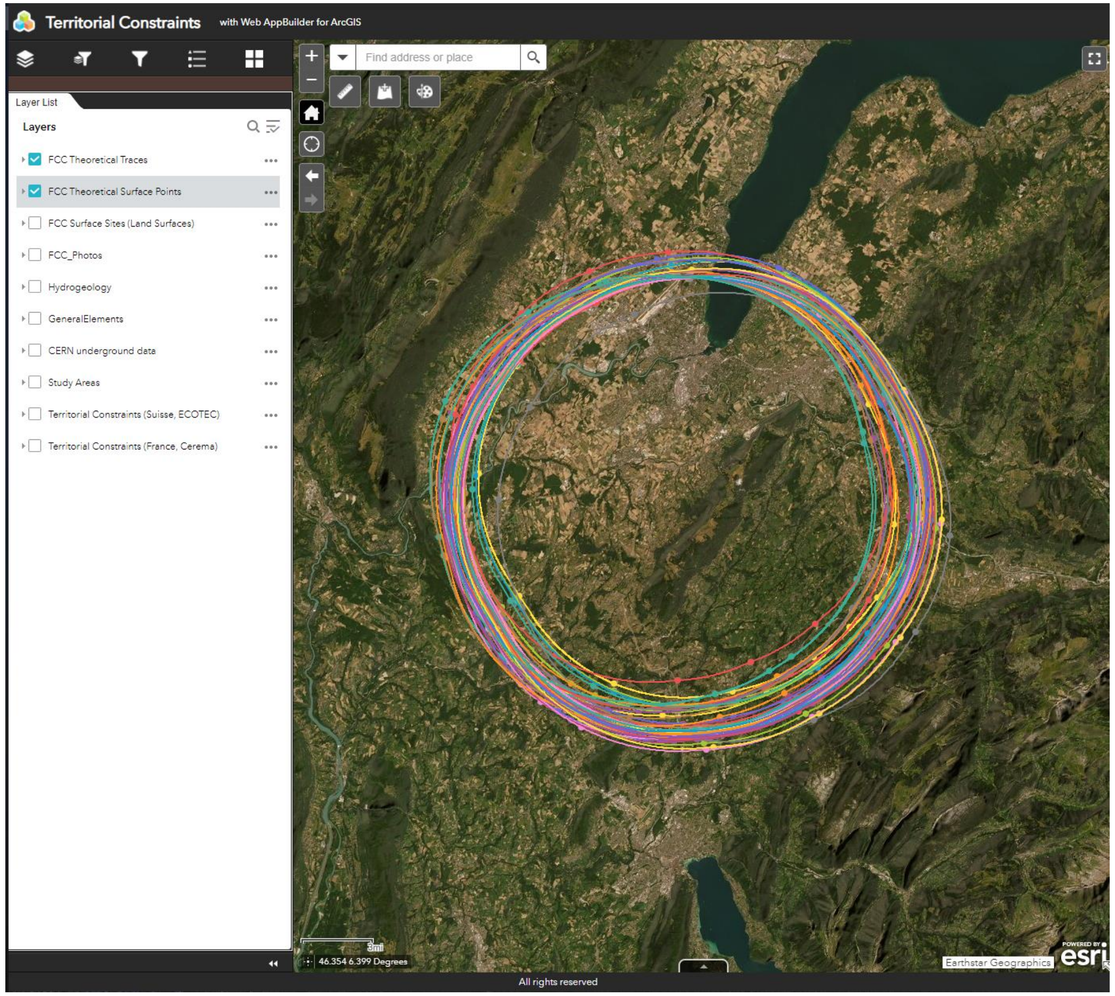
Work started in January 2020

Steps

- Define the needs
- Implement a geographic database
- Define a nomenclature to be able to differentiate the configurations
- Define the functionalities needed

Ongoing work that will continue all along the study and project

How to describe a scenario? (I)



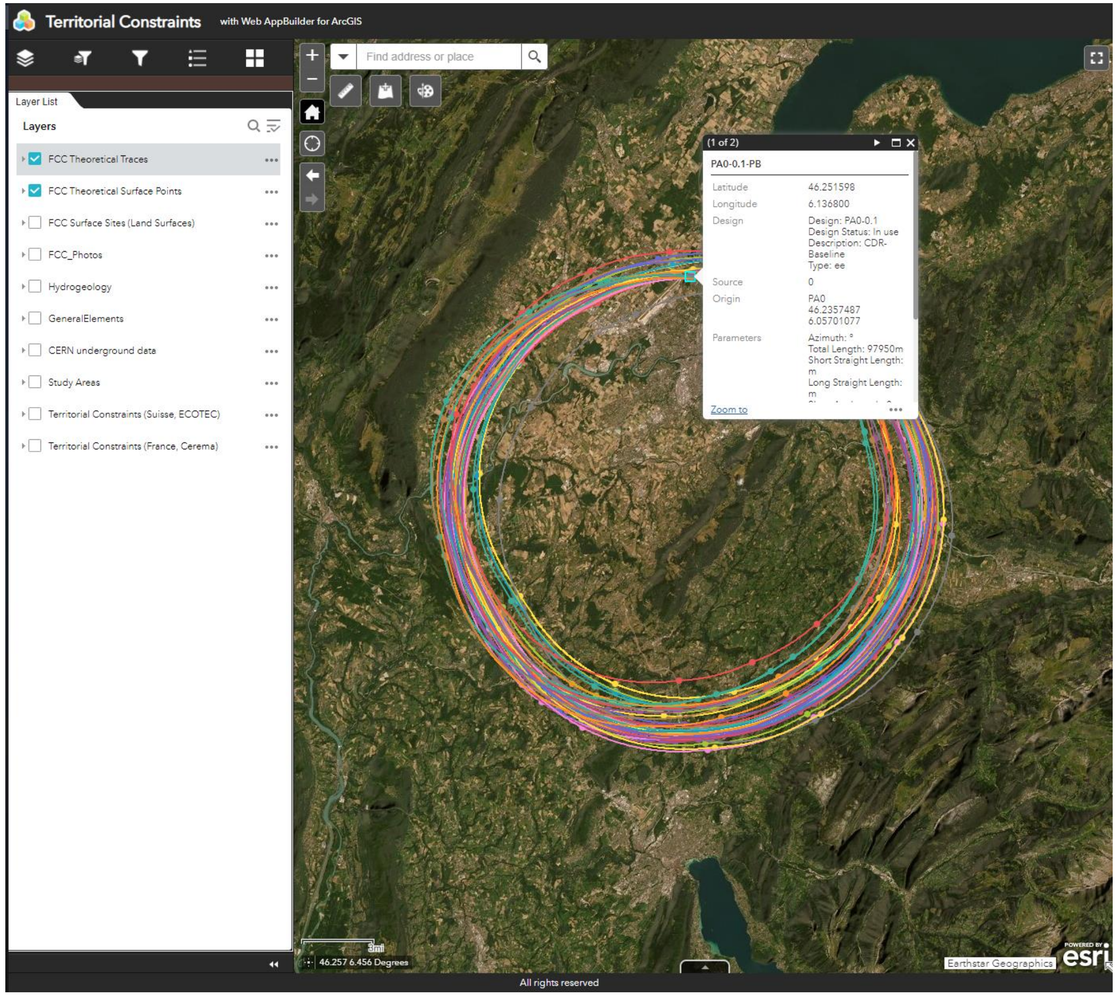
Elements needed:

