

## Case Study: Waterloo Industrial Estate

**Client:** Pembrokeshire County Council (PCC)

**Location:** Pembroke Dock

**Delivery Period:** 2014 to present

**Contract Value:** ~£180,000

### Relevant Services Provided:

- Main/Principal Contractor;
- Instructed under South West Wales Framework Ground Investigation Services 2014;
- Review of historical investigation reports to implement an up to date human health and controlled waters risk assessment with the appropriate current guidance;
- Assessment of liability regarding the site using qualitative and quantitative contamination risk assessment;
- Detailed Construction Phase Plan and Method Statements to protect the investigation team and identified sensitive environmental receptors This included the use of aquifer protection measures to limit cross contamination across a range of potentially sensitive geological regimes;
- Design and supervision of a focused ground investigation including windowless sampling, cable percussion drilling and rotary drilling to create a long-term monitoring network. This included multiple site owner liaison to secure land access across the industrial estate.
- Field groundwater monitoring (including in-situ parameters), sampling and interpretive assessment relative to tidal and seasonal changes;
- In depth knowledge of site specific hydrogeological and hydrological regimes;
- Determination of whether the site could be determined as Contaminated Land under Part 2A.
- Development of Remediation Options Report and Method Statement.
- Continued liaison with NRW and local authority to agree feasibility assessment of Natural Attenuation as a remediation option for groundwater contamination and to discuss findings as the investigation progresses.

### Successful Outcomes & Added Value:

Detailed analysis of previous findings and targeted additional investigation information has preliminarily identified the feasibility of a low cost but effective remediation method (natural attenuation) and enabled government funding for the assessment of its feasibility which is currently being undertaken by ESP, acting as main/principal contractor. Pre-commencement discussions with the Local Authority and NRW enabled the most efficient investigation strategy and continual liaison and adaptation between ESP and the client has enabled a successful phased investigation strategy to date. Progress reports and results have been made available for discussion and follow up meetings to discuss the findings and to obtain feedback have ensured the client and NRW were satisfied with that being undertaken and limited resources were suitably targeted and utilised to maximise findings relative to the desired objectives and timescales.

### Project Description and Overview:

Waterloo Industrial Estate is underlain by a large historical landfill located adjacent to the environmentally sensitive Milford Haven waterway and situated above a potentially sensitive bedrock aquifer. As part of the regulatory requirements under Part 2A of the Environmental Protection Act 1990, PCC commissioned ESP to implement a contemporary assessment of the site, update the conceptual model and develop an updated remediation options assessment and strategy. ESP are currently assessing the spatial distribution of the groundwater contamination in greater detail along with the potential feasibility of natural attenuation as a viable remedial option for the contaminants of concern. This is being undertaken through a structured programme of multi aquifer groundwater monitoring and sampling in conjunction with the monitoring of nearby surface water receptors.



**Testimonial:** Rachel Thomas, Contaminated Land Inspector (Pembrokeshire County Council)

"Pembrokeshire county Council have undertaken a series of investigations under Part 2A of the Environmental Protection Act (EPA) 1990 at a site known as Waterloo Industrial Estate, Pembroke Dock. The site has had a complex history of landfilling and has a number of sensitive issues associated with it, including being adjacent to a SSSI and overlying a Principal Aquifer.

ESP were instructed to undertake works following a competitive tender process. This work involved a review of existing data and undertaking an investigation for those areas where data gaps were identified. A number of recommendations were made within the report and the work allowed us to conclude that the site does not meet the definition of Contaminated Land with respect to human health under Part 2A of the EPA 1990.

ESP are currently undertaking a Controlled Waters Risk Assessment (CWRA) at the site (12 month monitoring period following initial borehole installation). ESP are undertaking this CWRA under the South West Wales Ground Investigation Framework.

There are several different landowners at the Industrial Estate and following initial introductions by ourselves, ESP now continue to engage directly for access and monitoring allowing Officer time to be freed up.

ESP have provided valuable technical support in aiding PCC to undertake its statutory duties under Part 2A of the EPA 1990. With the CWRA project they encouraged regulatory meeting with Natural Resources Wales at the outset to ensure the project would meet their requirements. Their willingness to engage all relevant parties at an early stage and throughout the project has led to an efficient targeted investigation that has eased the pressure on PCC officer time. Communications are prompt with frequent updates throughout.

In our experience we have found ESP to be a very competent organisation, undertaking work and delivering results of a high standard, on time and in budget. We would have no hesitation in utilising their services in future. "