

atac



Case Study Phosphorus and iron-compliant tertiary upgrade

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Phosphorus and Iron-Compliant Tertiary Upgrade CASE STUDY



ATAC Solutions delivered an essential tertiary upgrade at a Water Recycling Centre in West Northamptonshire to meet tightening Environment Agency requirements, with emphasis on phosphorus and iron in the final effluent. A three-stage phosphorus removal train: flash mixing, flocculation, and MITA pile cloth filtration. It was designed, supplied, automated, and commissioned so the site could achieve stringent consent limits reliably and operate with straightforward monitoring through an integrated control panel.

The challenge

The client needed to comply with ambitious effluent quality targets driven by EA expectations, notably for phosphorus and iron, while sustaining robust day-to-day operation during and after commissioning.

Consent design points (target performance)

Parameter	Requirement
Total suspended solids (TSS)	Average 10 mg/L
Total phosphorus	Annual mean 0.5 mg/L
Iron	95th percentile 4 mg/L



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Our solution

We implemented an integrated three-stage phosphorus removal system:

Flash mixing tank

Rapid co-agulant distribution for an effective primary reaction (chemical dosing installed by others).

Flocculation tank

Gentle, optimised mixing to build dense, phosphorus-rich flocs.

MITA cloth filter system (4/20 unit)

Advanced filtration to capture solids and phosphorus-associated matter ahead of final discharge.

Plant operation is coordinated through a fully automated, integrated control panel, giving dependable performance and transparent monitoring for operators.

Scope of work

- ↻ Full mechanical and electrical installation
- ↻ Mixing and attenuation tanks
- ↻ Custom access platforms and handrails
- ↻ Pipework, control systems, and logistical support
- ↻ Commissioning in close liaison with the client to secure regulatory compliance

Results

Since commissioning at the end of April 2025, performance has strengthened confidence in local environmental protection. Total phosphorus removal is approximately 0.41 kg/day under typical flows, rising to approximately 3.8 kg/day at maximum flows (figures derived from average and maximum flows based on design removal assumptions). The upgrade supports improved effluent quality in the surrounding catchment and showcases ATAC's end-to-end delivery from process design integration through MITA tertiary filtration and intelligent control.