- Trace
- Theoretical points
- Land surfaces

Adjusting the tables to reflect the upcoming needs

e.g. Environmental impact/assessment data to be added in the near future

How to describe a scenario? (II)



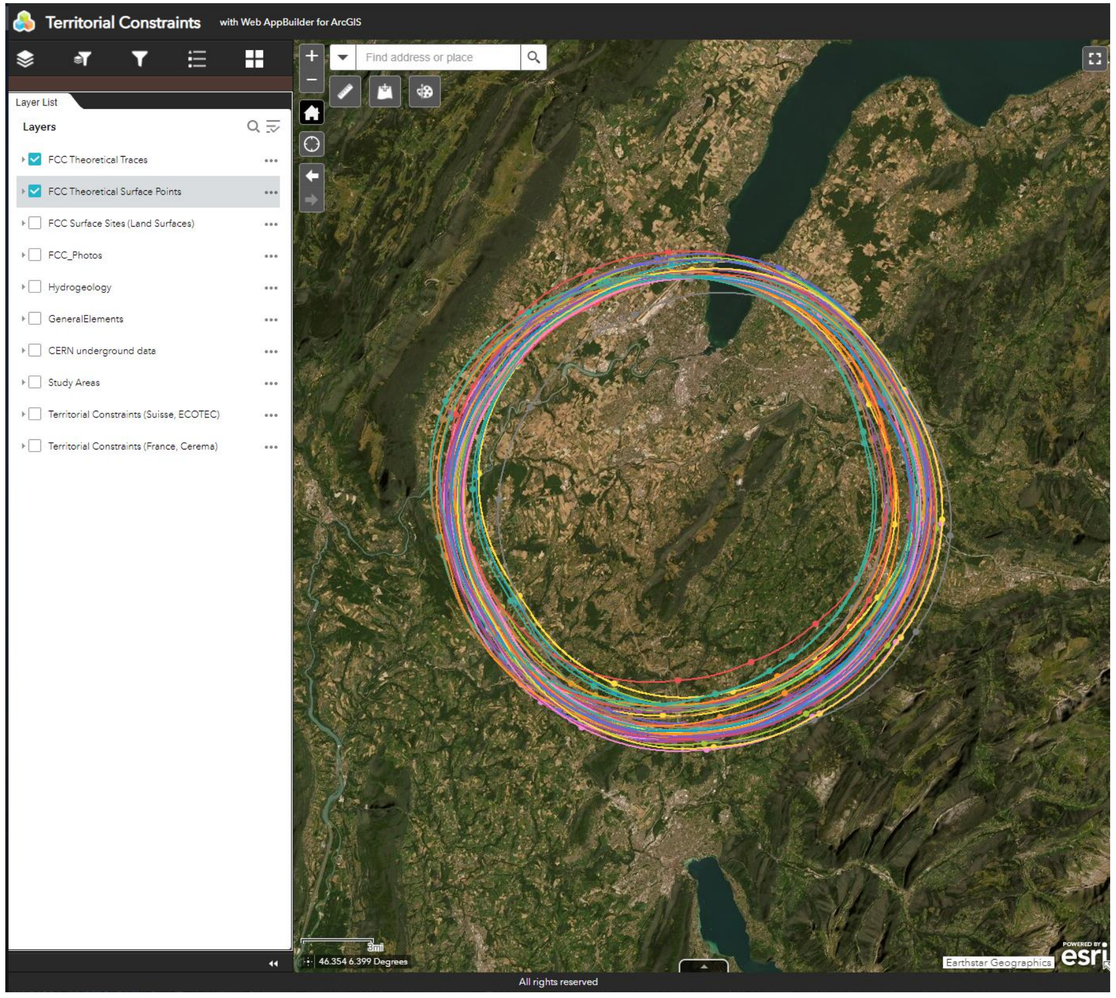
Description parameters

- Saved in the Database
- Accessible directly in the app

PA0-0.1-PB

Latitude	46.251598
Longitude	6.136800
Design	Design: PA0-0.1 Design Status: In use Description: CDR-Baseline Type: ee
Source	0
Origin	PA0 46.2357487 6.05701077
Parameters	Azimuth: ° Total Length: 97950m Short Straight Length: m Long Straight Length: m Short Arc Length: 0m Long Arc Length: 0m
Machine Parameters	No Related Records...
Underground Structures	More info

A tool to analyse scenarios (I)

