Project Case Study: Sweet Street, Leeds

Services: Demolition

Demolition | Enabling Earthworks | Remediation | Drilling | Civil Engineering | Plant & Technology | Geotechnical | Environmental | Planning | Renewable Energy

The Sirius Group: Confidence you can build on

Client: Commercial Estates Group

Project: Demolition of 3 former factory buildings, Sweet Street, Leeds City Centre

Duration: 5 months

Services: Demolition, Remediation and Enabling Earthworks

Sector: Commercial

Contract value: £580k

View of the Temple Works roof with its 66 equidistant glass conical skylights and the demolition site to the right

Site Summary

The site was initially developed in the late 1800s with a linen factory in the centre and north of the site and some residential properties in the southwest corner. By the early 1900s the residential properties were no longer present and the linen factory had extended across the west of the site covering the footprints of Buildings 1 and 2. The factory had extended into the northeast of the site (Building 3) by the 1930s.

Project Description

Soft stripping and removal of all asbestos containing materials. Demolition of existing buildings by hand and mechanical methods. Real time vibration monitoring was undertaken to ensure the demolition works didn't damage the neighbouring listed building. Safe decommissioning and removal of fuel both known and unknown at the tender stage. Remediation of any additional contamination identified following demolition of the buildings. Crushing of all hard standings and other hard materials to produce a recycled aggregate for reuse on site and reengineering of site won soils.

The buildings on the site were located immediately to the south of an operational factory building, and the Grade I listed Temple Works Main Mill building.

Because of the close proximity of these buildings to the buildings requiring demolition the works required careful planning, frequent liaison with the design team, regulators, and site neighbours.

Aerial view of the site and the three buildings to be demolished

Full validation of the works via chemical and geotechnical testing demonstrating compliance with the Earthworks Specification and Remediation Statement.

Site Features

The 3 buildings requiring demolition were each constructed differently, two of the buildings also contained basements, therefore a good understanding of their construction was required to safely demolish each building. Specialist small demolition plant was utilised on the ground floors spanning basements so as not to impose significant loads on the floors.

Refurbishment & Demolition Asbestos Survey identified significant quantities of asbestos in all 3 buildings, which required careful removal in advance of the demolition works.

A risk of projectile masonry from Temple Works was identified which required additional control measures to be put in place including exclusion zones, protection fencing, mandatory wearing of face guards and vibration monitoring and early warning communication system put in place.

As demolition advanced services unknown at the time of tendering were exposed and required isolation and capping off in the footpath.

Liaison with Leeds City Council's appointed heritage officer was required to ensure the newly exposed Temple Works façade was conserved and finished to an acceptable standard.

Project Brief

The buildings were to be demolished sequentially, with internal asbestos strip out and electrical isolation commencing first, followed by the general soft strip. The interface points between the three buildings and the adjoining occupied factory units and Temple Works were to be carefully, and under close control, cleanly cut back to facilitate follow on works. Localised support of the Sweet Street structures as necessary to prevent local collapse of the superstructure as this is undertaken was also required.

All elements of the work should be carefully evaluated to ensure that geotechnical, vibrational, percussive impact on Temple Works is minimised. The demolition methodology also needs to address measures to safely work alongside the Grade I Temple Works.

Steel roof trusses being removed by crane from Building 3

Break in slab and arches within Buildings 3 & 2 respectively

Building 3 Suspended floor – Saw cut along 5.0m off-set with Temple Works

Demolition progressing in Building 3

The works needed to comply with the Demolition Specification, Earthworks Specification & Remediation Statement. All works were to be fully validated to demonstrate compliance with the above documents, enabling all relevant planning conditions to be discharged.

The works were also to be regularly inspected by the client's representatives and designers (Arup).

Demolition & Enabling Phase

Key aspects demolition and enabling works:

- Removal of all asbestos containing materials.
- Soft stripping internals of all buildings.
- Vibration monitoring and reporting throughout.
- Safe retention of all heritage materials such as stone setts, coping stones, bricks, and cast-iron columns.
- Decommissioning and removal of a heavy heating oil tank not known about at tender stage.
- Facilitate phased ground investigation undertaken in 3 parts as each building was demolished.
- Crushing of all hard standings and other hard materials to produce recycled aggregates for reuse on site.
- Reengineering of site won soils.
- Full validation of the works via chemical and geotechnical testing to demonstrate compliance with the Earthworks Specification & Remediation Statement.

Heating oil tank inside one of the arches in Building 2 – tank contains heavy heating oil. To be cleansed/degassed and removed

Drone image showing remnants of Building's 2 & 3 with Temple Works in the background (image courtesy of Arup)

Project Completion

A fully warranted validation report was prepared incorporating all chemical, geotechnical, environmental testing and supporting analysis to demonstrate that the objectives of the approved Remedial Strategy had been successfully achieved.

Yorkshire Water and Leeds City Council Highways regularly inspected and approved drainage and highway construction respectively.

The site is now available for construction of 2 no. apartment blocks and associated car parks for use by existing tenants.

Careful inspection to make sure each stage is safe to proceed

Sweet Street façade removed and replaced with temporary fencing

Crushing hard materials

Completed site

Completed site ready for development

Demolition, earthworks, remediation, drilling and civil engineering contractors.
Geotechnical, environmental and planning consultants. Renewable Energy.

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