Orange Bastion Vault 1. Gibraltar

PCL Engineering Solutions

AOP System

TRITON Norway

Problem

Orange Bastion Is an over 250 year old military structure. It forms part of Gibraltar's history and culture. The most important aspect of our installation is, it must look as though we were never there, all cuts and chases must be within the existing grout lines and there must be no lasting damage whatsoever. The vault is a domed room with a 40 foot diameter and a height of over 40 feet. The water ingress problem was two fold; the water table is virtually the same height as the floor and the walls were extremely damp due to the backfill being ballistic sand and rubble. The Government Heritage office was very keen to preserve the originality of the vault, whilst curing the chronic ingress problem.

Industry: Heritage.

Region: Gibraltar.

Summary: Vault 1

System and design: Delivered by PCL.
Timing: The design of the AOP system took 3 weeks. Structure was available for fit out 3 months after work starting on site.

Estimated drying time: Less than 3 months.

Success Criteria: The floor was not original it was more recent concrete, which at certain times of the year could flood to over 12 inches. Causing extensive dampness in the old brickwork.

Once installed and fully operational, the system dried the floor and walls and no flooding in vault 1 has been reported in over 7 years.

Pulse Boxes: One AOP control unit was required for this project.

Tel 00350 20065950
Email info@pclgib.com

19/2 Road to the lines
Upper Rock, Gibraltar GX11 1AA

Web Page: www.pcl-led.com

Challenges

Orange Bastion Vault 1 dates back to 1750 and is of great historic and cultural importance. The construction is a domed room thought once to be the mechanical power source for a large gun placed above the structure. The construction is virtually all red brick with superb symmetry. The brick size is approximately 8 inches by 3 inches. All the anode placement had to be within the grout line which meant every chase had to be cut by hand. There was no way of knowing exactly how thick the walls are or what is hidden behind and as no accurate drawing exist, much of what was done was based on experience rather than engineering.
When it came to reinstating the grout and any damaged bricks, PCL used the original grout to match the colours exactly, that included using a ground brick to make sure the heritage was not lost.

There are three cathodes, two to the north side and one to the south

Contract

All the civil works were undertaken by PCL, including the electrical and connection of the anodes and cathodes.

Outcome

The outcome is 100% successful, in terms of stopping the water ingress also in terms of the buildings aesthetics.

AOP system

The installation used 2mm grade 1 titanium wire and the cathodes are copper covered steel 1.2 metre probes. The feeder cables are 1.5 mm and 4 mm respectively. One AOP Pulse box is fitted.