MPH Civil Engineering Solutions

Case Study - New Press Factory for G-TEM

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‘An exemplary project, delivered through comprehensive value engineering solutions, delivered on budget and on time”

Project Summary

- Budget: £4.3m
- Duration: 14 months

G-TEM is an engineering and manufacturing firm that had its headquarters based at Gloucester Business Park. The company manufactures high quality automotive pressings and sub-assemblies for leading car manufacturers.

The recent construction of a new factory provided an extra 120,000 sq. ft of space with room for future expansion.

MPH successfully tendered for the groundworks package following negotiations and early involvement in the scheme. The scope included:

- Reduced level dig and disposal of 20,000 cubic metres
- Imported capping (15,000 cubic metres)
- Construction of substructure for the factory including isolated areas of CFA piling to press pit
- Diversion of an existing 1500mm diameter storm sewer running underneath the new factory, including associated manholes
- On site storm drainage,1400 linear metres up to 600mm diameter pipe
- Attenuation tanks of 2500 cubic metres
- Foul drainage; 450 linear metres, 100/150mm diameter to 5 metres deep
- Precast concrete ground beams, insitu concrete retaining walls and dock levellers
- 6000 square metres of reinforced concrete hardstandings
- 7000 square metres of tarmac roads and car parks
- Associated kerbing, linear drainage, footpaths and landscaping

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Our Approach

Although much of the scope is considered routine and commonplace on many similar types of factory and warehouse, MPH continued to identify ways to add value and exploit opportunities to mitigate cost, risk or time impacts.

The Challenge:

- There was a significant requirement for off-site spoil and imported fill. This was due to the considerable footprint and because the final elevations could not meet planning constraints and maintain a net zero mass haul balance.

Our Solutions:

MPH generated cost savings and identified opportunities for added value for this scope element as follows:

- The full depth hardstanding and footprint foundations were altered to utilise recycled concrete and masonry capping underneath a regulated MOT Type 1 surface. This saved costs and provided a new home for the recycled materials.
- The imported fill and exported overburden were hauled on the same trucks on a backloaded regime, greatly reducing the carbon footprint.
- The overburden off site was used to engineer a landfill cap as opposed to the contents of the landfill, resulting in landfill tax savings and at the same time repurposing the material.
- 5,000+ cubic meters of originally intended spoil waste was retained on site by raising car park and hardstanding elevations with drainage fall revisions. Topsoil was also retained on site and used in revised landscaping bunds.

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Challenges & Solutions

The Challenges:

- The original scope baseline was originally planned to commence following the diversion of an existing 1500mm diameter storm sewer that flowed underneath the new building footprint.
- Forming part of the pre-construction enabling works included the diversion of this sewer and the construction of the new perimeter sewer installation. However, these early works had not been undertaken, therefore MPH were tasked with including this scope within our package and to consolidate this into the original schedule baseline. The scope addition was 15 to 20% of the contract value, however, a schedule overrun was not sought by MPH in order to maintain the client's milestones.

Our Solutions:

- The existing sewer was between 3 and 4 meters below finished floor level (FFL) However, the ground beams at the perimeter of the building did not have sufficient cover to safely straddle the 1500mm pipe without the risk of sewer collapse or differential settlement.
- To mitigate this, the ground beams at the sewer crossing interfaces were bridged using CFA piles that our subcontractor for the main press pit structures undertook whilst already mobilised to the site. This significantly reduced unit costs for the piles and sewer straddling execution.

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Added Value

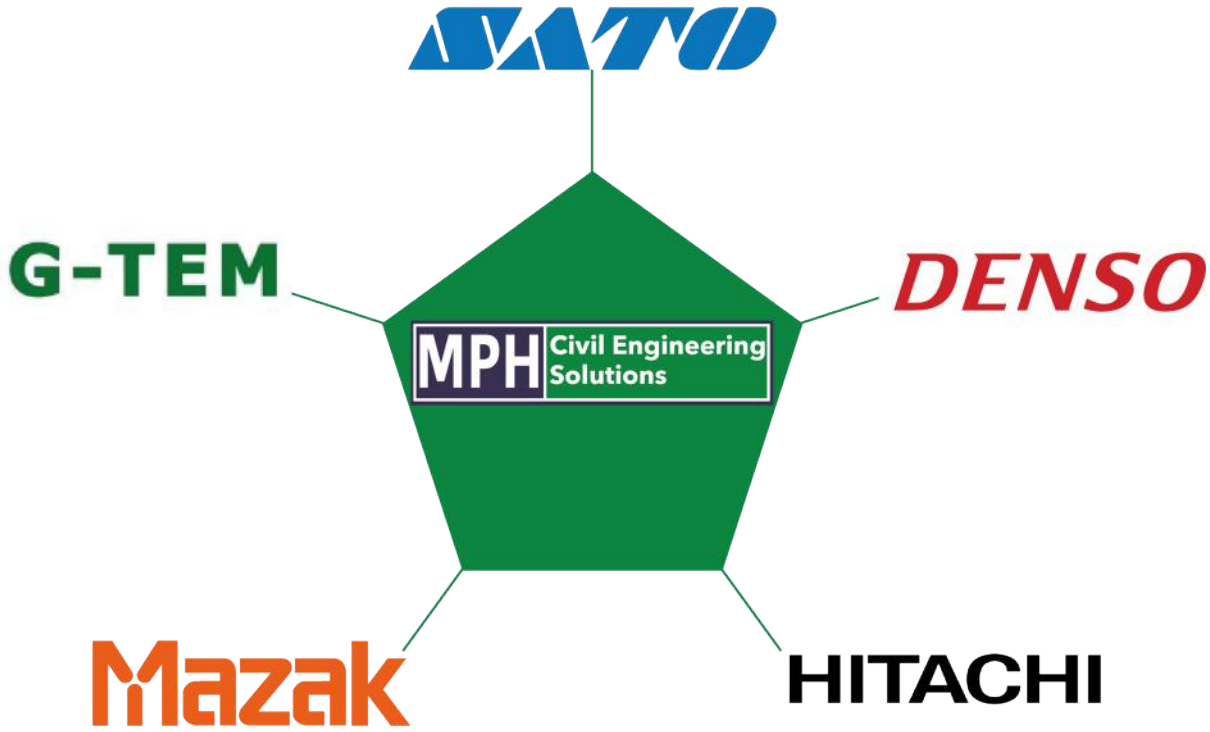
Client satisfaction
We share many of the same values as our clients, in particular Takenaka, who focus on integrity, business ethics, value for money and innovation.

Takenaka are a trusted Project Management service provider that specialise in Japanese-UK supply chain capital developments. Our relationship started in 2005 for client Futaba at Dove Valley Park near Burton upon Trent, where we installed a distribution facility dock leveller, ramp and retaining walls.

Through recognition of expertise, knowledge and quality delivered for each project secured with Takenaka, we have continued to build a strong long-standing and trusting partnership for over 15 years.

We have continued to provide Takenaka with complete solution packages for the following clients:

- SATO UK Ltd - Harwich
- Denso – Telford
- G-TEM – Gloucester
- Mazak – Worcester
- Hitachi - Bolton



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