

Early warning system for underpasses in the Municipality of Battipaglia



On behalf of GBL Costruzioni SUD srl, CAE installed a **monitoring and early warning system for a new railway underpass** in the Municipality of Battipaglia, which will be useful for **inhibiting circulation** in case of flooding, a situation that could occur during **extreme flood events** that are more and more frequent.

Upon **exceeding various thresholds**, which also take into consideration the level of the nearby Tusciano river.

SUMMARY

Location: Municipality of Battipaglia (SA), Italy

Conclusion: 2022

Focus: Hydraulic and hydrological risk

Challenges:

- Implementation of a monitoring and warning system with vehicular warning functions for the railway underpass at KM 71+004 of the Battipaglia - Reggio Calabria line

CAE solutions:

- 1 control station near the underpass, to detect the water level and manage the traffic lights, sirens and barriers
- 1 remote-warning hydrometric station for monitoring the level on the Tusciano river
- 1 data acquisition and management centre.

FEATURES

The station installed on the bridge in Via del Centenario will constantly **detect the hydrometric level** of the Tusciano river and, in addition to sending the data to the municipal control centre, upon exceeding default critical thresholds, it will transmit these measurements to the control station located near the underpass.

The later station will be connected to **3 piezometric sensors** installed in the lowest point of the underpass and at the drafting pit of the pumps dedicated to draining excess water; these sensors are necessary to detect the water level in the two spots and thus to be able to issue alerts when **default critical thresholds are exceeded**. Therefore, this station will **activate traffic lights and sirens** connected to it on the basis of **alarm logics** linked to the measurements observed both by the station on the Tusciano river and by the piezometric sensors directly connected to it.

In addition to the aforementioned **local alert functions** that lead to traffic inhibition, the field stations will send **alert SMS** directly to the technicians in charge of handling the emergency, in order to promptly inform them of the course of the flood event. In addition, the stations, which will be equipped with both a **main data communication module via UMTS/GPRS** and a secondary **backup module via satellite**, will also send the measurements observed to the **acquisition centre** located in the Municipality of Battipaglia, equipped with a **workstation operating CAE programs for data acquisition and visualization**.



COMPOSITION

The monitoring and early warning system for underpasses in the Municipality of Battipaglia consists of:

- a **hydrometric station**, for monitoring and remote warning of the level on the Tusciano river;
- a **control station**, located near the underpass, for detecting the water level in the underpass and activating traffic lights, sirens and barriers;
- a **data acquisition and management control centre**, located in the Municipality of Battipaglia.

