



CIVILWORKS
WEB SERVICES

CIVILWORKS WEB SERVICES. CWS

- GIS & CAD
- 3D & BIM
- MONITORING
- INVENTORY
- INSPECTIONS
- TRACEABILITY
- ALARMS
- DOCUMENTAL MANAGEMENT
- SUPPORT

WWW.CIVILNOVA.COM





CWS (CivilWorks Web Services) is our cloud-based web services platform for Civil Engineering. Our services are sometimes purely web services, web services associated with our desktop solutions. We have solutions for monitoring, inventory, inspection systems, traceability, etc. On above all of them, thanks to our versatile platform we are capable to adopt specific solutions according to the needs of each client.



Why CWS?

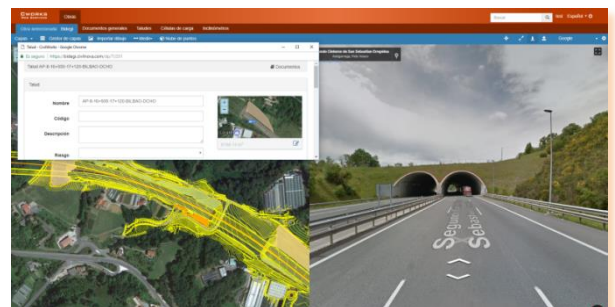
CWS is part of the idea to create an ecosystem of integrated solutions for Civil Engineering fields, providing effective tools to solve various problems and tasks. The location in the cloud allows a simple distributed management of the information, the systems integrated in the platform by our technicians give it a power hitherto unknown in this type of solutions.

Furthermore, our concept of software as a service (SAS) implies the continuous relationship with our customers, exchanging at all times the necessary information for the continuous improvement of the solution.



GIS & CAD. A visual platform

The basis of our platform has always been a GIS system with the necessary CAD tools to get the most out of the system. For this reason we can, if necessary, load the layout of a motorway, plans of some facilities, visualize cartography of the area, use orthophotos, connect to external servers to obtain maps, etc. In addition, the system allows access at any time to the information of each element, instrument, documentation, inspections, etc. from its representation with a simple mouse click.



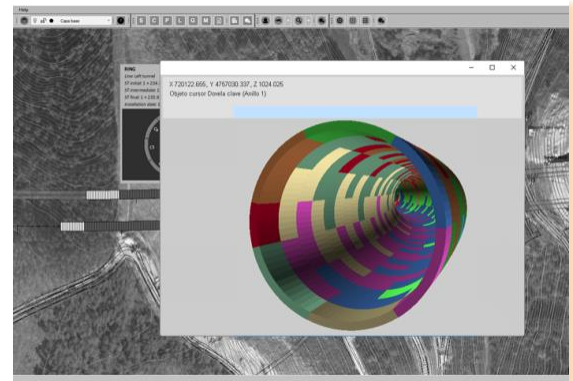
Interface view



3D & BIM

The system allows the 3D representation and the generation in BIM models of different types of elements, as an example, the tube or tubes of tunnels excavated with TBM. Although it is one of the latest technologies implemented in the platform, our system is prepared for this type of needs and the solution grows with functionalities based on the requests of our clients.

