



NEWHURST QUARRY LOUGHBOROUGH

Typical Strength Requirement:	1N/mm² –1.5 N/mm²
Density Requirement:	500kg/m³
Volume Requirement	4600m³

Scope of Works: Propump provided an Ultra-light weight pumpable material, this material had been designed to be placed around a new “energy recovery” plant, the mass void filling material ended up 4 metres deep, 5 metres wide, it was laid in a “trench” around the perimeter of the whole building, split into two main phases. Propump processed and pumped around 300 m³ per day. Pumping a length of 120 metres through flexible and steel hoses.



These two images show the comparison of heights from the start of works to the last pour, illustrating the 4 metres of lift and the draft angle of the excavated face.

Background:

Foam Concrete of a density no higher than 500kg/m³

Foamed Concrete ground stabilisation

Material requirements:

- Pumpable:
- Fluid:
- Self compacting:
 - Impossible to have workers in the area
- Self levelling:
 - The foamed concrete will evenly distribute the load of the tank
- Light weight:
 - The specification called for a 500kg/m³ material



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Phase 1

This initial phase required the immediate voids to be filled, this was prior to thorough ground excavation and only the damage immediately visible could be assessed and corrected. A 3d scanner had been used to assess a 300m³ void under the corner of tank 1. These tanks were moving downward at a rate of 5mm per week. The client wanted to save their assets and as such wanted to stabilise the immediate ground below the tanks before the structure became unsave-able. Propump provided a light weight material that would flow and fill the void in a matter of days, whilst being able to maintain a safe distance.



Phase 2

Some weeks after the initial filling, Propump were again asked to return, this time to fill several more voids under than concrete tanks. Once ground excavation had been carefully undertaken, it was clear that there were many large voids, this time closer to 1200 m³ was require in various places to secure the structures.



In total, at least four large voids that spanned the width of both tanks, these needed to be filled from both sides, Material was excavated in order to assess the extent of the voids or sinkholes.



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Benefits

- Pumpable
- Reduced labour / manpower to place
- light weight
- self consolidating
- no vibration required
- insulating
- easily machinable / re-excavatable



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