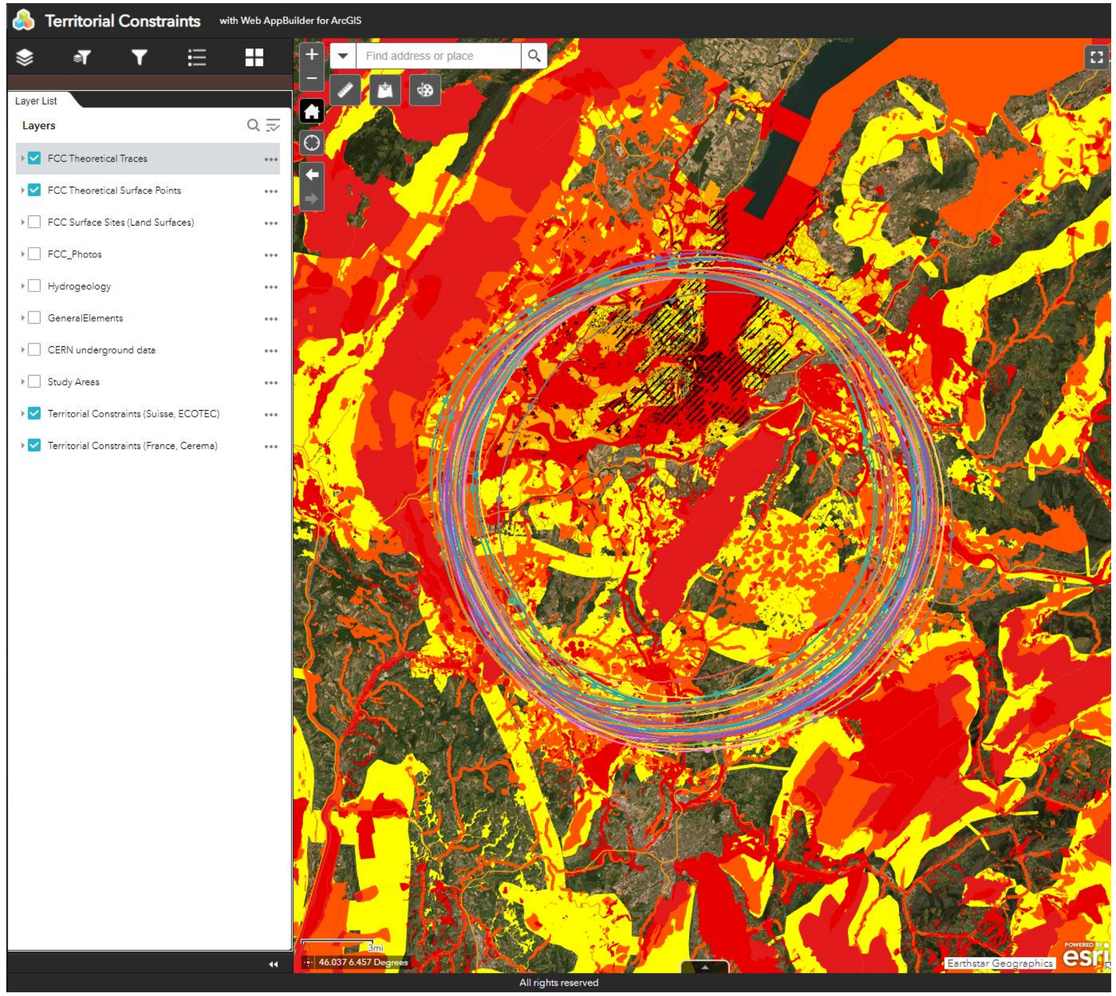


Over 45 scenarios analysed

Iterative process

Multiple partners

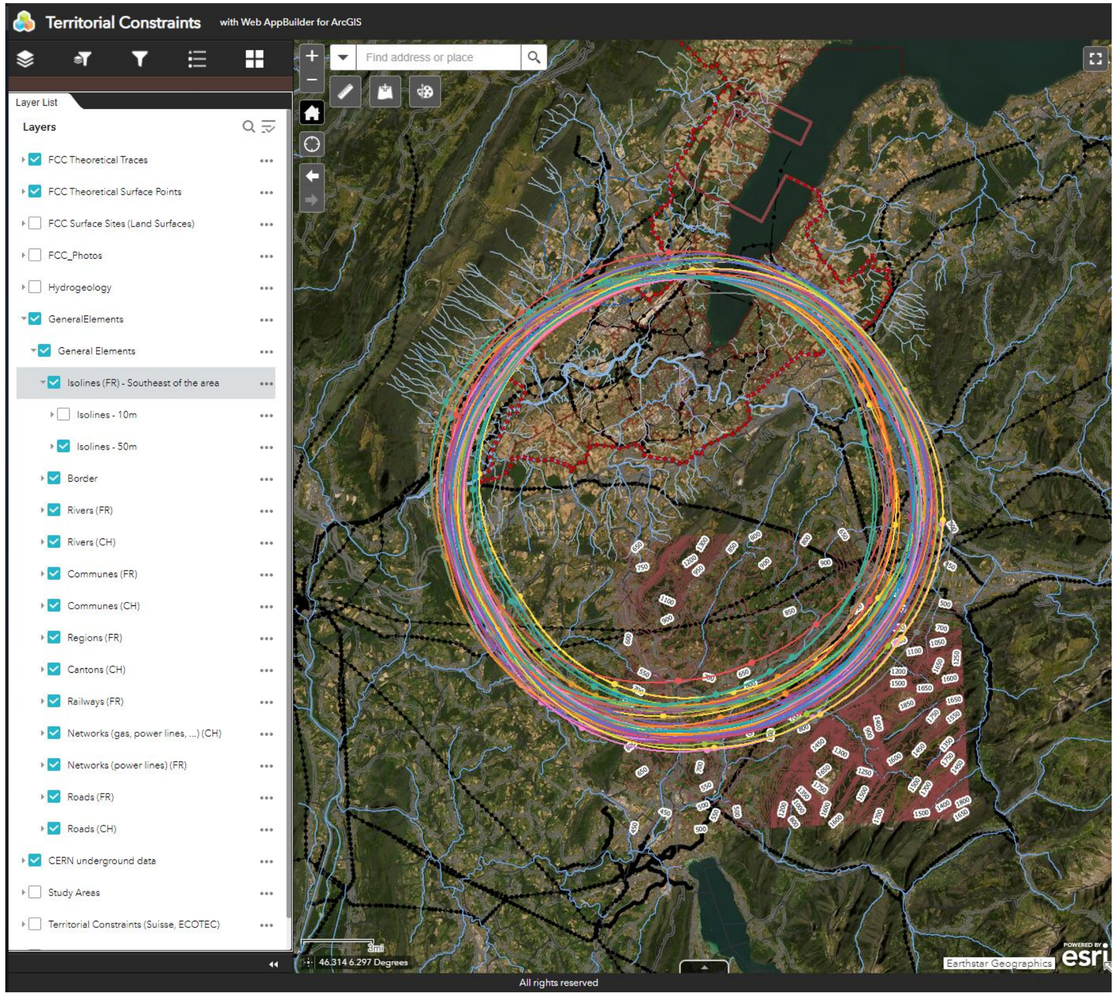
A tool to analyse scenarios (II)



Analysis based on territorial constraints:

- Partnership with specialised organisations
- Data used: urbanism, nature, geological and hydrological situation, natural and technical risks, etc…

A tool to analyse scenarios (III)



