Treatment of site impacted with high levels of petroleum hydrocarbons, Cambridge, UK

Achieving remediation objectives on a busy construction site

Summary

REGENESIS was tasked with the remediation of a former vehicle repair garage impacted with high levels of petroleum hydrocarbons, including some Light Non Aqueous Phase Liquid (LNAPL). Construction of new student accommodation facilities had already commenced on the site when the contamination was discovered. Rapid remediation was needed due to the requirement to complete the construction in time for the start of the new academic year.

The remediation objectives were betterment of the environment through a reduction in LNAPL levels and dissolved phase TPH concentrations. This was to be achieved amongst significant access limitations on the building site and without impacting the construction schedule.

Treatment

Recoverable LNAPL was removed through skimming via wells drilled at the site boundary. RegenOx was then used to chemically oxidise the residual sheen of free product in the wells. An application of ORC-Advanced was also used to provide a controlled release of dissolved oxygen and enhanced aerobic biological degradation of a proportion of the residual dissolved phase contamination.

Following a successful pilot comprising injection of RegenOx into 3 fixed wells: 2 full scale injection campaigns were completed comprising injection of RegenOx and ORC-Advanced into a grid of 19 wells located by the site boundary.

What's Special?

- Full scale injection of RegenOx and ORC-Advanced was completed despite considerable access limitations due to construction works.
- Remediation objectives were rapidly achieved.
- The works were completed without impacted the construction project programme, during the latter stages of the site redevelopment.

Remediation Details

Site Type:
Brownfield

Project Driver:
Site Redevelopment

Remediation Approach:
In-Situ Chemical Oxidation, Enhanced Natural Attenuation

Technologies:
RegenOx®, ORC-Advanced®

Geology	
	Bedrock
x	Gravel (river terrace deposits)
x	Sand
	Clay

Medium	
x	Groundwater
	Saturated Soil
	Smear Zone

COC	
	Metals
	Chlorinated Solvents
x	Petroleum Hydrocarbons

COC Concentration Levels:
LNAPL

Treatment Depth:
1.5m - 3.0m BGL

Treatment Area:
275m^2 total

Remediation Cost:
£36,000

Injection Grid:
4m spacing

Injection Points:
19