

Site Overview

The Harmondsworth site (plate 2) occupies an area of approximately 7.5 acres. Extensive contamination was identified with soil and groundwater polluted with chlorinated hydrocarbon.

It was the intention of Kingswood Commercial Developments to redevelop the site for commercial / industrial end use.

Figure 1 – Completed commercial building



Objectives

Harmondsworth site was designed to address the on-site contamination problems and prevented the potential risk of future contamination of the adjacent site through groundwater migration

Methodology

Envirotrear installed an active containment system comprising both non-permeable and permeable reactive sections (figure 3). The barrier was installed using a Continuous Flight Auger (CFA) and piling rig. The active / reactive (permeable) section of the barrier contained modified pillared E-clays designed to remove and chemically immobilise the prime pollutants of concern. The non-permeable (passive) sections of the barrier are composed of a clay and cement mix. The passive barrier sections were designed to channel groundwater towards active barrier sections where contamination can be treated ('filtered'

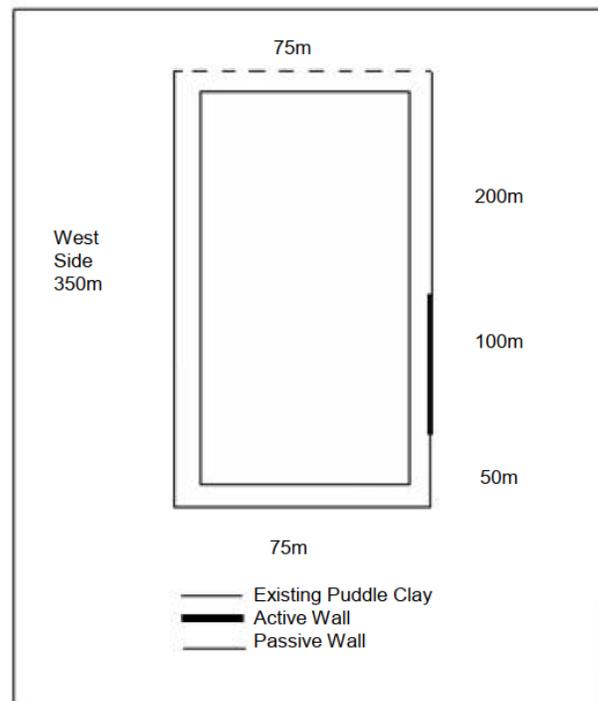
out), by the active / reactive PRB

Figure 2 Site prior to remediation works.



Non-permeable barrier sections are included to reduce installation costs as their raw materials are cheaper than those of the active sections.

Figure 3 – Barrier design.



The works were conducted over a 12-week period under the Enviro-treat Mobile Process Licence (MPL).

The total length of the active barrier was 800m, with an average depth of 7m (the total depth varied with the depth of the underlying clay into which the barrier was keyed into).

The barrier was installed by advanced soil mixing techniques using continuous flight auger systems. The active barrier comprised a single row of overlapping columns (each column having a nominal diameter of 900 mm).

Results & Validation

Validation of the installed barrier was undertaken by an independent consultant.

The validation demonstrated that the Enviro-treat Soil Mixed Reactive Barrier System effectively reduced the potential for off-site contaminant migration. The concentrations of contaminants of concern were all below the agreed site-specific target criteria. This confirmed that the objective of protecting the surrounding area from the off-site migration of contaminants within the groundwater has been achieved.

The barrier has intercepted the migration of contamination by the introduction of modified pillared E-Clays designed to remove and chemically immobilise the prime pollutants of concern in the soil.

The development was completed with the construction of a 200,000 sq ft of industrial and space.