

Case Study

Residential Redevelopment of a Historic Mill

Client

Residential Developer

Remediation Value

£500,000

Site

A former mill complex, located in a Cotswold valley on the outskirts of Bath. Lengthy and mixed industrial heritage. Undergoing redevelopment and conversion of existing buildings to high quality residential units.

Contaminants

Lubricating oil (free product, soil and groundwater), chlorinated VOCs, asbestos, chromium and nickel.

Remediation Methods

Selective removal of heavy oils.

Bioremediation of hydrocarbon-impacted soils.

Stabilisation/solidification (s/s) of metals and soil containing asbestos fibres.

Delineation and targeted excavation of chromium impacted soil.

Segregation and hand picking of visible asbestos.

Challenges

- Compact site, with many existing (listed) buildings and new construction underway during remediation.
- River frontage; site liable to flooding in the winter.
- Flood wall construction ongoing during remediation.

- No access to the public sewer network and no consent to discharge treated water to the river.
- Narrow, steep access restricted vehicle movements.
- Sensitive, rural residential setting

Approach

- Selective recovery of oil free product, using an in-ground skimming system, deployed between buildings in wells and trenches, to minimise groundwater abstraction and treatment needs.
- Targeting of cVOC impacted groundwater using vacuum extraction and removal for offsite treatment.
- Segregation and hand-picking of visibly asbestos contaminated material to enable site reuse.
- Ex situ bioremediation of hydrocarbon and VOC impacted soil, followed by s/s to address metal leaching and potential asbestos fibre release.
- Integration of flood wall designs into the remedial strategy to enable beneficial reuse of stabilised materials in the extensive foundation excavations.
- Real-time onsite delineation of heavily chromium impacted shallow soil to minimise disturbance of existing infrastructure during remediation.
- Close engagement with regulators throughout to obtain support for the proposed remedial approach.
- UK Remediation supervised groundworks undertaken by others, to provide environmental monitoring and excavation validation for inclusion in the final report.

On site, near real-time assay of chromium impacts in shallow soils was undertaken by a trained UKRL engineer, using a portable XRF device. This enabled rapid excavation and backfilling in time-sensitive locations, whilst avoiding live services close to the identified hotspots.



Excavation (left), installation and reinstatement (right) of free product recovery trenches facilitated removal of viscous heavy oil from beneath the retained historic buildings.