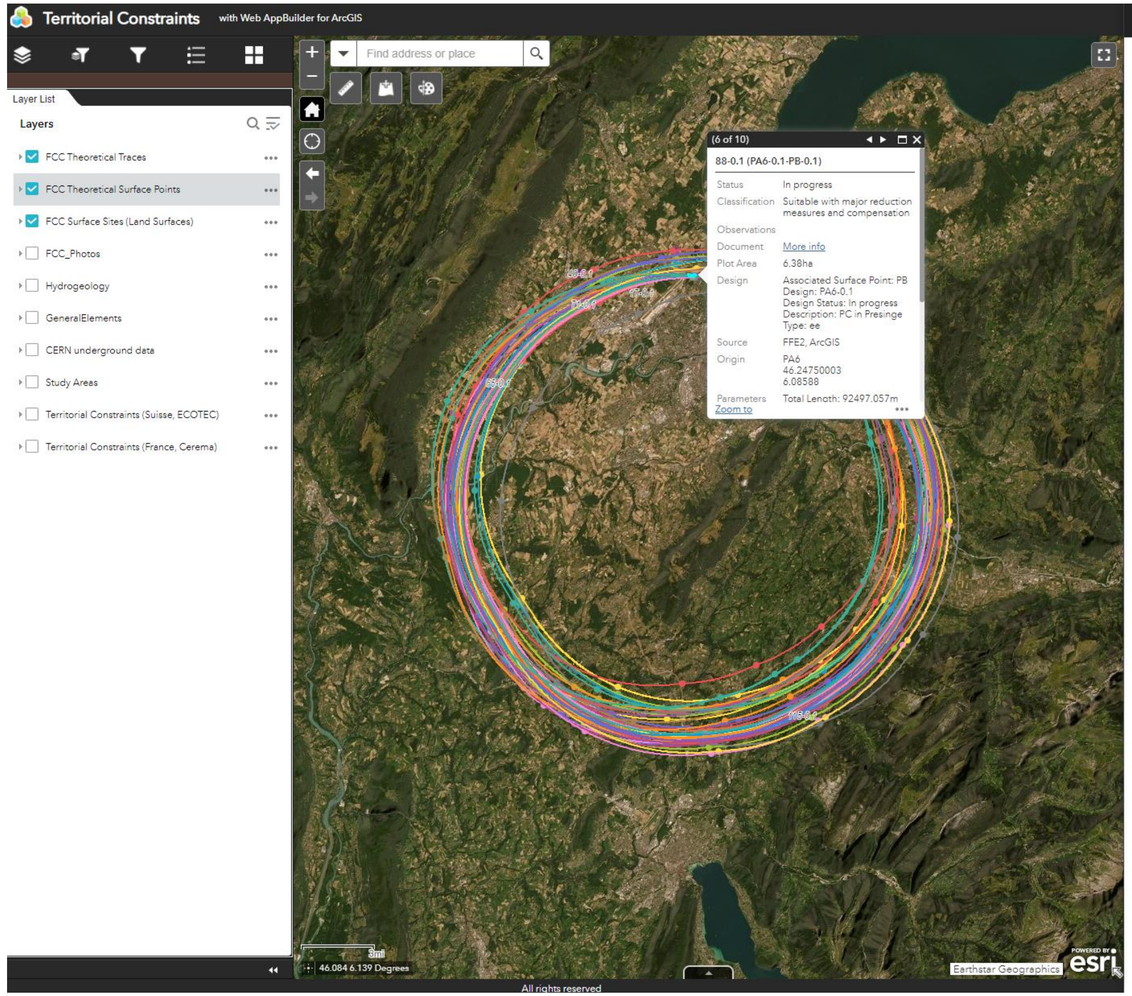
More constraints or opportunities already in the system:

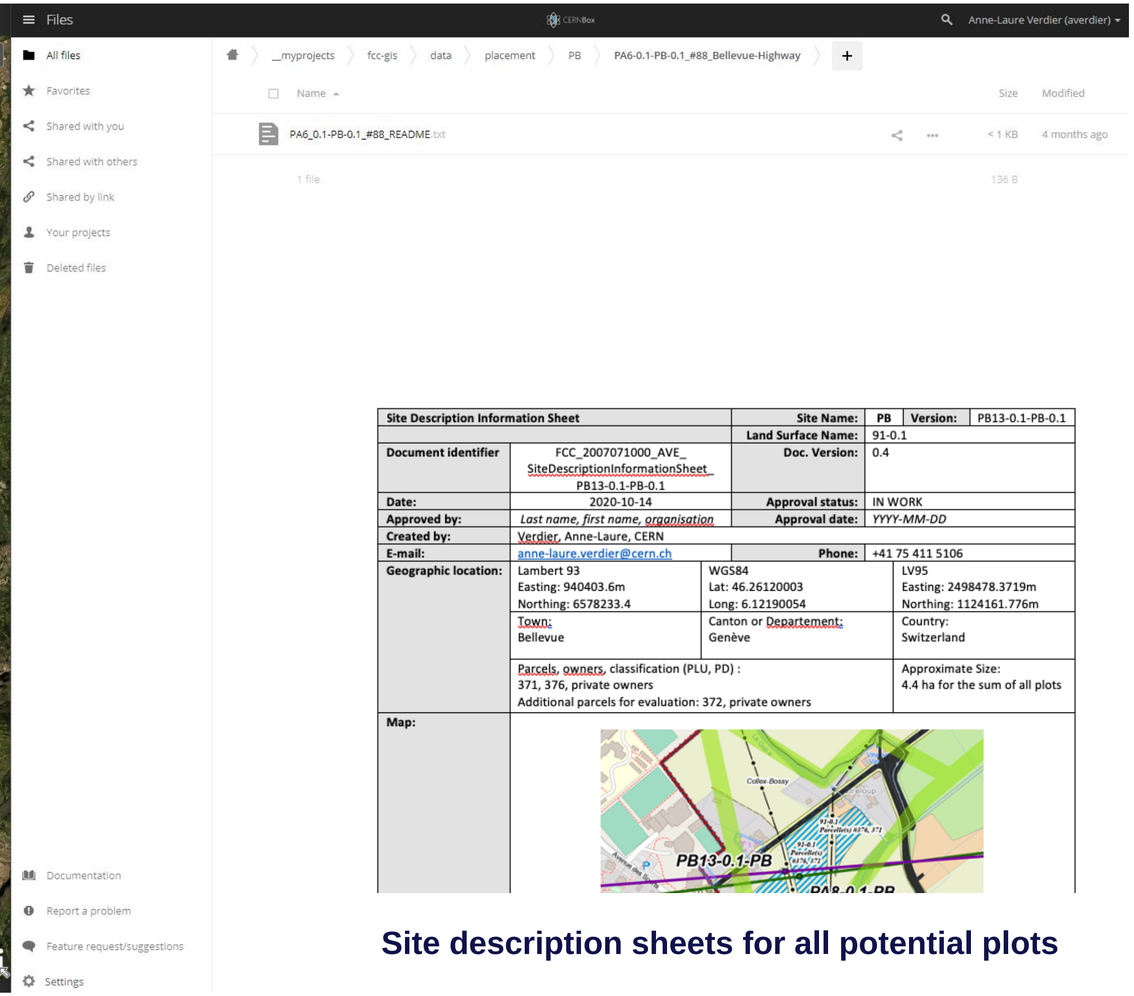
- roads,
- railways,
- waterways,
- topography,
- power lines, gas lines
- and even more to come !

