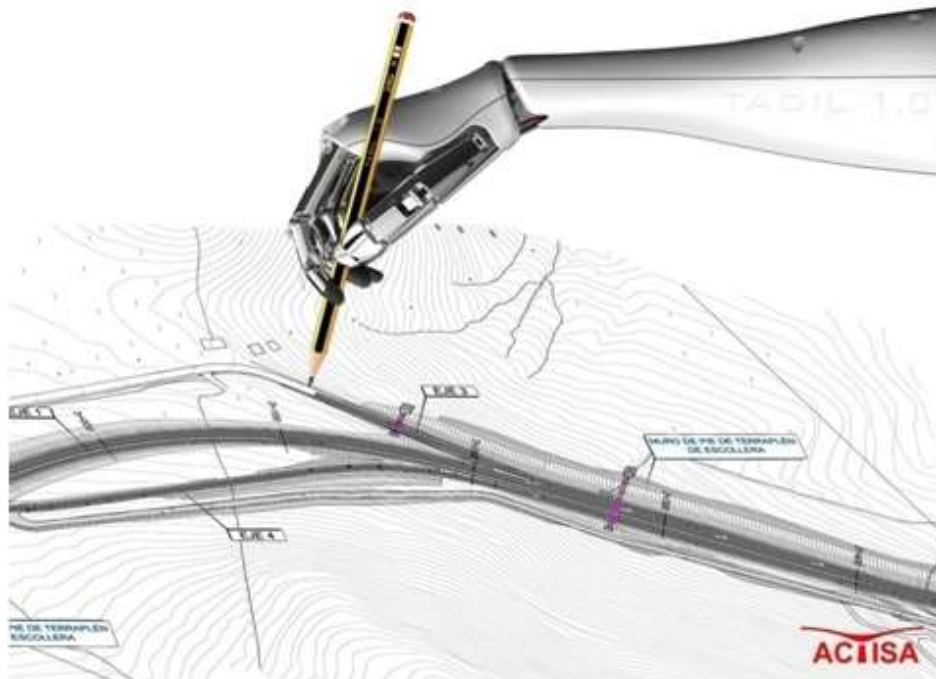


TADIL 3.0

TÉCNICAS DE AUTOTRAZADO
PARA EL DISEÑO DE
INFRAESTRUCTURAS LINEALES



INNO**WIDE**

**“TÉCNICAS DE AUTOTRAZADO
PARA EL DISEÑO DE
INFRAESTRUCTURAS LINEALES”**

T.A.D.I.L

**“TECHNIQUES FOR THE
AUTOMATIC DESIGN OF
LINEAR
INFRASTRUCTURES”**

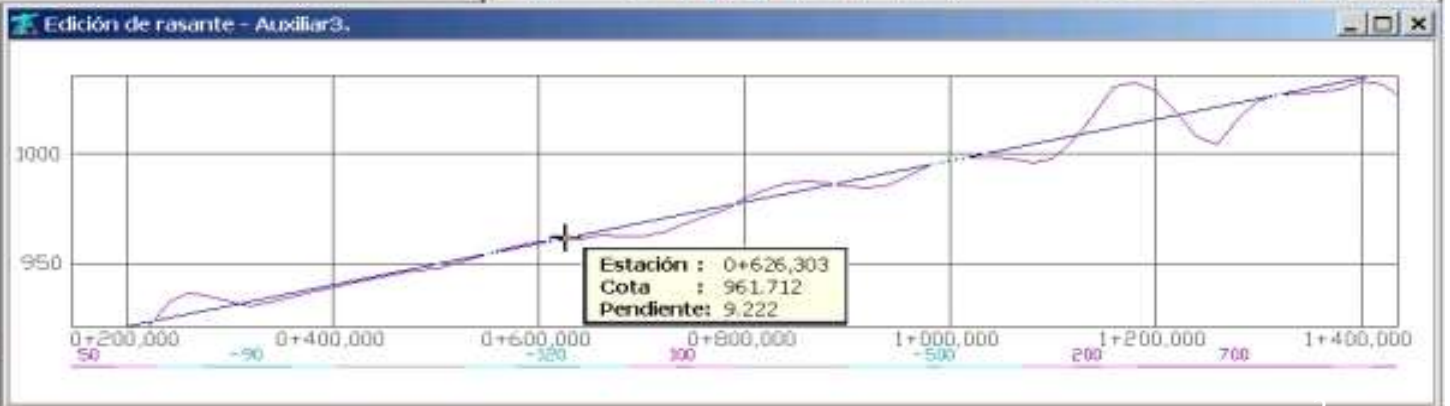
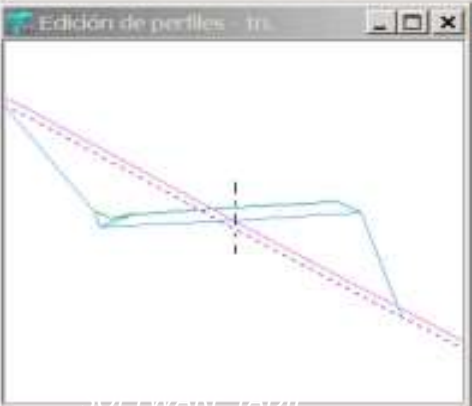

ACIISA



CURRENTLY THERE ARE MANY COMPUTER TOOLS TO DRAFT LINEAR INFRASTRUCTURES



E Variante Salceda B TUNEL LARGO=2960 (D)



SOFTWARE TADIL



**HOWEVER THE
PROCESS TO GET
A FEASIBLE
SOLUTION IS NOT
AN EASY TASK**

**FOR TOLL MOTORWAYS THE
OPTIMIZATION OF COST IS
MANDATORY, AND AT THE
SAME TIME THE QUALITY OF
THE INFRASTRUCTURE MUST
BE GUARANTEED**





- What is TADIL?
- *TADIL is an ARTIFICIAL INTELLIGENCE software applied to the automatic development of tracings of linear infrastructures.*
- *Currently there are available two modules. One is oriented to the study of infrastructures of roads and / or highways and the other to railway lines*



THE CAPACITY OF TADIL

- SOME EXAMPLES:
 - Generation of an informative study with 10 alternatives, (completely calculated), for a new 45 km highway connection, **in three hours**, including the introduction of all information of the Geographic Information System (protected areas, fauna, socioeconomic sectors, geotechnical, climatology, etc.). The real study lasted **eight months**.
 - Generation of a 75 km tracing alternative, obtaining the axis in plant, profile, transverse sections, earthwork plant, balance sheet of lands, budget and profitability: **6 minutes**. The adjustment of this tracing could have lasted about **two or three months**.



