

EXCAVATING ROCK AT SLIEMA, MALTA'S CHALLENGING URBAN CONSTRUCTION PROJECT



Clouds shown at the machine is steam and not dust.

On the northeast coast of Malta, an island country in the Mediterranean, sits the country's fourth largest city — Sliema. With a population just under 17,000 residents, Sliema is a center for shopping, dining and exciting nightlife, making it a popular tourist destination for the 1.6 million people who visit the country every year.

The hustle and bustle of a thriving community are wonderful for the local economy, but this can prove a significant challenge when it comes to new urban development projects. So, when developers approached Sliema city officials about a €100 million project to construct three skyscrapers with high-end residences, retail outlets and leisure facilities, citizens had a few concerns. They worried about the noise levels, air quality, traffic congestion and the impact a major construction project would have on tourism — all of which are common concerns for urban area construction projects.

Bringing in the pros

To help alleviate these concerns, developers hired the Polidano Group, a local, privately held construction company at the forefront of many major construction projects on the islands for the past 30 years. As a business invested in the local community, the Polidano Group has a solid reputation for creating and implementing development plans that help minimize inconvenience for the community.

According to Ian Napier, general manager for Polidano Group on the Sliema project, the construction site is surrounded by apartment buildings, as well as the Villa Drago, one of Sliema's few surviving heritage buildings. "We knew it was going to be challenging to keep noise and dust levels at acceptable levels," he said.

The Polidano Group's team got to work quickly, developing an excavation plan that would account for all of the community's concerns. Restrictions were put in place to limit the amount of noise and dust, as well as the number of trips trucks could make to and from the site. And, to ensure the crew complied with the restrictions, real-time cameras with microphones were set up around the perimeter so the government could monitor progress 24 hours a day.

Challenging jobsite

Preparing the site for construction required the team to excavate the rocky ground down to sea level and haul material to an offsite location. Traditional excavation methods like rock saws, excavators, as well as drilling and blasting methods, would create too much disturbance, so Polidano had to get creative.

"We've been doing construction in Malta for a long time, so we know how challenging it is to dig in the rocky ground conditions," said Gordon Polidano, manager of production operations for Polidano Group. "It's one of the reasons why we invested in a very specialized machine that is also used for surface mining applications."

The machine Polidano was referring to is the company's Vermeer T1255 Commander® 3 chain drive Terrain Leveler® surface excavation machine (SEM). The group has used the Terrain Leveler SEM on other challenging projects in industrial areas and for the construction of the Playmobil FunPark Malta. "We evaluated all of our options and determined the Vermeer Terrain Leveler SEM was the right machine for this job," Polidano explained. "It's a precision rock excavating machine that is much quieter and produces less vibration than other methods. By using the Terrain Leveler SEM, we knew we could work closer to buildings, do an effective job of dust containment and produce more manageable- sized material that would be convenient to haul away and could be reused."

Vermeer Terrain Leveler SEM gets to work

The Polidano Group delivered the Vermeer T1255III to the jobsite between two buildings. From there, a team of four got to work; one person to operate the Terrain Leveler SEM, one person to operate an excavator and two individuals to support operations. Napier said they would never have been able to get by with such a small team using traditional methods.

"On most days, we only have three machines working at a time; the Terrain Leveler SEM, an excavator and a truck to haul material," Napier added. "This arrangement was much more productive and cost-effective than other excavation methods. It also produced less dust and helped us be respectful of the neighbors surrounding the site."

To get to the required level (sea level), the Polidano Group made several passes with the Vermeer T1255III. In each pass, the surface excavation machine's patented tilt-head attachment used top-down cutting and dug up to 68.6 centimeters (27") deep and 365.8 centimeters (144") wide. The Terrain Leveler SEM created a more consistent-sized product, making it efficient to load onto the truck.

"The size of the material is extremely important for the efficiency of this project," Polidano commented. "Traffic congestion and pollution control are major concerns in the area, so we've been limited by local officials to 50 trips per day. Since the material is smaller, it heaps better than larger material. So, we can load more onto each truck and make fewer trips."

Precision work

While the Vermeer Terrain Leveler SEM is efficient in the middle of the cut, working near edges and around existing structures is where the machine is most impressive. "Vermeer offers two different models of the T1255III Terrain Leveler SEM — one with a chain drive attachment and another with a direct drive attachment," Polidano explained. "We purchased the T1255III with the chain drive attachment because it has the capability of making up to a 90-degree vertical wall. We also used a GPS system that helps us stay on target, which is particularly important when digging next to buildings."

The Polidano Group used the optional water system with their Terrain Leveler SEM to help keep the material humid and help reduce the amount of dust particles in the air. The team also had an archaeologist on hand to inspect the site regularly in case the team uncovered anything noteworthy on the project.

The crew's precision work has impressed local city officials. During weekly meetings held with municipalities management, overall feedback has been positive. The Polidano Group has done an excellent job of keeping sound and dust levels in check, which has helped keep citizen complaints to a minimum. In fact, the excavation process has gone so well they received permission to operate the Terrain Leveler SEM during the peak tourism summer months.

"It's a huge win for our team," Polidano said. "The whole country has a ban on excavation work during that busy time, but we've been told that since the work we're doing at Townsquare has had minimal effect on the surrounding community, they are willing to make an exception."

Up next

As the Polidano Group wrapped up the excavation work on this project, one major hurdle remained — removing the Terrain Leveler SEM from the site. After reaching sea level, approximately six meters (20') deeper than when they started, the crew was tasked with constructing a ramp to get the machine out of the pit. After that, it was loaded onto a single trailer and driven out.

Up next for the Polidano Group and its Terrain Leveler SEM is another excavation project at the prestigious Westin Dragonara Resort, where they will help construct a three-level parking garage.

Now that more people have had a chance to see what the Polidano Group can do with the Terrain Leveler SEM, the group is receiving strong interest from other developers for additional projects. To help keep up with the demand, Polidano Group added a second T1255III Terrain Leveler SEM to their fleet.

Outside support

With success on this project and an impressive track record, the Polidano Group stands among the best of the best for construction work in the country of Malta. Polidano and Napier agree partnering with a quality equipment dealer has been of great help. The company has relied on the team at Vermeer Italia S.R.L. for equipment, service and parts support since investing in its first Vermeer track trencher back in 1989.

"Vermeer Italia has been instrumental in helping us dig in rock," Polidano explained. "This type of work is hard on machines and requires maintenance and consumable components. The team at Vermeer Italia always makes sure we have what we need and is great about supporting us on the islands in a cooperative partnership with a local company, Attrans Commercials Ltd. They do whatever it takes to help keep us productive, and we appreciate it."

With the challenging Sliema excavation project behind them and several high-profile projects slated for the future, it's going to be a busy year for The Polidano Group, and that's the way they like it.

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