More functionalities

A tool to keep track of information

Territory information: links to documentation for land surfaces



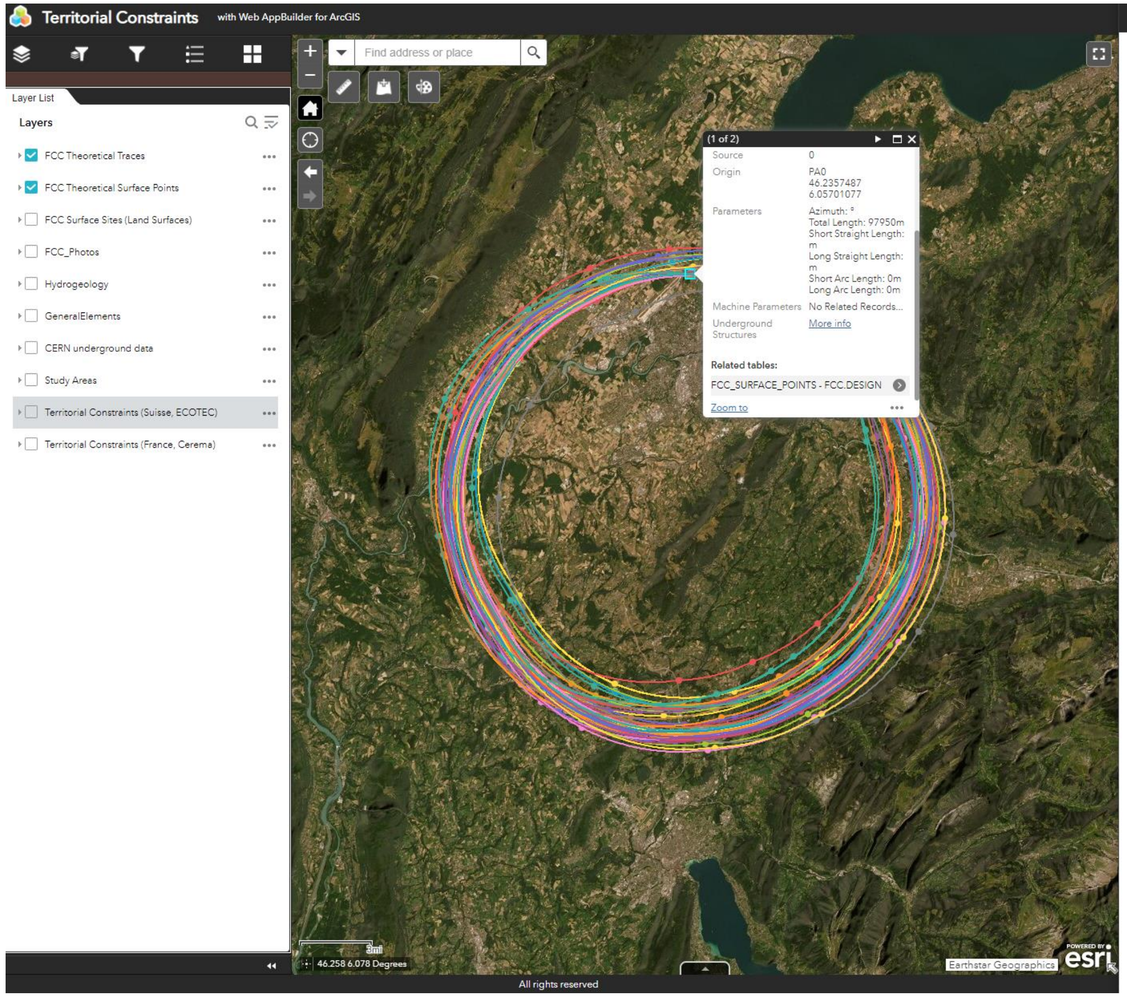


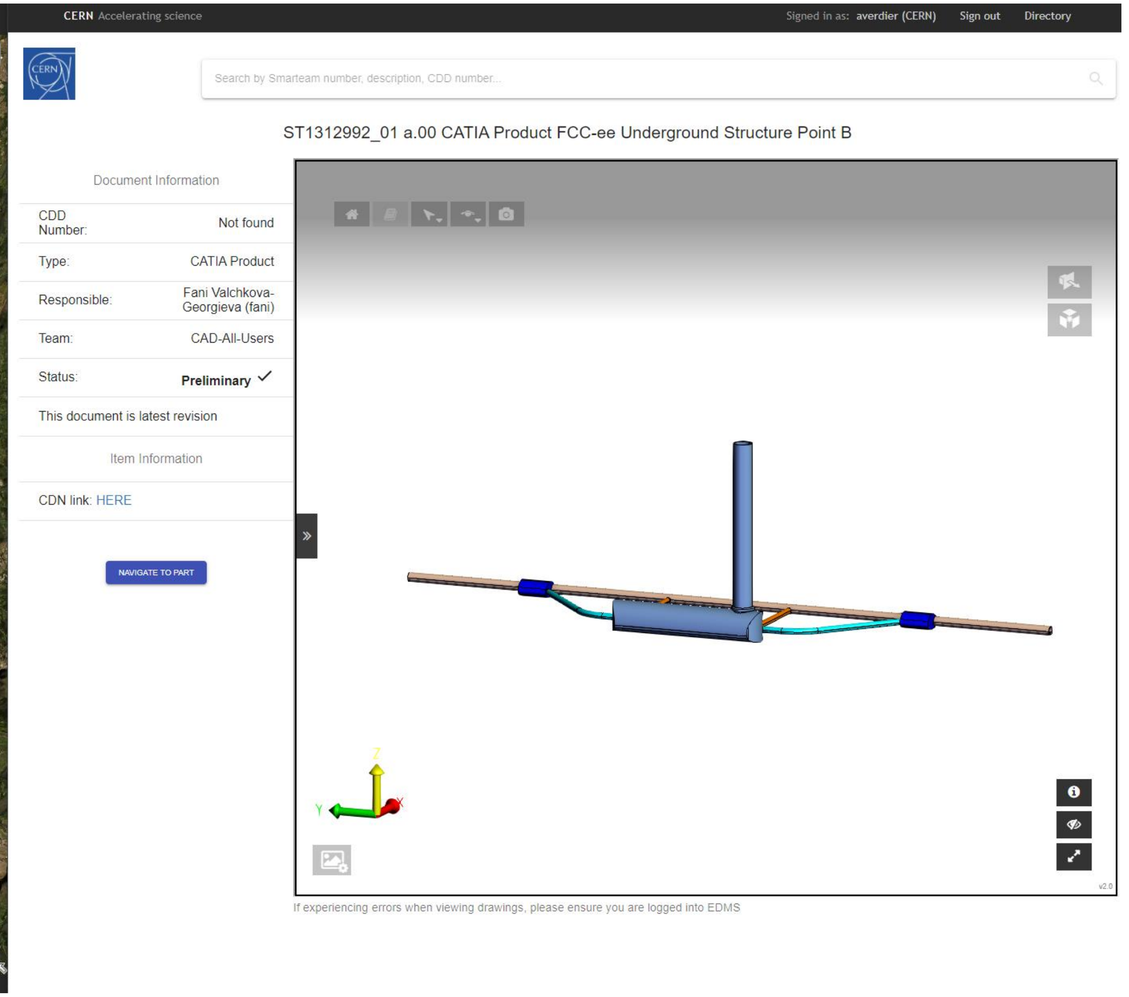
Site Description Information Sheet		Site Name:	PB	Version:	PB13-0.1-PB-0.1
		Land Surface Name:	91-0.1		
Document identifier	FCC_2007071000_AVE_SiteDescriptionInformationSheet_PB13-0.1-PB-0.1	Doc. Version:	0.4		
Date:	2020-10-14	Approval status:	IN WORK		
Approved by:	*Last name, first name, organisation*	Approval date:	*YYYY-MM-DD*		
Created by:	Verdier, Anne-Laure, CERN				
E-mail:	anne-laure.verdier@cern.ch	Phone:	+41 75 411 5106		