A change in traditional methodology

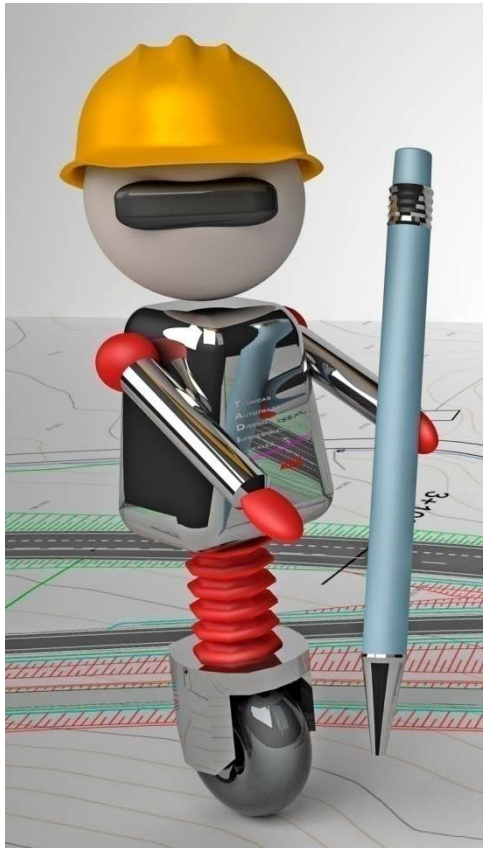
- TADIL AUTOMATICALLY INTERACTS WITH THE TERRITORY CONSIDERING ALL THE VARIABLES OF THE GEOGRAPHIC INFORMATION SYSTEM (GIS).





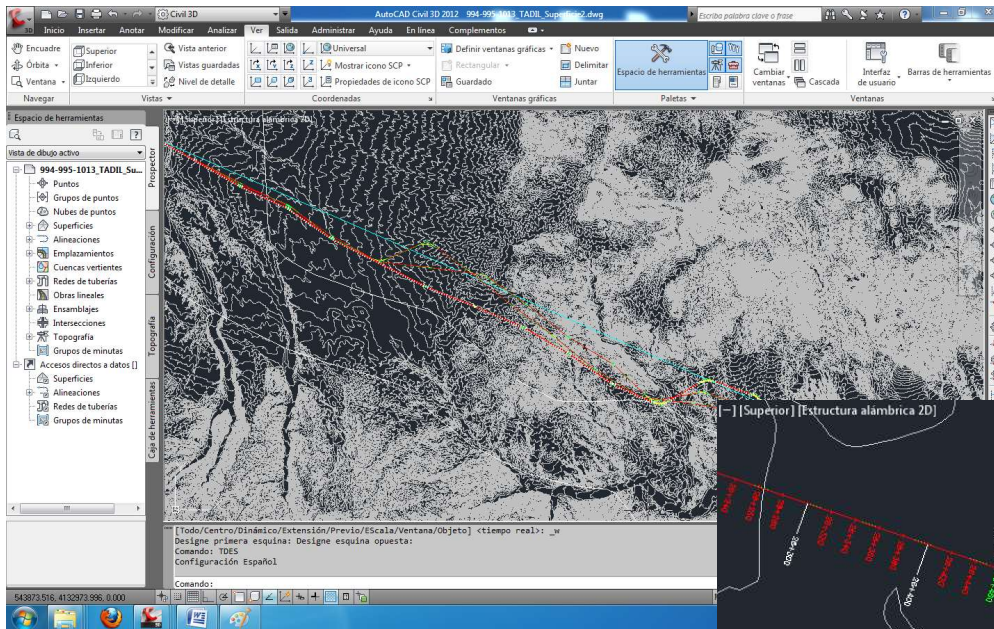
What TADIL does

- The program allows obtaining in a very fast way the tracing of infrastructure alternatives, with the the definition of the axis in plant and profile according to regulations, the cross sections with its measurement, the earthwork plant, expropriations, the balance sheet of lands, the budget, the public or private feasibility and the subjective evaluation of alternatives .