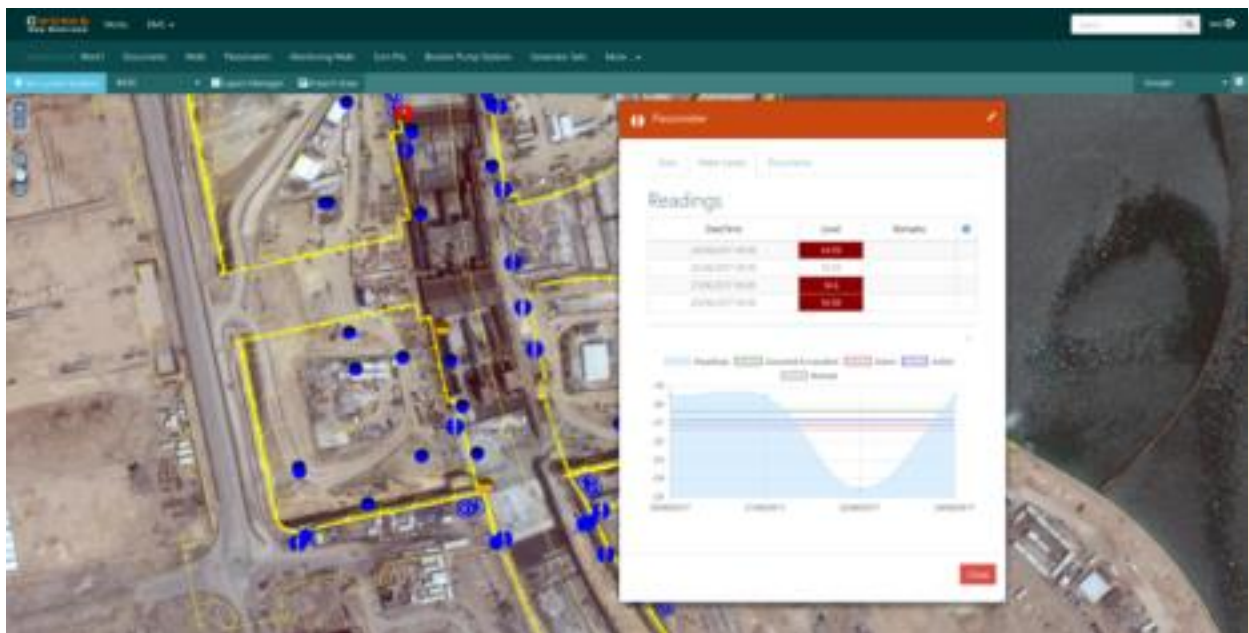
It also allows the use of point clouds as 3D models, for the referencing of elements, for example.



Túnel 3D

Monitoring

The platform allows monitoring and exploitation of the information obtained from multiple devices and instruments. Currently, functionalities and reports related to multiple devices that can be consulted in the specifications are already developed, but our system grows with each new contract that involves the monitoring of new parameters and measures depending on the type of work or installation with which we are working. The versatility to characterize the device, exploit the measurements and obtain reports makes us a very general solution in which the clients can integrate all the information they want.



Instrumentos georreferenciados

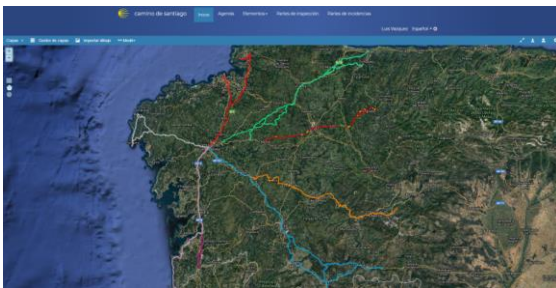
Inventory

The platform also incorporates a complete inventory system that allows us to reflect both constructive elements (tunnels, structures, drainages, slopes, etc.), as well as all types of facilities (pumping stations, electrical panels, etc.) or devices of all kinds as those dedicated to monitoring.



Once again the platform is easily configurable if the client needs a new type of inventory item that is not currently available.

Inventory elements



Inspection routes

Inspections

Inspections management, normally associated with inventory elements, allows configuring the system to perform this type of tasks, plan them in time, obtain reports, etc.

We can also combine the web platform with mobile applications that facilitate field work.

Alarms

The platform has a complete alarms configuration and warning generation system, applicable to its multiple solutions. From notifying in real time of a specific value in a piezometer, to sending emails to certain users on a regular basis with important notices. Currently, notice can be send via email or SMS.



Alarms management

Traceability

The traceability, in different facets related to the Civil Engineering, is another area in which we have introduced our platform. Specifically, in explosives traceability in civil works, quarries, mining, etc., and in precast traceability in large civil works, i.e. tunnels excavated with tunnel boring machines (TBM).

