



### Objectives

The remediation strategy for the site was designed to address the identified source contamination with the intention of protecting both human health and groundwater receptors.

### Methodology

The *ex-situ* remediation works involved the treatment of circa 6,500m<sup>3</sup> of contaminated soils and associated groundwater in 5m<sup>3</sup> batches utilising processing buckets (as the identified contaminated soils were clayey in nature). The processing buckets incorporate rotating blades at the bases facilitating a high degree of mixing. The treatment process involved mixing the contaminated materials with the designated E-Clay in slurry form and cementitious materials in dry form. The processing bucket is shown in Figure 2 below and the slurry production process is shown in Figure 3 below.

### Site Background & History

The Kew Riverside Site is being redeveloped for housing and leisure facilities.

The site has been historically contaminated with waste materials from an adjacent domestic waste incinerator process. The identified contaminants include heavy metals, polycyclic aromatic hydrocarbons and other organic pollutants. The site prior to remediation is shown in Figure 1 below.

Figure 1 – Site Prior to Remediation



Figure 2 – Processing Bucket



Figure 3 – Slurry Production Process



The contaminated materials were mixed with the treatment materials to produce a homogeneous mass. Representative samples were taken throughout the treatment process – these samples were combined to produce composite samples for validation purposes.

The treated soils were temporarily stockpiled before being reused on-site as a substitute for imported clean fill.

The works were conducted over a 9 week period under the auspices of Envirotreat's Mobile Process Licence (MPL). Specialist technology, materials and supervision were supplied by Envirotreat. The main contractor (Jarvis Construction) supplied all the required plant and labour for the application of the Envirotreat Process.

### Validation

Validation of the treated material was carried out on 26 composite samples. These samples were leached and analysed at a UKAS accredited laboratory. The treated results are summarised in Table 1 below – the leachate results were compared to Dutch Intervention Values which were utilised for compliance purposes (i.e. site specific target levels [SSTL] as stipulated by the Environment Agency).

Table 1 – Leachate Results

Contaminant of concern	MCL in soils (mg/kg <sup>-1</sup> )	Leachate (mg l <sup>-1</sup> unless stated)	
		SSTL*	Mean Treated Soil
Cadmium	8.5	0.006	<0.0004
Chromium	120	0.03	<0.025
Copper	3200	0.075	<0.079
Nickel	200	0.075	<0.023
Lead	6600	0.075	<0.018
Zinc	9000	0.8	<0.021
TPH	8300	0.6	0.20
Total PAH	370	0.082	0.003

The leachate results demonstrated compliance with the remediation target criteria thereby providing the necessary protection for human health and groundwater receptors.

### Conclusions

The remediation project was completed successfully enabling the full reuse of treated and validated materials on-site.

The housing development is shown in Figure 4 below.

Figure 4 - Housing Development