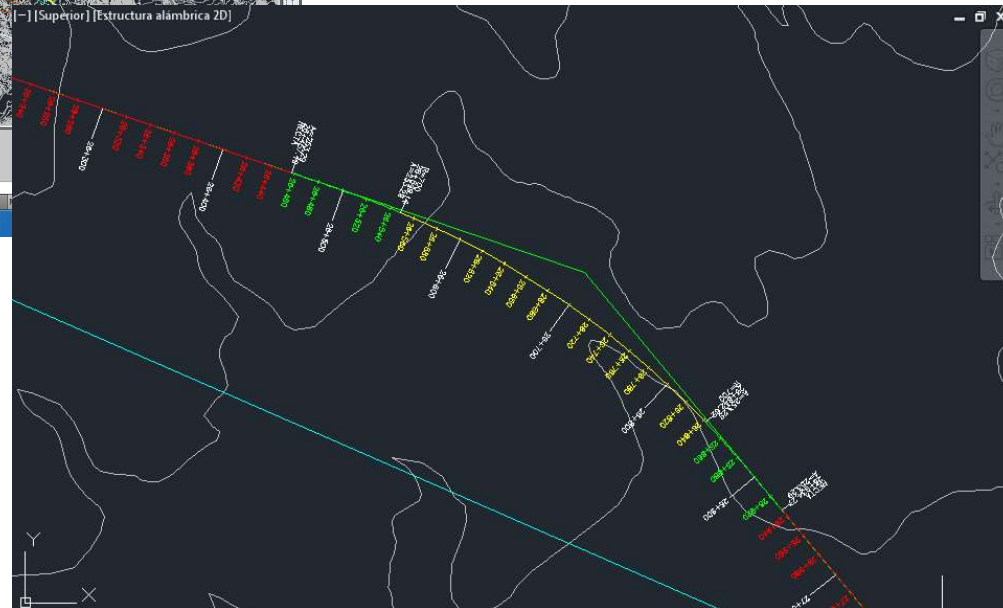




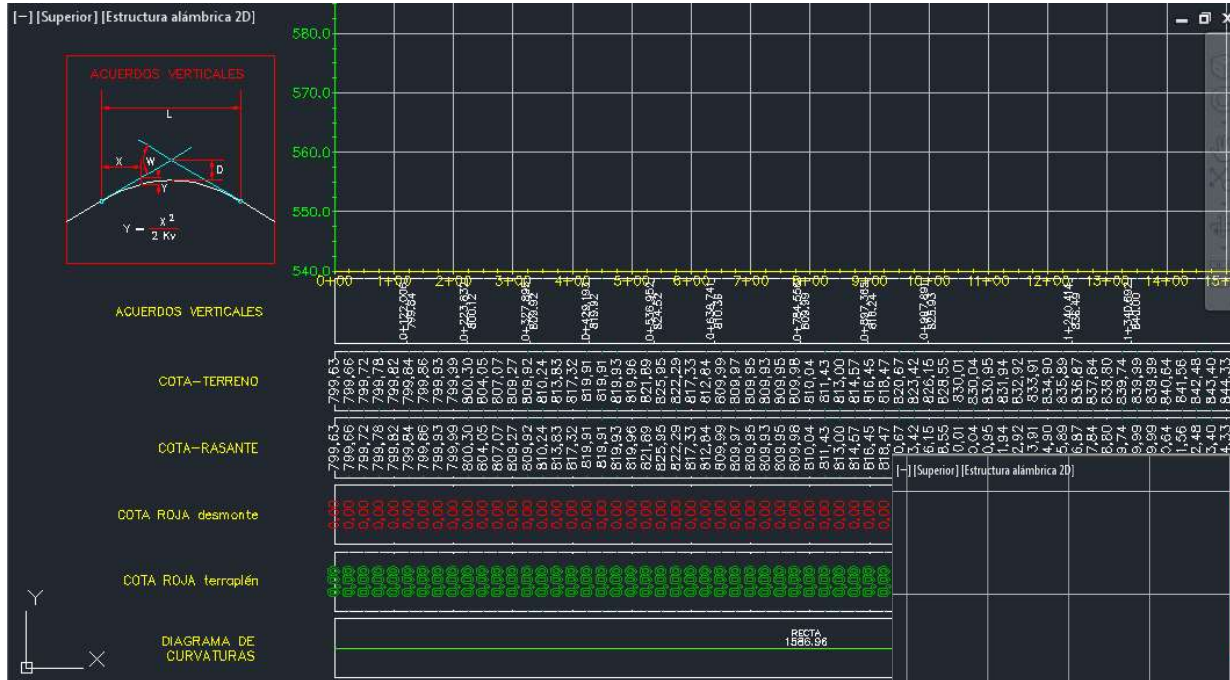
PLANT AXIS



DETAIL OF THE AXIS IN PLANT



LONGITUDINAL PROFILE

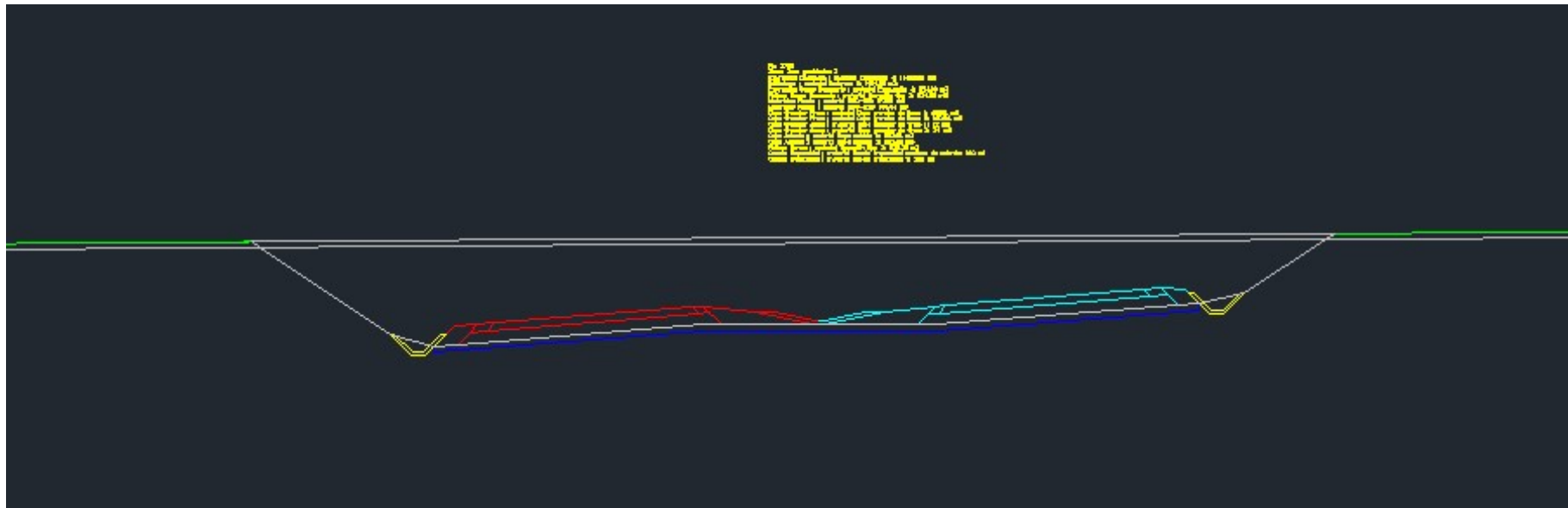


DETAIL OF THE LONGITUDINAL PROFILE





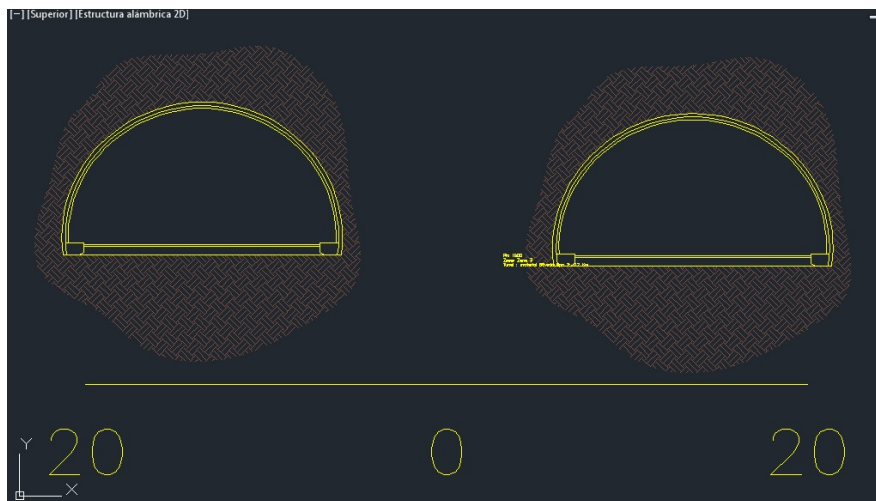
CROSS SECTION



- HIGHWAY TRANSVERSE SECTION IN CURVE WITH ITS MEASUREMENTS



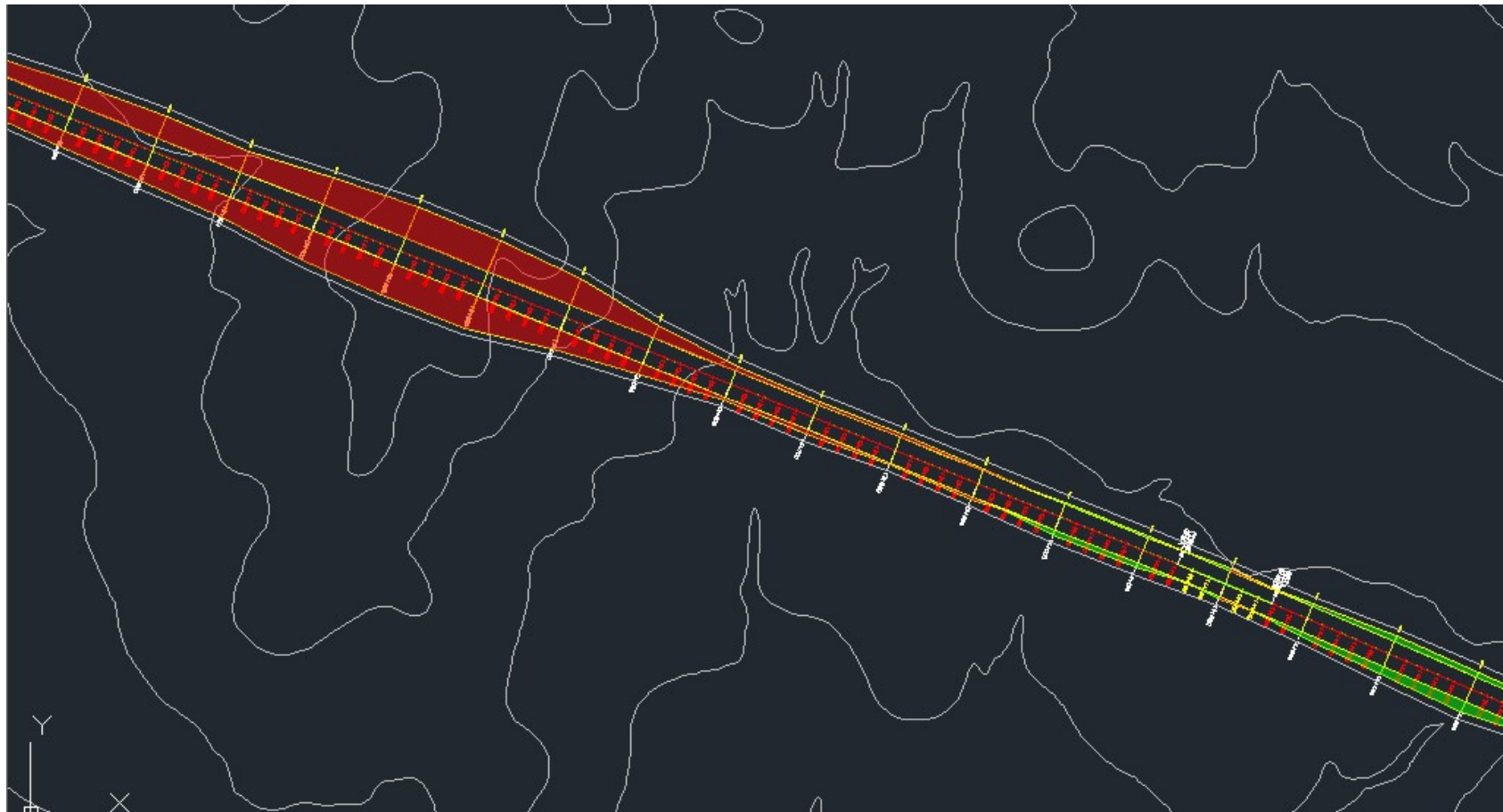
GENERATION OF LINEAR WORK



- AUTOMATIC INTRODUCTION OF SECTIONS OF STRUCTURES OR TUNNELS WHERE THE USER HAS ENABLED IT



EARTHWORK PLANT AND EXPROPRIATIONS





BALANCE SHEET OF LANDS AND BUDGET

	A	B	C	D	E	F	G	H
18 m3		3	2008058	669551.91	Excavaciones	Excavación 2	Empleo	
19 m3		4	1979543	494886.19	Excavaciones	Excavación 2	Vertedero	
20 m3		10	681904	68390.45	Capa Granular	Capa granular de firme 1	Empleo	
21 m3		10	545834	54583.44	Capa Granular	Capa granular de firme 2	Empleo	
22 m3		48	1576242	32838.37	Materiales Planta	MBC-512	Medición	
23 m3		47	1134295	66687.13	Materiales Planta	MBC-520	Medición	
24 m2		29	976704	33679.46	Cunetas	Cuneta trapezoidal mediana de autovía	Precio	
25 m2		35	1622562	46358.92	Cunetas	Cuneta trapezoidal 1	Precio	
26 Km		20000000	8000000	0.4	Túnel	Circular tipo 1	Precio	
27 Km		17900000	24500000	1.4	Túnel	Herradura tipo 1	Precio	
28 m2		400	25300000	42000	Puente-Viaducto	Pretesa 1	Precio	
29 Km		90000	3499151	38.88	Drenaje	Drenaje tipo 1	Precio	
30 Km		13000	505433	38.88	Señalización Balizamiento	Señalización tipo 2	Precio	
31 Km		55000	2138370	38.88	Reposición Servicios	Reposición 1	Precio	