In this case we have expanded our range of action to the development of mobile applications to perform field management work and development of projects to identify elements through different methods.

[illegible]

Explosives traceability

Documental management

The platform has a powerful documental management service that allows the user to trace the lifecycle of the files, characterize them, control versions and above all associate them with an element registered in the platform, it can be a segment, a bridge, a piezometer or any other element.

[illegible]

Documental management



Technical support

One of our greatest strengths is our customer technical service. Includes technical support, platform updates with generic functionalities and the continuous adaptation of the system to customer requirements.



Full solutions

We provide the client, in addition to the software necessary to perform the information management both through the web portal or field applications, the equipment for printing labels when necessary, the labels themselves, mobile devices, etc.

We also advise our clients with the technological solutions that may be more interesting depending on the working conditions.

We are **Zebra** and **Honeywell** partners.



Terminals and printers



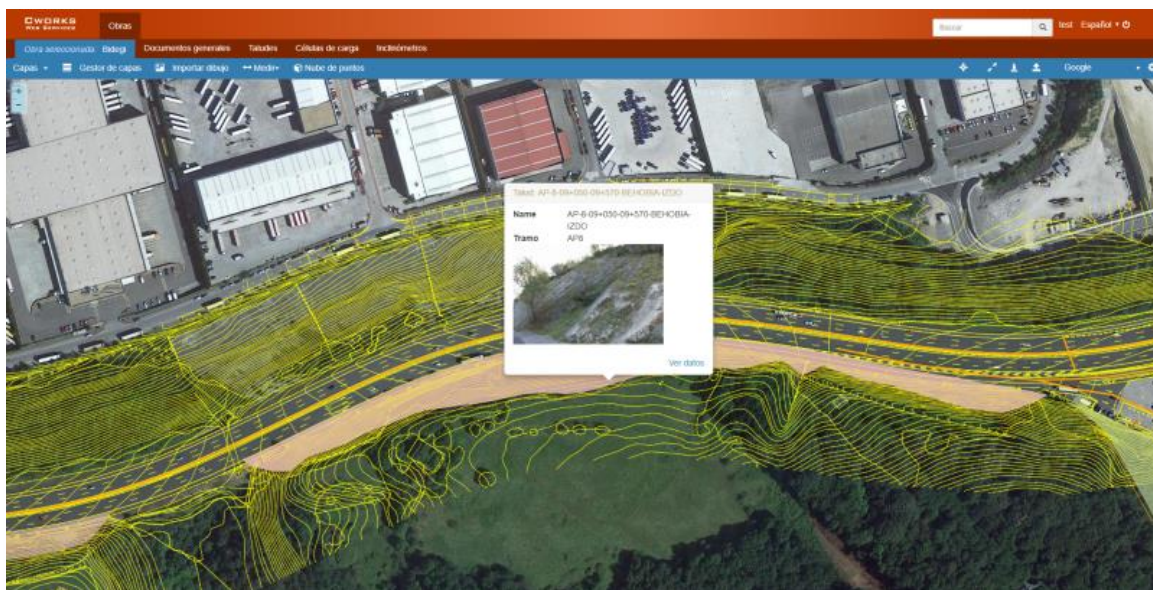
Specifications

GIS & CAD

- ✓ CWS integrates data in different formats (dxf, kml, kmz, shape, etc.).
- ✓ Compatible with the main standards for georeferenced images (.tiff, .jpg, .ecw, etc).
- ✓ Connection with Google Maps, Google Street View, Openstreetview, Bing maps, etc.