Geographic location:	Lambert 93 Easting: 940403.6m Northing: 6578233.4	WGS84 Lat: 46.26120003 Long: 6.12190054	LV95 Easting: 2498478.3719m Northing: 1124161.776m		
	Town: Bellevue	Canton or Departement: Genève	Country: Switzerland		
	Parcels, owners, classification (PLU, PD) : 371, 376, private owners Additional parcels for evaluation: 372, private owners		Approximate Size: 4.4 ha for the sum of all plots		
Map:					

Site description sheets for all potential plots

A tool to add associated information (I)

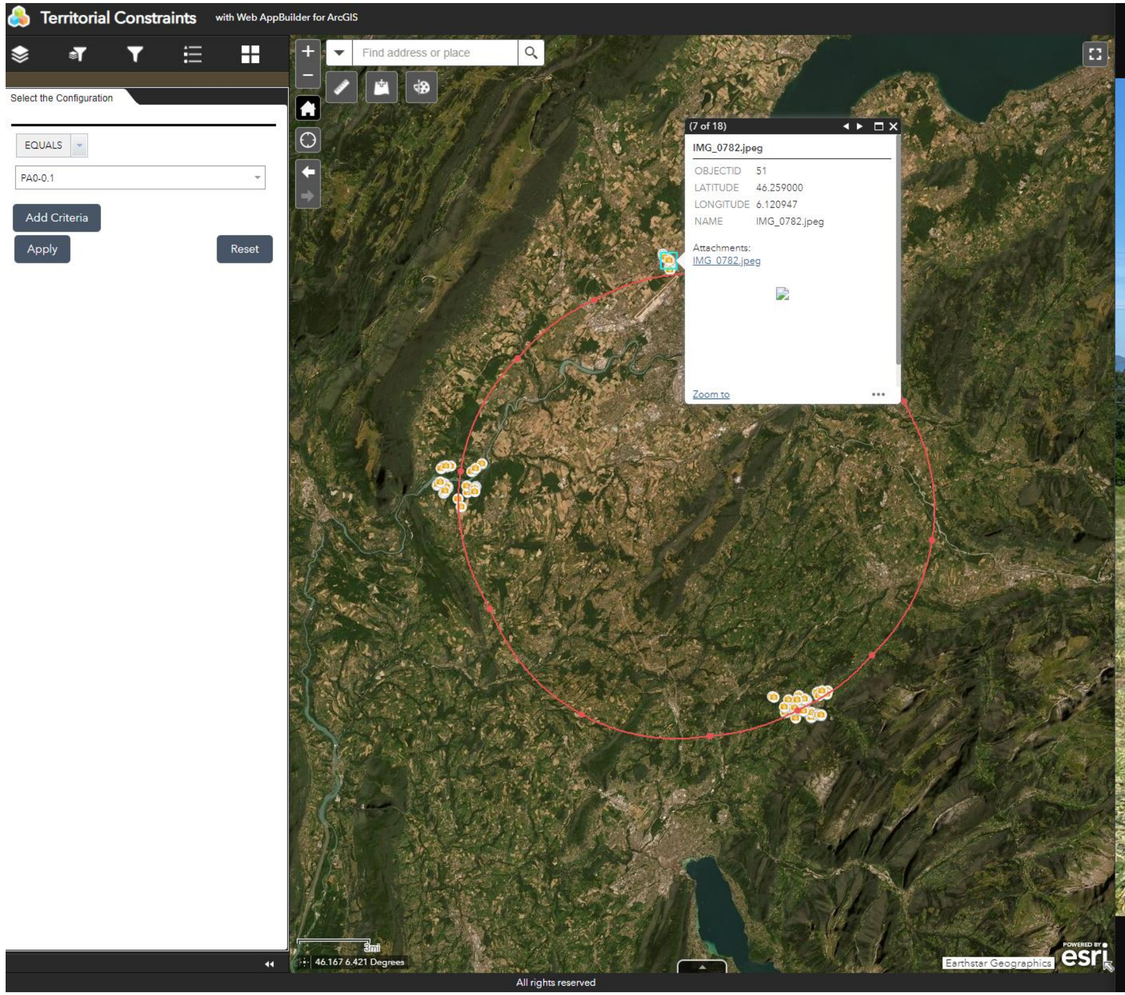
Civil engineering information: links to underground structure drawings



