



CASE STUDY

ISLE OF BUTE TIER 1 PRA INCLUDING EXPLORATORY INVESTIGATION

CLIENT: CONFIDENTIAL

LOCATION: SCOTLAND

HIGHLIGHTS

- Comprehensive Land Contamination Assessment
- Risk-Based Investigation & Regulatory Compliance
- Planning Support for Safe Development



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THE CHALLENGE

Arthian was appointed to deliver a Tier 1 Preliminary Risk Assessment (PRA) to support the proposed development of a new children's play park on the Isle of Bute, located next to Rothesay harbour and esplanade. The development aimed to provide enhanced recreational amenities for the local community. From project initiation, communication between Arthian and Argyll & Bute Council (ABC) was open and consistent, supported by an initial start-up meeting that established project expectations and required deliverables.

The Tier 1 PRA represented the first stage of the planning process and was undertaken in accordance with the Land Contamination Risk Management (LCRM) framework, which provides the current UK industry standard for assessing land contamination risk (Environment Agency, 2020). As part of the PRA, a detailed contaminant linkage assessment was developed to identify potential source-pathway-receptor (S-P-R) relationships and determine areas requiring further investigation.

THE SOLUTION

During the desk-based assessment, historical mapping, archival sources and historic aerial imagery revealed that the site was formerly occupied by an extensive shipyard complex. Ships from Rothesay Bay historically docked at the location for maintenance and repair prior to the site's eventual decommissioning and subsequent reclamation. This long history of industrial land use meant the site had the potential for contamination associated with shipbuilding, repair activities and reclamation materials of unknown origin.

Given the range of potential contaminants identified during the PRA, several plausible contaminant linkages were confirmed. In accordance with LCRM Stage 2 guidance, an exploratory ground investigation (GI) was designed to characterise the near-surface soils and support a Generic Quantitative Risk Assessment (GQRA). Arthian collaborated with ABC to procure a suitable contractor to undertake the GI, while providing on-site supervision, logging and sampling of soils in accordance with BS 10175:2026 – Investigation of Potentially Contaminated Sites (British Standards Institution, 2026). The GI was designed with the anticipated shallow play-park foundations and sensitive end users (children and the general public) in mind.



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THE SOLUTION

The subsequent GQRA assessed potential risks to human health using LQM/CIEH S4UL (2015) and CL:AIRE (2010) assessment criteria for public open space land use. In addition, a Water Environment risk assessment was completed in line with updated SEPA guidance, given the site's coastal proximity and historic land reclamation.

The quantitative results enabled Arthian to refine the Conceptual Site Model (CSM) and update the contaminant linkage assessment based on measured soil conditions rather than solely historical evidence. This strengthened the evidence base required for planning and confirmed which linkages remained credible and which could be discounted.

Throughout the project, Arthian provided technical leadership, regulatory compliance expertise and clear communication with ABC. By delivering the PRA and GI in accordance with LCRM and BS 10175:2026, Arthian ensured that the council had a robust, defensible assessment suitable for planning submission. This allowed the project to progress confidently through the planning process, with clear evidence supporting the safe future development of the children's play park.



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