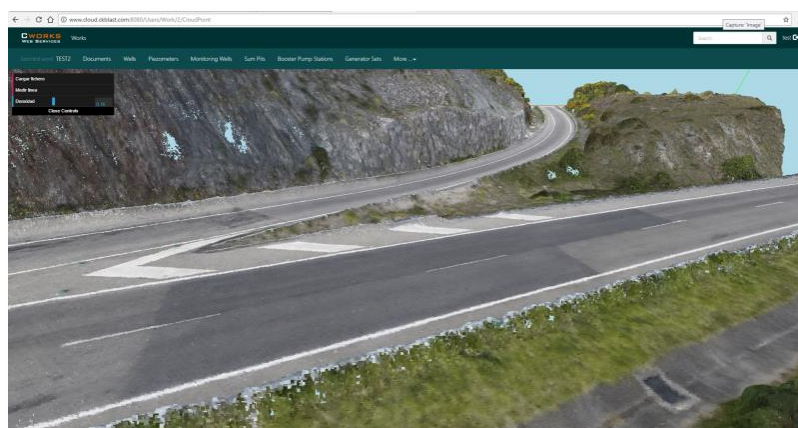
- ✓ Access to WMS and WFS servers.
- ✓ Display of all inventory items in the GIS system.
- ✓ Direct correlation between graphic elements and database info.
- ✓ Access from the GIS system to the documentation related to inventory elements.
- ✓ Multiple tools for accessing information (spatial queries, geoprocesses, specific tools for each module of the platform, etc.).
- ✓ Measurement tools for distances and areas
- ✓ CAD edition. Points, linear and polygonal elements.
- ✓ Layers management.
- ✓ Scalable and interoperable platform.
- ✓ Multiplatform.



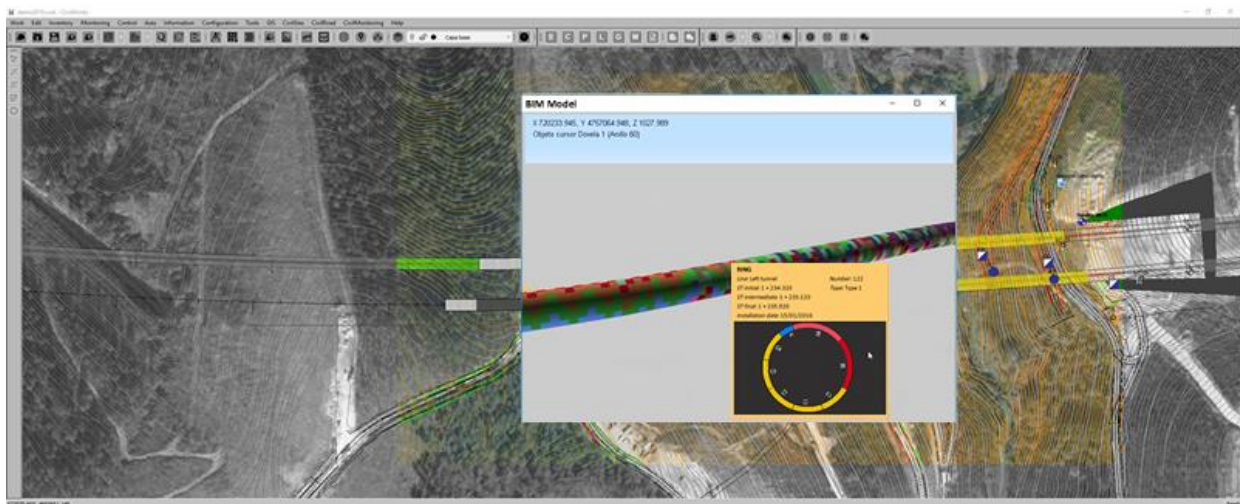
GIS System View

3D & BIM

- ✓ 3D platform.
- ✓ Possibility of using point clouds to reference elements. Slopes instrumentation i.e.
- ✓ BIM model generating for specific elements.



Point clouds in CWS



3D tunnel model

MONITORING

- ✓ Management of instrumentation devices (inclinometers, piezometers, load cells, prisms, etc.).
- ✓ Water Quality Control management.
- ✓ Multiple systems monitoring, wells, pumping stations, electrical panels, etc.
- ✓ Exploitation of data collected using data mining techniques.

INVENTORY

- ✓ Assets management.
- ✓ Dynamic characterization of the elements.