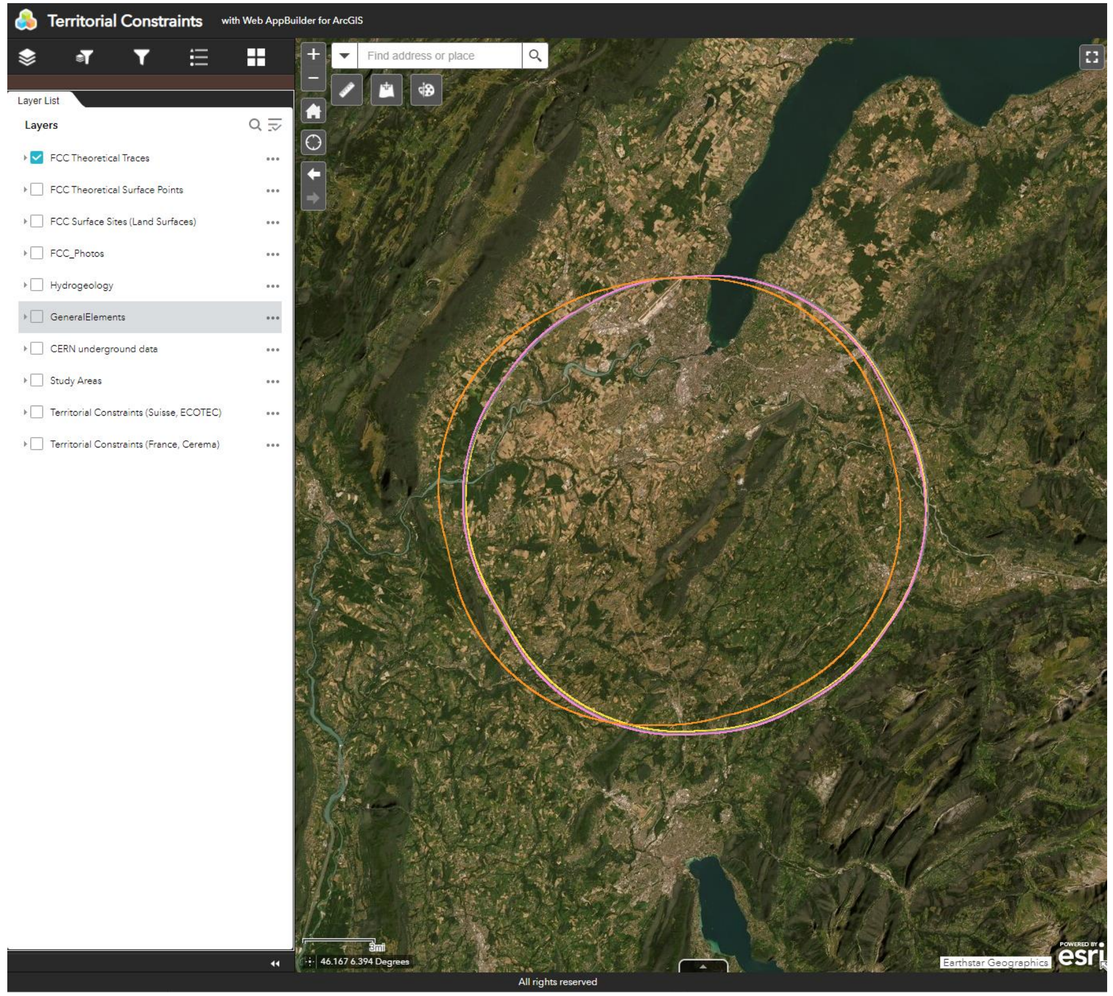


A tool to add associated information (II)