32 Km		4000	155518	38.88	Correcciones Geotécnicas	Correcciones tipo 2	Precio	
33 Km		1800	89983	38.88	Desvíos Provisionales	Desvío tipo 1	Precio	
34 Km		4000	155518	38.88	Actuaciones Complementarias	Actuación tipo 2	Precio	
35 Km		200	7776	38.88	Medidas Correctoras	Medida tipo 1	Precio	
36 %		5	6757342	115148817	Seguridad y Salud	Seguridad y Salud tipo 2	Precio	
37								
38								
39								
40 Presupuesto Ejecución Material			141.902.079 €					
41 Gastos Generales		13	18.447.270 €					
42 Beneficio Industrial		6	8.534.125 €					
43 Control Calidad		1	1.419.021 €					
44								206.041.819 €
45 Base Imponible			170.262.495 €					11.602.371 €
46 IVA		21	35.759.324 €					1 1.419.021 €
47								1 1.419.021 €
48 Presupuesto Base Licitación			206.041.819 €					0.6 851.412 €
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FEASIBILITY STUDY

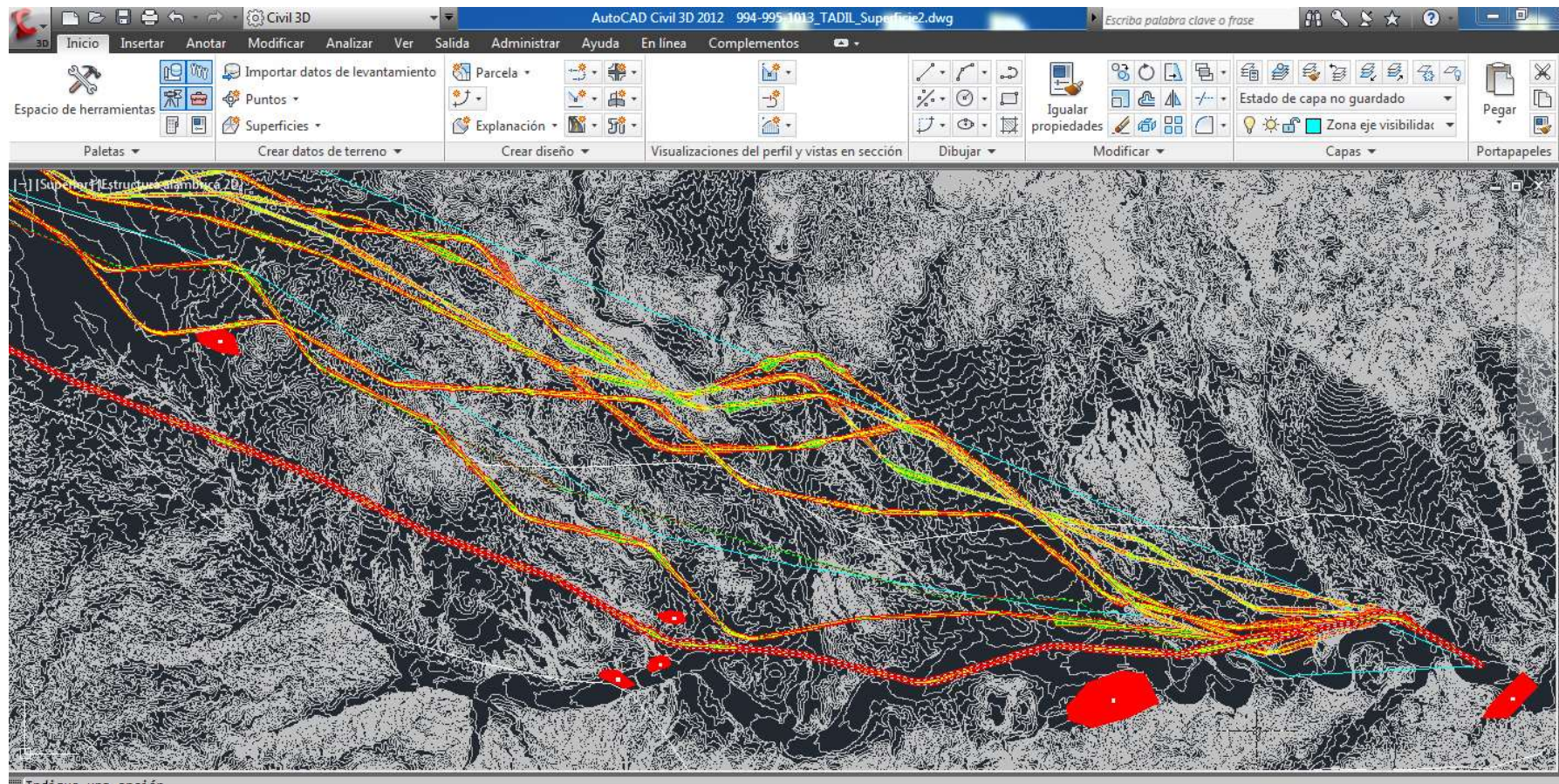
InformeRentabilidadPrivadaGrupo1-V120-Rectas-Minimo-60-10-30-Avancescortos_002_EnvMaxima.xlsx - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
46	11	Explotación	6	0	1.1	1	1.89	4702257	0	-19440.69	-800000	-40000	0	0	18809028	0	-21464.
47	12	Explotación	7	0	1.12	1	2.01	5013394	0	-19440.69	-800000	-40000	0	0	20053576	0	-21893.
48	13	Explotación	8	0	1.14	1	2.13	5321537	0	-19440.69	-800000	-40000	0	0	21286148	0	-22331.
49	14	Explotación	9	0	1.17	1	2.26	5626688	0	-19440.69	-800000	-40000	0	0	22506752	0	-22777.
50	15	Explotación	10	0	1.19	1	2.39	5928846	0	-19440.69	-800000	-40000	0	0	23715384	0	-23233.
