

Full Scope Refurbishment of Storage Tank 2026

Project Overview



C&D Access was engaged to deliver a full-scope, out-of-service refurbishment of an above-ground storage tank at a major UK terminal. The asset required extensive mechanical renewal, advanced inspection, surface preparation, and coating readiness works due to identified degradation, coating breakdown, and integrity concerns across multiple structural areas.

The delivery of this complex turnkey solution included a combination of confined space entry, simultaneous multi-discipline activities, extensive non-destructive testing (NDT) requirements. Full tank floor, pipework, and sand bitumen removal as well as replacement were also delivered. Successful completion of the project required tightly controlled sequencing, rigorous safety management, and continuous co-ordination between inspection, mechanical, and access teams.



Engineering



Fabrication & repair



Civil works



Inspection

Project Execution Strategy

The works were delivered through a phased, controlled approach to ensure safety, quality, and technical integrity were maintained throughout all stages.

Key phases included insulation removal and access preparation, surface preparation, advanced inspection, structural replacement works, and final verification.

The integration of multiple high-risk activities within a confined space environment required detailed planning, permit-controlled execution, and strict adherence to environmental and inspection hold points.

Scope of Works

1. Isolation, Preparation, and Access Enablement

The tank was fully isolated and prepared for entry. Existing insulation was removed from the tank shell, including the extraction of all insulation pins to expose the underlying steelwork. This enabled unrestricted access for inspection and refurbishment activities and formed the foundation for subsequent surface preparation works.

2. Surface Preparation and Cleaning

A dual-method surface preparation strategy was implemented to address varying corrosion conditions and access constraints:

- **Internal Preparation:** Abrasive blast cleaning (Sa 2.5) was undertaken on tank roof, shell, nozzles and sump areas to remove corrosion products and failed coatings.
- **External Preparation:** Bristle blasting was used in restricted or sensitive areas where conventional blasting could not be safely or effectively applied.

This approach ensured consistent surface cleanliness and profile requirements were achieved across all operational zones, while maintaining control over dust, contamination, and substrate damage.



Removing tank insulation using Rope Access



Using state-of-the-art technology for Phased Array NDT

3. Advanced Inspection and Condition Assessment

A comprehensive out-of-service inspection programme, in accordance with EEMUA159 requirements, was executed to establish the structural condition of the tank:

- External visual assessment to identify corrosion, coating breakdown, deformation.
- Phased Array Ultrasonic Testing (PAUT) corrosion mapping of the tank shell to determine remaining wall thickness.
- Ultrasonic thickness measurements of the roof, sump, shell, and all nozzles.
- Magnetic Particle Inspection (MPI) of sump and shell nozzles to detect surface-breaking indications.
- UAV-assisted roof inspection to safely assess roof structure condition without the need for working at height.

Inspection data was used to support engineering assessment and inform the scope of structural repair works.

4. Tank Floor Replacement, Coil Box Removal, Pipework Replacement

A major element of the project involved full replacement of the tank floor, coil box removal and overplating repairs. This critical scope included:

- Controlled removal of the existing tank floor in segmented sections to maintain structural stability.
- Preparation and verification of the base interface prior to installation.
- Installation of a new tank floor in accordance with design requirements and tolerances.
- Removal and replacement of holding down bolt chairs to restore anchoring integrity.
- Installation of a mid-rail system to improve structural alignment and long-term performance.
- Removal of coil box and overplating repairs to tank roof.
- Full replacement of all tank pipework.

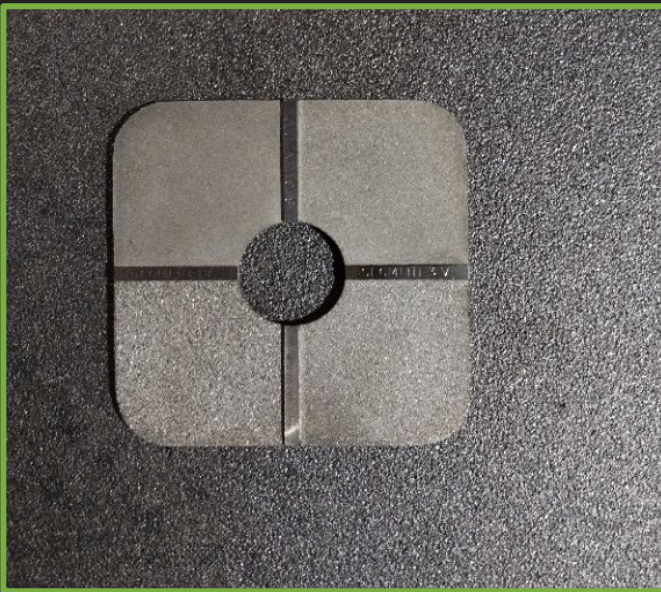
These works were executed under confined space conditions with continuous atmospheric monitoring and strict permit control.

