



## CASE STUDY

# MASHCO - MANCHESTER AIRPORT HYDRANT PUMPS

CLIENT: FABRI CONSULTING  
ENGINEERS

LOCATION: UK

### Highlights:

- Delivering Critical Infrastructure Upgrades in a Live Airport Environment
- Integration with existing infrastructure
- Strong focus on buildability and risk mitigation



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## THE CHALLENGE

Arthian was appointed by Fabri Consulting Engineers to deliver civil and structural design services for the upgrade of the Manchester Airport Hydrant Pumping System. The project involved replacing eleven hydrant pumps and constructing a new switchgear building within a highly constrained, live operational environment.



## THE CHALLENGE (continued)

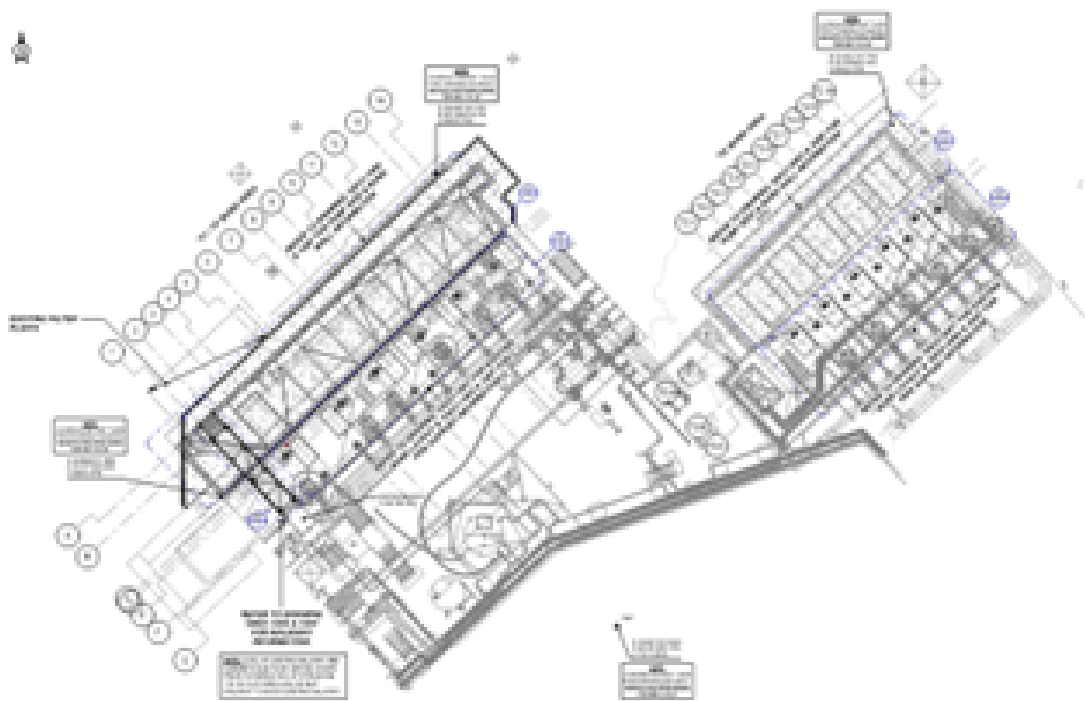
Delivering complex infrastructure upgrades at a major international airport required a highly coordinated and risk-aware approach.

The replacement pumps were positioned in front of the existing installations to maintain operation and allow civil and electrical works to be completed prior to pump changeover and commissioning. To accommodate this arrangement, the existing bunded pump platforms were extended to provide full containment for the new installations.

Key challenges included:

- Working within a live, high-risk industrial environment with no disruption to operations.
- Navigating a dense network of existing and unidentified underground services.
- Limited availability of as-built drawings or design records for existing infrastructure.
- Tight working spaces impacting construction sequencing and buildability.
- Compressed design and construction programme.

In addition, the replacement pumps needed to be installed ahead of the existing infrastructure to enable seamless changeover and commissioning, requiring innovative extension of existing bunded platforms while maintaining full containment.



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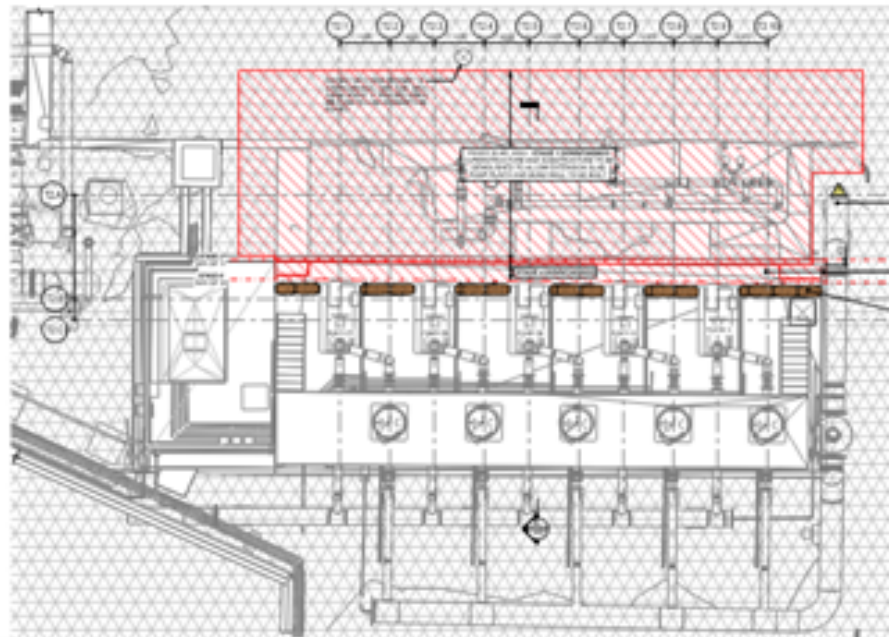
# THE SOLUTION

Arthian delivered a robust and practical design solution. Combining technical expertise with a clear focus on constructability. Key elements included:

- Development of a comprehensive Basis of Design, ensuring clarity and alignment from the outset.
- Design of reinforced concrete plinth extensions and bund walls, engineered to accommodate complex load cases and ensure long-term durability.
- Implementation of a Class 1 containment system in line with CIRIA C736 standards.
- Integration of steel access solutions, including steps and walkways, improving safety and operational accessibility.
- Careful coordination with existing infrastructure, including detailed tie-in solutions to maintain structural integrity and watertight containment.
- Temporary works, including a sandbag containment system, enabling safe construction while maintaining operational compliance.

# PROJECT OUTCOMES

- **Successful delivery of two extended pump platforms, fully integrated with existing infrastructure.**
- **Pumps installed, aligned, and commissioned with zero disruption to ongoing operations.**



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