51	16	Explotación	11	0	1.21	1	2.54	6228010	0	-19440.69	-800000	-40000	0	0	24912040	0	-23698.
52	17	Explotación	12	0	1.24	1	2.69	6524182	0	-19440.69	-800000	-40000	0	0	26096728	0	-24172.
53	18	Explotación	13	0	1.26	1	2.85	6817360	0	-19440.69	-800000	-40000	0	0	27269440	0	-24655.
54	19	Explotación	14	0	1.29	1	3.02	7107546	0	-19440.69	-800000	-40000	0	0	28430184	0	-25148.
55	20	Explotación	15	0	1.31	1	3.2	7394739	0	-19440.69	-800000	-40000	0	0	29578956	0	-25651.
56	21	Explotación	16	0	1.34	1	3.39	7678938	0	-19440.69	-800000	-40000	0	0	30715752	0	-26164.
57	22	Explotación	17	0	1.37	1	3.6	7960145	0	-19440.69	-800000	-40000	0	0	31840580	0	-26687.
58	23	Explotación	18	0	1.4	1	3.81	8238359	0	-19440.69	-800000	-40000	0	0	32953436	0	-27221.
59	24	Explotación	19	0	1.42	1	4.04	8513579	0	-19440.69	-800000	-40000	0	0	34054316	0	-27766.
60	25	Explotación	20	0	1.45	1	4.29	8785807	0	-19440.69	-800000	-40000	0	0	35143228	0	-28321.
61	26	Explotación	21	0	1.48	1	4.54	9054725	0	-19440.69	-800000	-40000	0	0	36218900	0	-28887.
62	27	Explotación	22	0	1.51	1	4.82	9320968	0	-19440.69	-800000	-40000	0	0	37283872	0	-29465.
63	28	Explotación	23	0	1.54	1	5.11	9584219	0	-19440.69	-800000	-40000	0	0	38336876	0	-30054.
64	29	Explotación	24	0	1.57	1	5.41	9844476	0	-19440.69	-800000	-40000	0	0	39377904	0	-30654.
65	30	Explotación	25	0	1.6	1	5.74	10101740	0	-19440.69	-800000	-40000	0	0	40406960	0	-31269.
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InformeRentabilidadPrivadaGrupo