5. Mechanical, Inspection, and Access Coordination

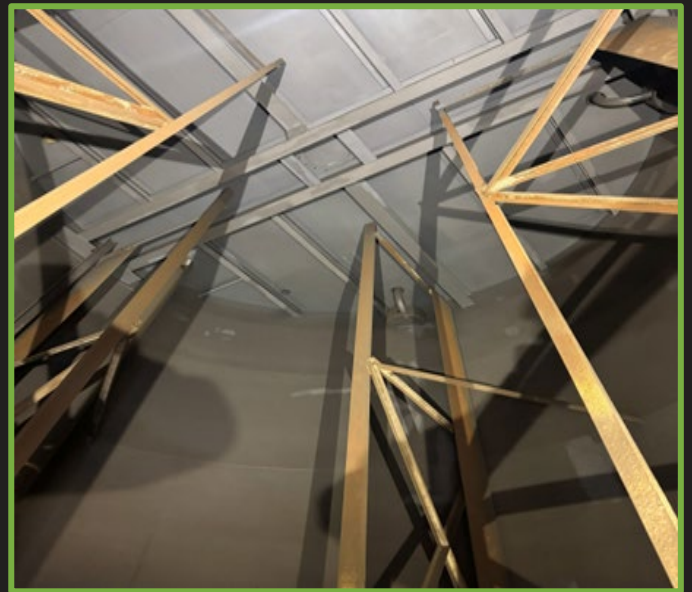
Due to the overlapping nature of blasting, inspection, and structural replacement activities, detailed interface management was essential.

Key coordination controls included:

- Sequencing of blasting works to prevent contamination of inspected or prepared surfaces.
- Inspection Test Point (ITP) to ensure completion of inspection, welding and coating works prior to progression of works.
- Daily co-ordination briefings between disciplines to manage confined space occupancy and simultaneous operations.
- Controlled material handling and waste removal to maintain safe working conditions and environmental compliance.



Surface roughness medium using ISO comparator (G)



Post lining application on tank shell and roof



Post lining application of tank roof structure



Post lining application of tank roof structure

Health, Safety & Competency

All personnel involved in the works were required to comply with confined space entry procedures, working at height regulations, and site-specific risk assessments.

Key requirements included:

- Confined space awareness training for all entrants.
- Atmospheric testing prior to entry and continuous monitoring where required.
- Minimum one nominated first aider per 20 personnel.
- Safety Supervisor certified as IRATA Level 3. All rope access personnel certified to IRATA Level 1, 2, or 3. IRATA Level 3 responsible for planning, rigging, and worksite control.
- All welders certified to ISO 9606.
- Third party inspection carried out by Level 3 Coating Inspector.
- NDT personnel certified to ISO 9712 Level 2 in relevant disciplines.



High Voltage Holiday Testing

Environmental & Material Controls

To optimise coating performance and adhesion, C&D Access maintained tight environmental controls:

- Ambient temperature controlled between 10°C and 25°C.
- Relative humidity kept below 75%.
- Steel temperature maintained at least 3°C above dew point prior to blasting and coating.
- Paint materials and abrasive grit stored in dry, ventilated conditions away from direct sunlight and contamination.

Forced ventilation was established to support safe working conditions and compliance throughout the project.



DFT Paint Thickness Measurement

Project Outcome

C&D Access successfully delivered a complex, multi-discipline refurbishment of an above-ground storage tank through precise execution planning, advanced inspection techniques, and controlled structural repair works.

The integration of PAUT corrosion mapping, UAV inspection technology, hybrid surface preparation methods, and full tank floor replacement demonstrated the ability to manage technically demanding scopes within a confined space environment.

The project was completed within 8 weeks with a strong focus on safety, quality assurance, and environmental compliance, resulting in the restoration of structural integrity and extension of the tank's operational service life.



Fully refurbished tank



Zero

Zero accidents



1st Time

First time client used one-stop turnkey solution on a tank refurbishment.



Full Scope

NDT Inspection

Fabrication

Engineering

Surface Preparation / Coating

Civils



8 Weeks

Start to finish



< 1%

Weld repair