INSPECTIONS

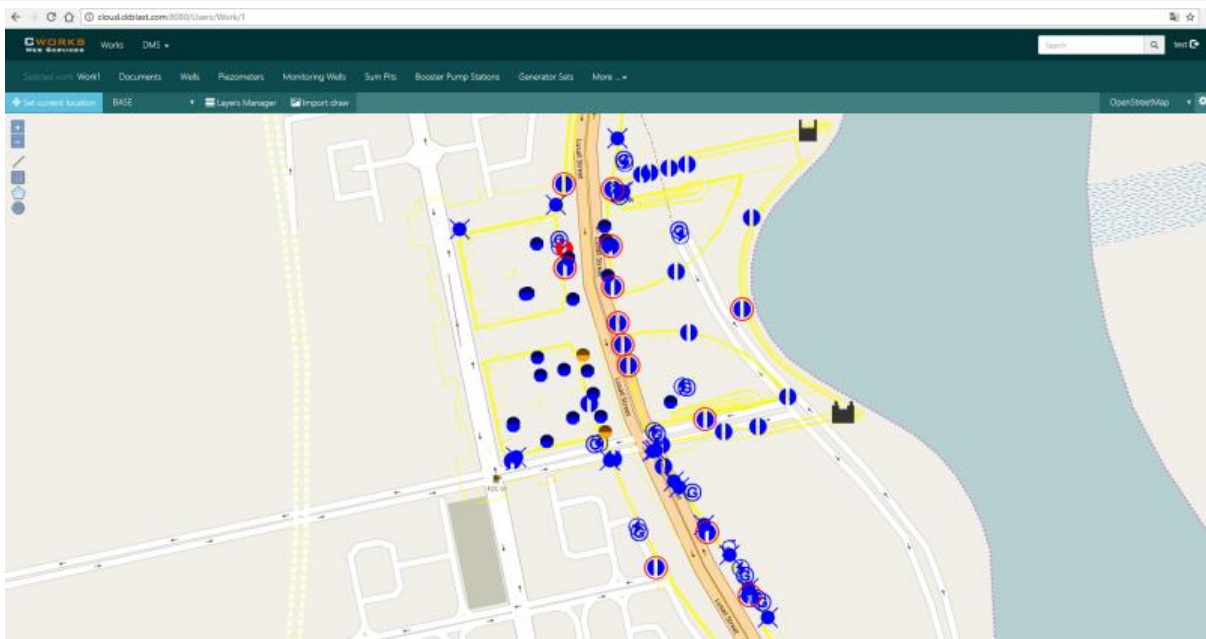
- ✓ Inspections management.
- ✓ Inspections reports generation.
- ✓ Planning of inspections.

TRACEABILITY

- ✓ Elements traceability.
- ✓ Tracking using tag systems or similar.

ALARMS

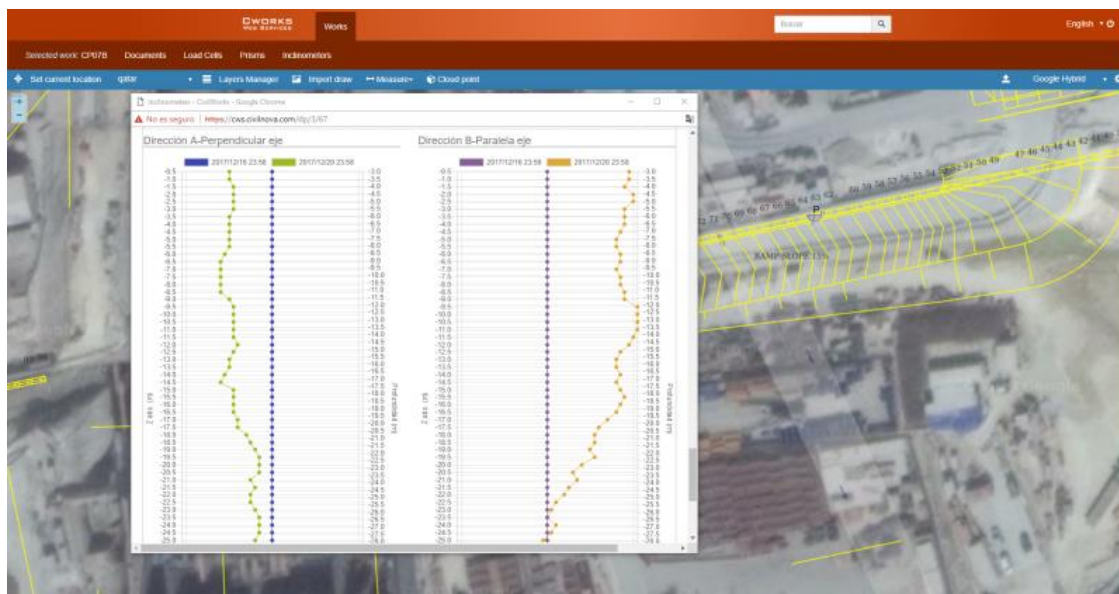
- ✓ Generation of customized alarms in different areas, monitoring, inspections, etc.
- ✓ Notifications via email or SMS.