GENERATION OF MULTIPLE ALTERNATIVES





SUBJECTIVE EVALUATION. DECISION MATRIX

TADIL v1.74

Archivo Ayuda

Administrador datos proyecto | Estudio informativo - Valoración alternativas - Matriz de decisión

- Estudio informativo
 - Matriz de decisión

Ponderación de valoraciones

[Nuevo](#) [Editar](#) [Borrar](#) [Borrar Listado](#)

Listado hipótesis	TRA	GEO	ETM	MED	CLI	SOC	PAT	ECO
Hipótesis001	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Hipótesis 002	20	10	10	10	10	10	10	20
Hipótesis003	8	10	10	10	10	10	12	30

Listado soluciones disponibles para valoración

Selección	Nombre	Grupo carreteras	Velocidad	Radio
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700
<input type="checkbox"/>	Grupo 1-V120-Rectas-Mínimo-60-10-30...	Grupo 1	120	700

Valorar Soluciones por Hipótesis

C:\Users\Cristoba\Desktop\Manual Tadi\Valle Villa Ana.tadil

Some qualities of TADIL

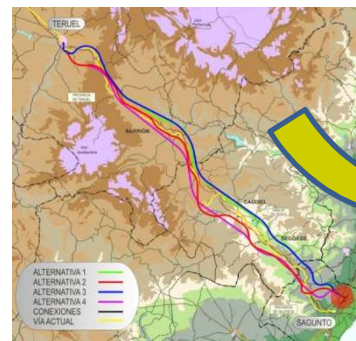
- USER INTERACTION WITH TADIL IS DIRECT:

1st THE USER DEFINES THE GIS, HIS PREFERENCES, DESIGN CRITERIA AND EVALUATIONS.



2nd TADIL GENERATES ALTERNATIVES AUTOMATICALLY IN A COMPLETE WAY.

3rd THE USER CAN MODIFY THE CRITERIA, ENRICHING THE STUDY AND IMPROVING THE PROPOSALS.





