THE AUSTIN ADVANTAGE

QUARRY CONTINUES TO OPERATE WITH LIMITED IMPACT TO ITS NEIGHBORS

GENERAL **INFORMATION**

Location: Poland

Project Type: Surface Quarry

Products Used:

- E*STAR
- Hydromite 70
- Paradigm Software

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THE **HISTORY**

This small quarry in the south of Poland, has houses in close proximity (<500 m) with annual production of 150,000 tons per year. The typical blast parameters are hole lengths from 10 to 13 m, hole diameter 89 mm, burden 2.3 m and spacing 2.3 m. Charge weights vary from 35 to 55 kg. The local legislation order was to measure the vibrations on the ground in front of the structure as well as inside the structure on the basement's ground level.

THE **CHALLENGES**

Blasts were generating vibrations with the frequencies mostly between 10 and 20 Hz. Such frequencies resulted in increased transition of the ground vibrations to the structures and claims from the owners. The quarry was facing closure of its operation. As a precaution, they tried to blast with electronic detonators WITHOUT Austin Powder expertise and the impact on the structures got even worse.

THE **GOALS**

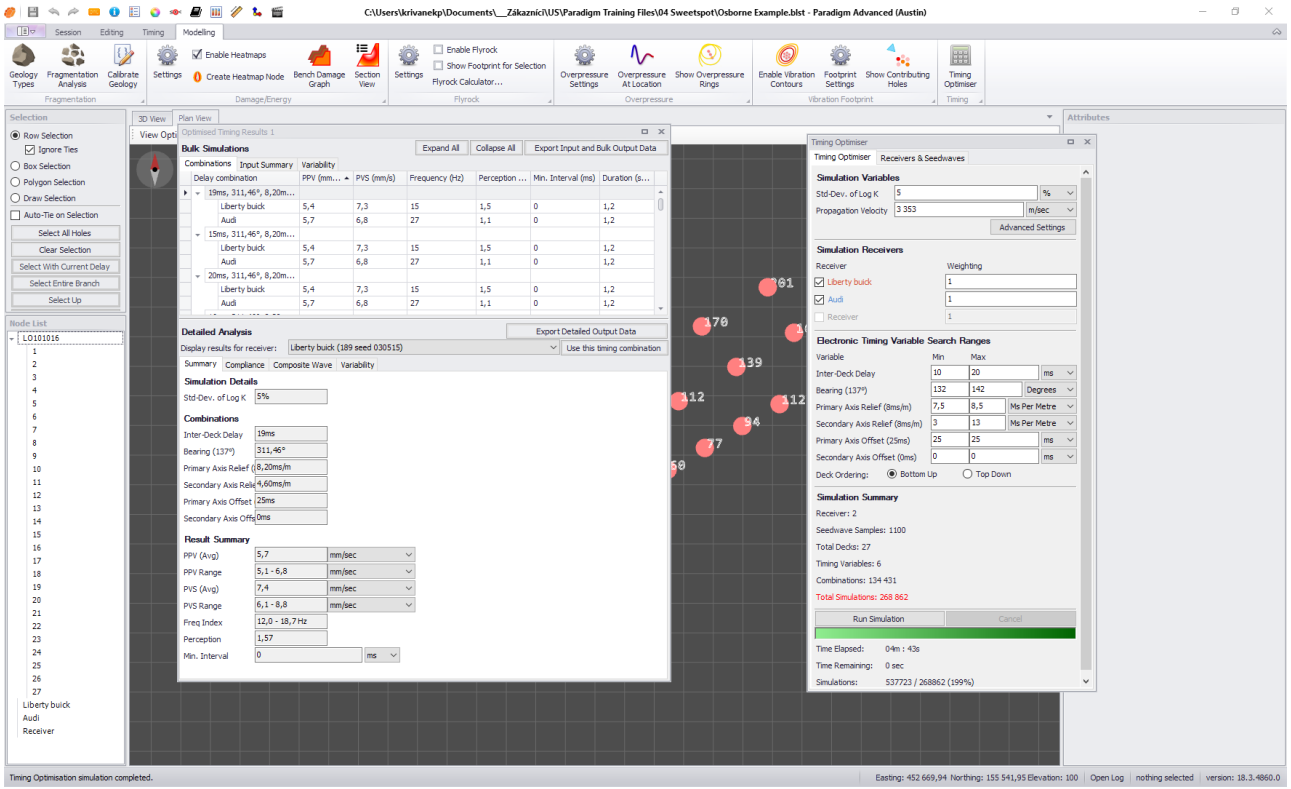
1. Increase the frequencies of the blast seismic effect.
2. Decrease vibrations on close proximity structures.

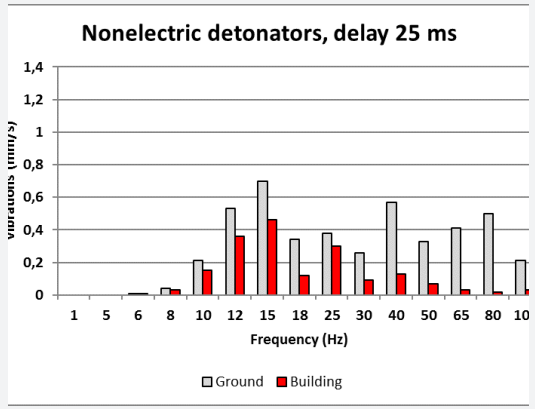
THE **AUSTIN** SOLUTION

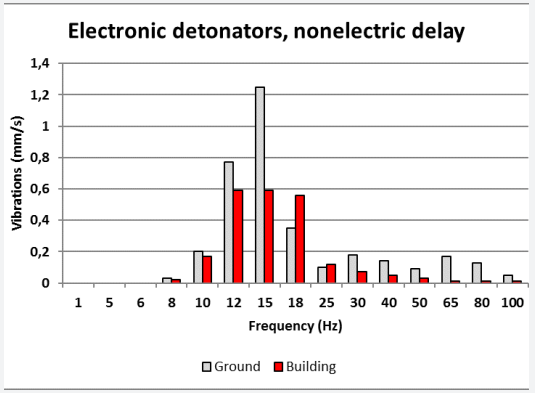
In 2014, and mainly in 2015, a series of test blasts were done. The results indicated that there was an underground water horizon, which reflected the primary seismic waves, causing the low frequencies. Sweetspot modeling was introduced to predict the vibrations with the focus on the reflected waves. The results with low frequencies were filtered out from the predictions to limit the transition to the structures.

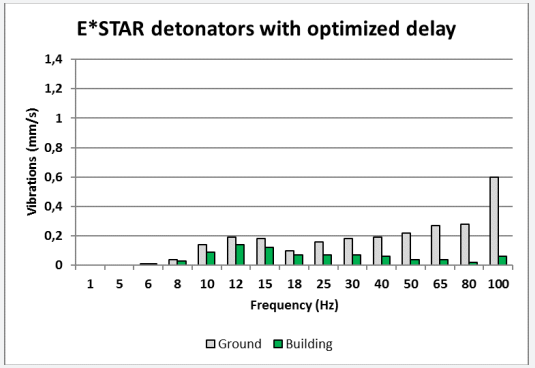
From 2016 the model provided reliable data and assistance to keep the vibration levels at a minimum, allowing the quarry to continue its mining operation. Since that time, E*STAR electronic detonators have been used for all blasting works accompanied with Hydromite 70 explosives.

THE **OUTCOME**









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