Alarms. Monitorized zone

DOCUMENTS MANAGER

- ✓ Documents integration with GIS entities.
- ✓ All kind reports, plans, images, etc management.
- ✓ Versions control.
- ✓ Files characterization.
- ✓ Queries, filters and searches integration.
- ✓ All types of automated reports generation.
- ✓ Database data, graphics and CAD drawings integration.





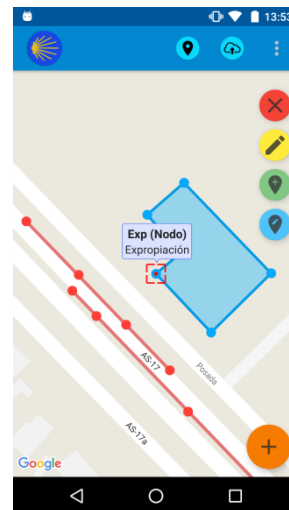
PRECAST RING PRODUCTIVITY									
SEGMENT YARD					Tunnel 1				
Date of casting	Mould number	Segment ID	Segment type	Type of ring	Ring number	Date of ring build	Shift	Key position	TBM
									Before ring build
									Damage of segments - need repair
									After ring build
									Damage of segments - need repair
									Steps<10mm
									Lips<10mm
10/07/2017	B3	CS03170710180736007	B	Type I	41		Day		
10/07/2017	D3	CS03170710180736009	D	Type I	41		Day		
10/07/2017	E3	CS03170710180736010	E	Type I	41		Day		
10/07/2017	K3	CS03170710180736011	K	Type I	41		Day		
10/07/2017	C3	CS03170710180736008	C	Type I	41		Day		
10/07/2017	A3	CS03170710180736006	A	Type I	41		Day		
20/07/2017	D1	CS03170720292314002	D	Type I	43		Day		
20/07/2017	E1	CS03170720292314004	E	Type I	43		Day		
20/07/2017	A1	CS03170720292314000	A	Type I	43		Day		

Reports and graphics

- ✓ Spatial consultations and geoprocesos applicable to the project

MOBILE SYSTEMS

- ✓ Android and IOS systems.
- ✓ Easy to use solutions.
- ✓ Traceability, inventory, etc. Solutions.
- ✓ Messages and alarms management.
- ✓ USB, Wifi, Ethernet and 4G data transfer.
- ✓ We advise you on the purchase of the most suitable mobile devices for your project.



Mobile App

SECURITY

- ✓ User management.
- ✓ Users operations traceability.
- ✓ Personalized profiles for each work.

SUPPORT SERVICE

- ✓ Technical support (email, phone or remote access).
- ✓ Platform updates included.
- ✓ Personalized developments and system adaptations.



CWS PROJECTS

PERTH :: AUSTRALIA

Project: PREFABRICATED TRACEABILITY

Year : 2017 - 2019

Forrestfield Airport Link

Length: 2 x 8,000 m.