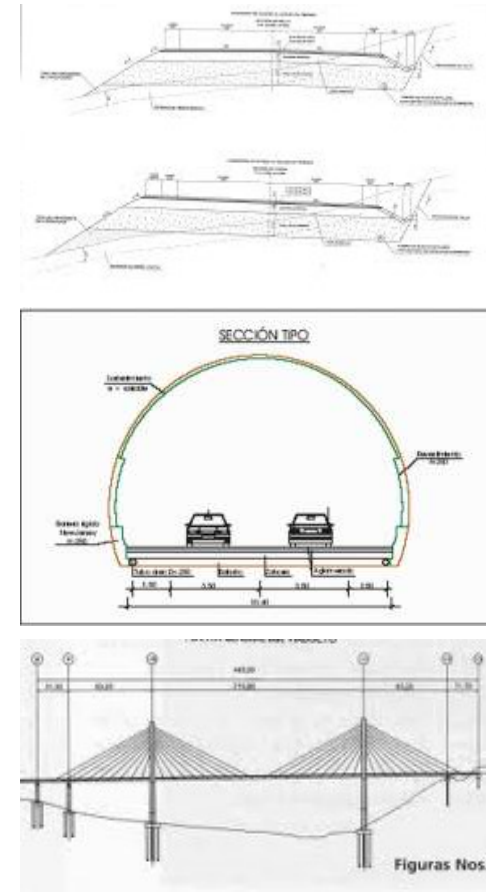
Some qualities of TADIL

- THE CONSIDERATION OF ENVIRONMENTAL, PATRIMONIAL, SOCIOECONOMIC OR CLIMATIC VARIABLES, ALLOWS GETTING **RESPECTFUL** AND **INTEGRATED** SOLUTIONS WITH THE TERRITORY.
- THE INTRODUCTION OF PARAMETERS LIKE THE MAXIMUM HEIGHT OF CUT OR EMBANKMENT AMONG OTHERS GUARANTEES THE BEST ENVIRONMENTAL INTEGRATION.



Some qualities of TADIL

- THE USER CAN INTRODUCE GEOTECHNICAL VARIABLES IN THE GIS APPLICABLE TO:
 - THE TYPE SECTION OF EARTHWORK, (FILL, CUT, SCALING, AND SCALING STEPS MATERIAL, USES OF EXCAVATION MATERIAL, SLOPES).
 - TYPE SECTION OF ROADBASE.
 - TYPOLOGY AND CHARACTERISTICS OF TUNNELS, (WHEN ITS USE IS ENABLED BY THE USER).
 - TYPOLOGY OF STRUCTURES FOUNDATION.





Some qualities of TADIL

- THE PROGRAM HAS A WIDE GALLERY OF TYPE SECTIONS OF STRUCTURES AND TUNNELS, AND TADIL AUTOMATICALLY ASSIGNS THEM TO THE CROSS SECTIONS ACCORDING TO THE PREFERENCES OF THE USERS.

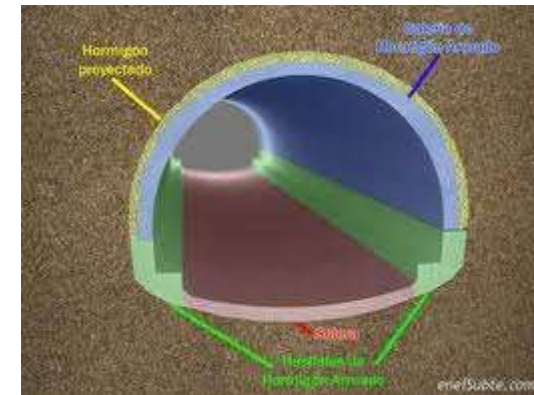




Some qualities of TADIL

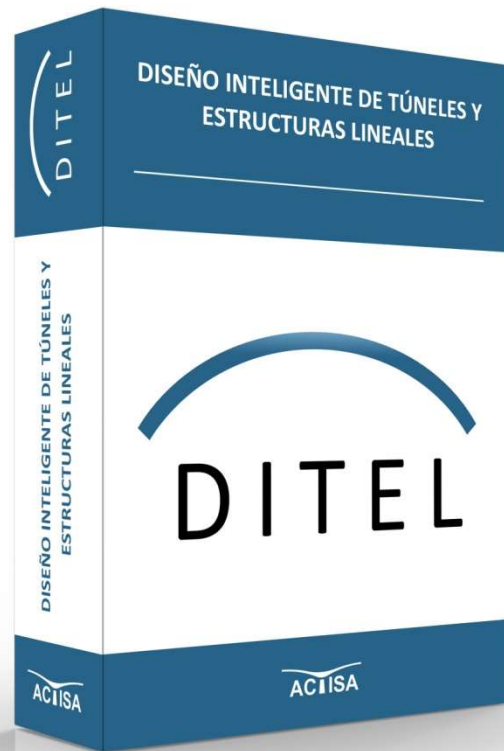
IN THE SAME WAY TADIL CONSIDERS THREE TYPE SOLUTIONS OF TUNNELS:

- HORSESHOE
- VAULT
- CIRCULAR, (WITH OR WITHOUT DOVELAS)