Field visit: links to photos



A tool to compare results and open discussion

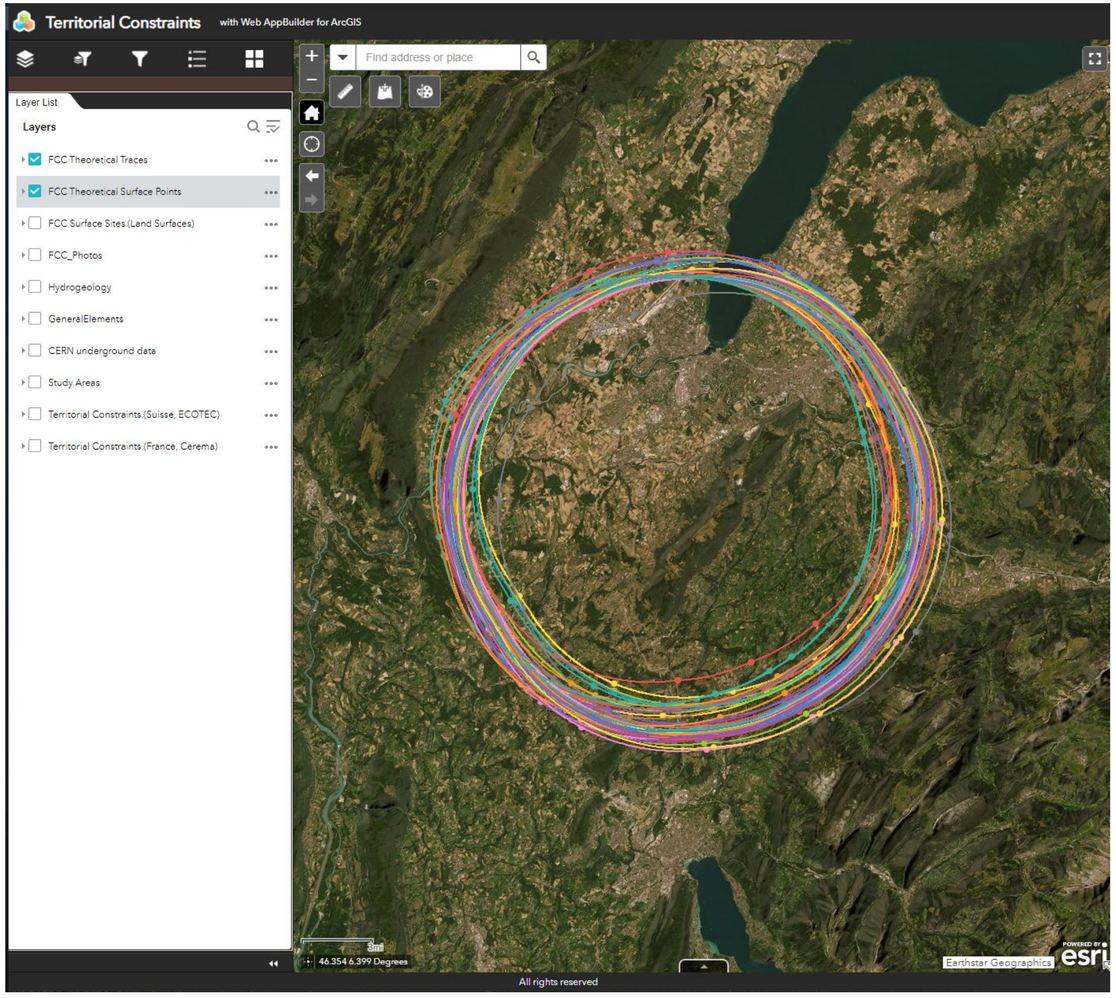


- Multiple variants of the same scenario
  Which one is best?
- Multiple scenarios

Criteria	Sum values	Sum scores	Scores %
LAND STATUS	9	19	14.39
Plot availability	2	4	3.03
Clean and clear title	2	4	3.03
Plot price	2	4	3.03
Time for acquisition and expected challenges during acquisition	2	4	3.03
Cost of development	1	3	2.27
CONNECTIVITY	4	8	6.06
Distance from transport, industrial and other relevant infrastructures	2	4	3.03
Distance from populated areas	2	4	3.03
RAW MATERIALS AND SERVICES	4	8	6.06
Availability of raw materials	2	4	3.03
Proximity to service providers	2	4	3.03
PHYSICAL FEATURES	15	33	25.00
Plot size and shape	1	3	2.27
Topography	1	3	2.27
Shaft depth	1	3	2.27
Drainage conditions	2	4	3.03
Surface (soil) conditions (from sensibility sheet)	2	4	3.03
Water resources	2	4	3.03
Accessibility	2	4	3.03
Subsurface conditions (physical)	2	4	3.03
Subsurface conditions (regulatory)	2	4	3.03

Multi-criteria analysis for all sites and the entire scenario

Access

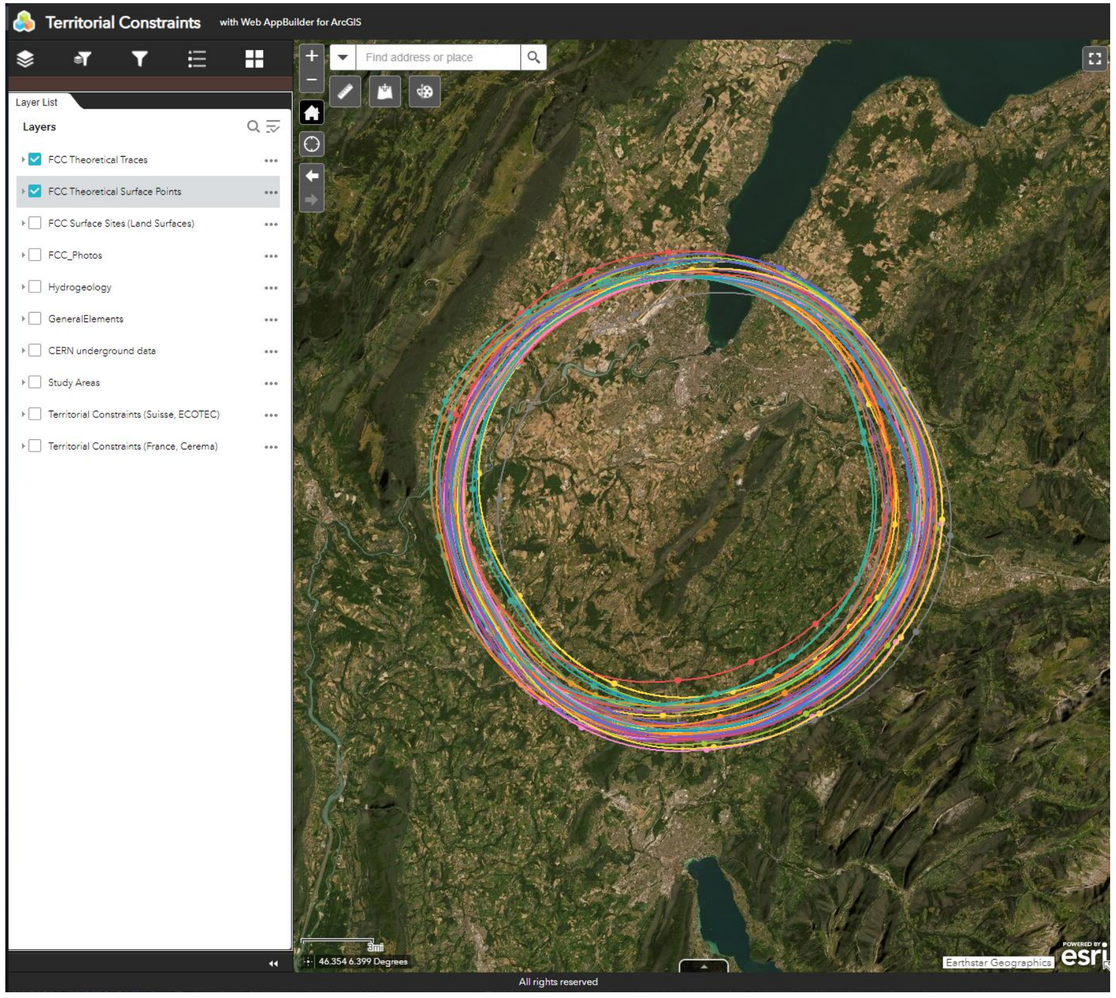


Currently: access is reserved to the study team

In the near future: access will be gradually granted to people outside of the team

Eventually: some data will be made publicly available

Conclusion



Visualisation tool

Analysis tool

Thank you for your attention
Any questions?