Section: 6,160 mm.

Segments: 60,000



LUSAIL CITY :: QATAR

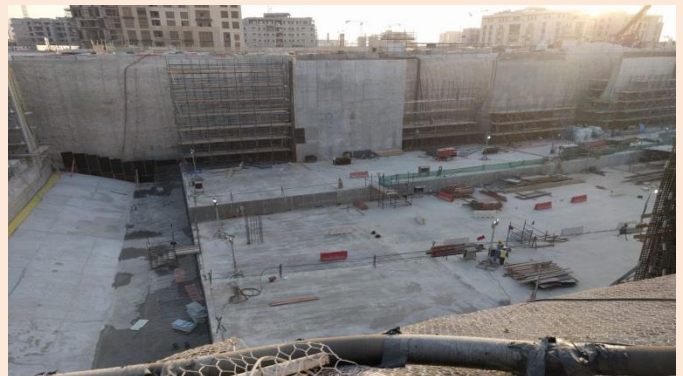
Project: DRAINAGE SYSTEM MONITORING

Year: 2017 - 2021

Lusail City construction

Monitoring devices: >300 devices

Facilities: > 100 facilities



EUSKADI :: SPAIN

Project: GEOTECHNICAL INFO PLATFORM

Year : 2016 -

Geotechnical Information platform for ETS (Euskadi Railways managers)

Geotechnical campaigns: > 100



BRATISLAVA :: SLOVAKIA

Project: BRATISLAVA BELTWAY CONSTRUCTION

Year : 2017 -

Bratislava beltway project management (Cintra, Porr & McQuaire)





GUIPUZKOA :: SPAIN

Project: SLOPES MONITORING & RISK CALCULATION

Year : 2018 - 2022

Risk calculation and slopes monitoring for Bidegi

Slopes: 320 slopes

Monitoring devices: > 400 devices



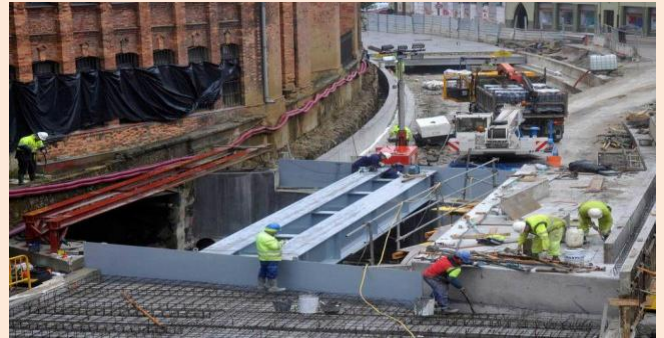
LANGREO :: SPAIN

Project: RAILWAY BURYING MONITORING

Year : 2016 - 2018

Railway burying monitoring for ADIF

Monitoring devices: >100 devices



SPAIN

Project: EXPLOSIVES MANAGEMENT PLATFORM

Year : 2015 -

CKBLAST. Explosives management and traceability

Explosives consumption points: > 450

Client companies: > 200



GALICIA :: SPAIN

Project: ST JAMES WAY INVENTORY

Year : 2018 -

Inventory platform for ST James way

Km: > 2000 km



MEXICO DF :: MEXICO

Project: ROADS MAINTENANCE & OPERATION

Year : 2016 -

Circuito Exterior Mexiquense

Mainroad km: > 170 + 134 Structures

Monitoring devices: > 150



FERROL :: SPAIN

Project: URBAN MAINTENANCE WORKS MANAGEMENT

Year : 2017 -

Urban maintenance Works portal





CLIENTS



OTHER COMPATIBLE SOLUTIONS

CIVILGEO

Management of geotechnical information in detail, boreholes, soil pits, penetrometers, samples, laboratory tests, geophysics, etc. which can be combined with the information of a CWS project.

<https://www.civilnova.com/index.php/en/solutions/civilgeo>

CIVILWORKS

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