ACIISA

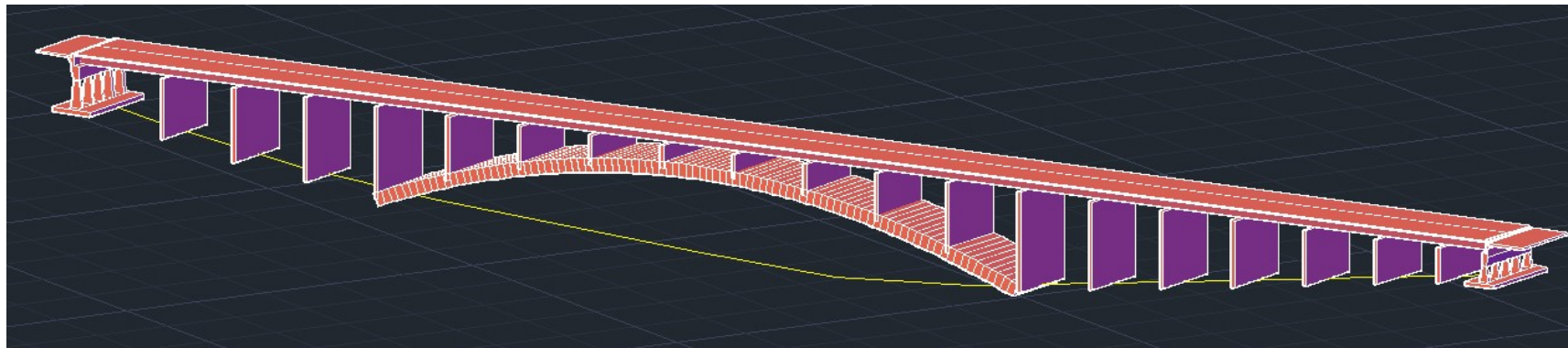
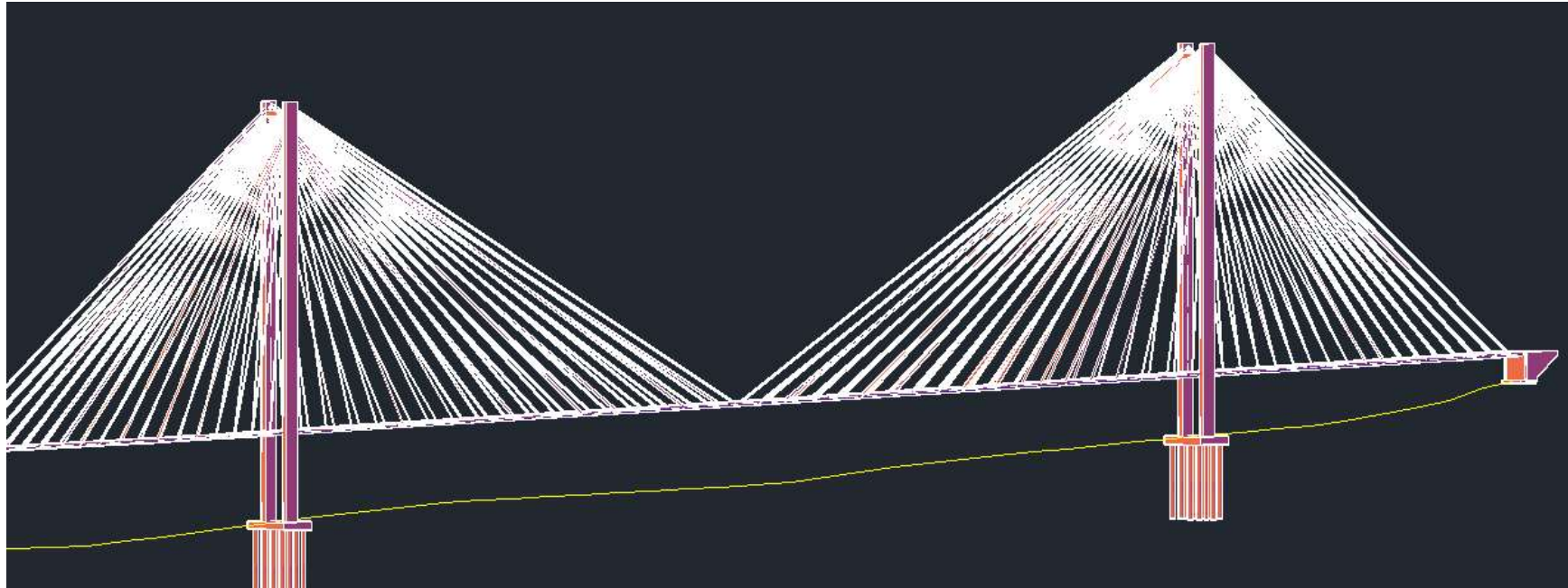
TADIL 3.0



**DITEL IS
COMPLEMENTARY
SOFTWARE FOR
AUTOMATIC 3D
DESIGN OF
VIADUCTS,
BRIDGES AND
TUNNELS**

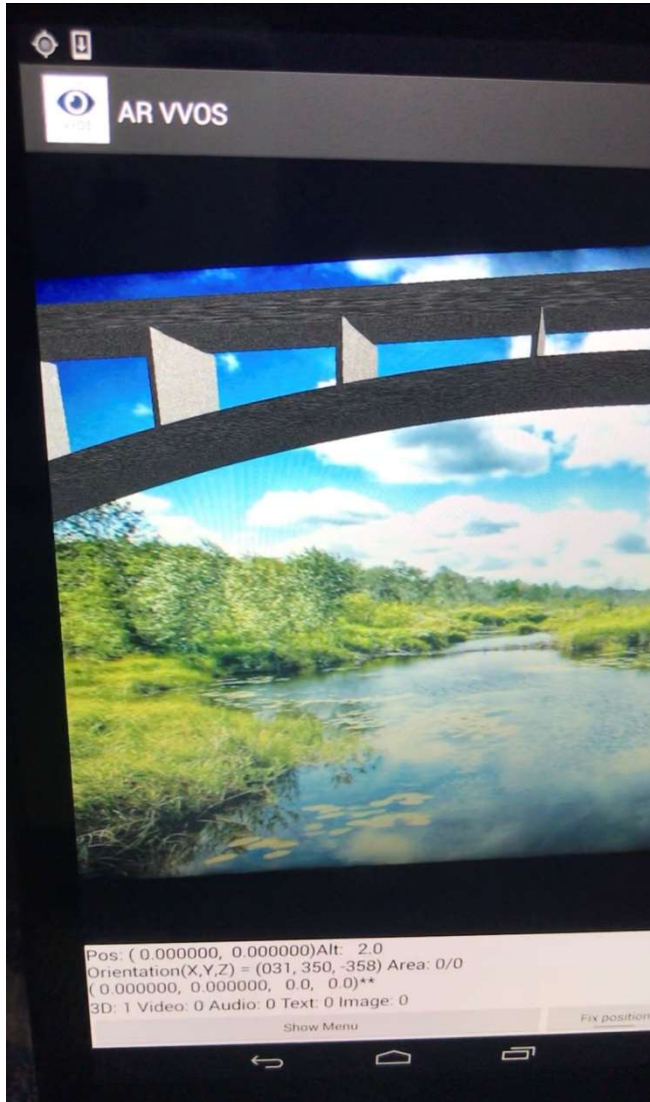
ACIISA

TADIL 3.0



ACTISA

TADIL 3.0



VVOS IS A
COMPLEMENTARY
APPLICATION TO
VISUALIZE ON SITE
AN INFRASTRUCTURE,
BRIDGE OR VIADUCT

- MANY THANKS

The logo consists of a thick white horizontal line that curves downwards in the center, resembling a stylized 'A' or a bridge.

ACIISA