



Earth Environmental
& Geotechnical



Remediation Strategy

Kingsley Road

Northenden

Manchester

May 2022

On behalf of

Kingsley Developments
Manchester Ltd



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1.0 INTRODUCTION

Appointment

Earth Environmental & Geotechnical Ltd (EEG) has been commissioned by Kingsley Developments Manchester Ltd, (the Client), to produce a Remediation Strategy for the proposed development at a site off Kingsley Road, Northenden, Manchester.

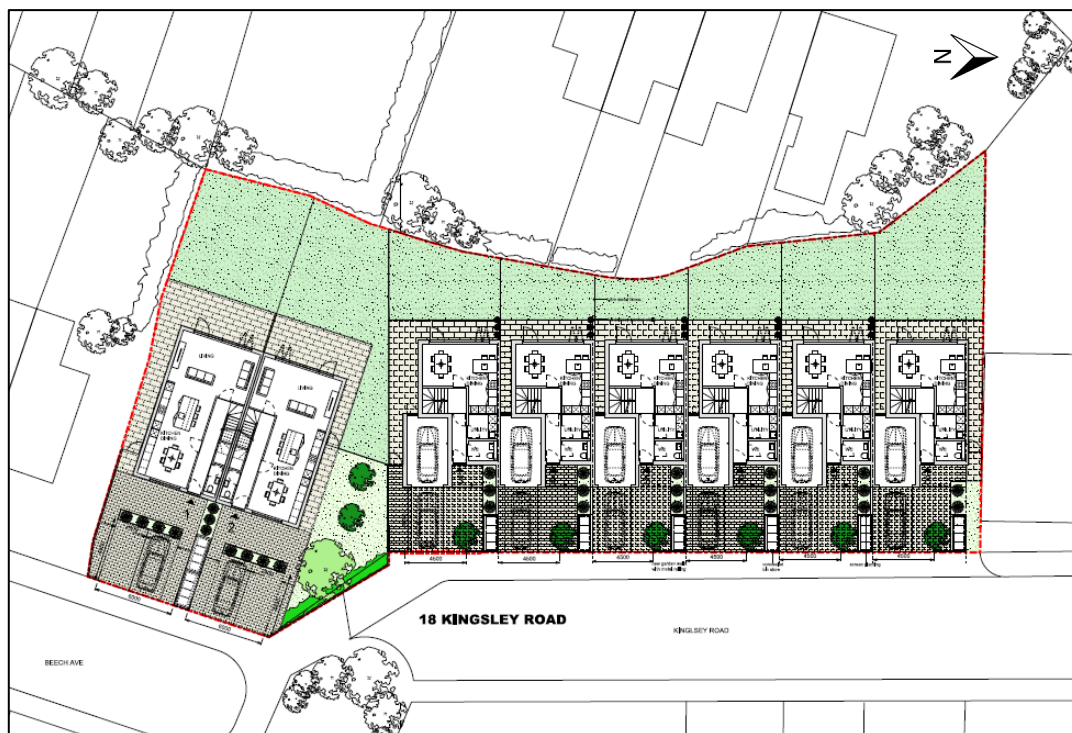
Proposed Development

It is understood that the client intends construct eight new residential properties, comprising two two-storey, semi-detached and 6 three-story terraced townhouses, with associated car parking and landscaping.

Access to the site will be via Kingsley Road and Beech Avenue to the east of the site.

Figure 1 below shows the proposed development layout plan.

Figure 1 Proposed Development Layout Plan



Historical Information

Historical records show the site to have been first occupied by agricultural land until pre-1910, thereafter a steam laundry building occupied most of the northern section of the site with two smaller buildings in the southwestern corner.

From 1934 an additional two buildings were in the south of the site, changing in size and shape through to 1981. From 1992, the buildings on site were unspecified however, most recently the site comprised the main laundrette building and a car repair garage in the south.

Since the previous investigation, all buildings on site have been completely removed from the site in preparation for the new development.

Objective

The Remediation Strategy is intended to build on the site characterisation information and provide details on the remediation objectives necessary to protect potential receptors and render the site suitable for the proposed development.

In summary this document presents the technical detail behind the proposed remedial activities at the site and includes:

- Clean Cover System in areas of soft landscaping
- Design of ground gas/ vapour remedial measures

This report has been prepared for the purpose of satisfying the requirements of the Local Planning Authority. Earth Environmental & Geotechnical Ltd reserves the right to amend this Remediation Strategy in the light of further information which may become available or future changes in contaminated land guidance, prior to site activities.

Sources of Information

The following reports have previously been prepared for the site by Earth Environmental & Geotechnical Ltd and should be read in conjunction with this Remediation Strategy:

- Resource & Environmental Consultants (REC) Ltd, Phase 1 GeoEnvironmental Assessment (reference 106065p1r1, November 2018).
- Earth Environmental & Geotechnical Ltd, Phase II Geotechnical & Environmental Site Investigation Report (reference A3939/21, May 2021).

2.0 SITE LOCATION AND DESCRIPTION

The site is located off Kingsley Road, Northenden, Greater Manchester approximately 0.5km south of Northenden town centre. The approximate National Grid Reference for the centre of the site is SJ 82903 89949 (X: 382903, Y: 389949) with the closest postcode being M22 4NL.

The site is an irregular shaped parcel of land currently accessible via Kingsley Road to the east of the site. The site was previously occupied by a series of buildings associated with the previous dry cleaners with laundry workshop, several other workshops and offices and a tyre garage however recently, all associated buildings have been demolished and the site stripped.

The area of the site is 0.15hectares with a generally flat and level topography.

A location plan is shown below as Figure 2.

Figure 2: Site Location Plan



3.0 PREVIOUS SITE INVESTIGATIONS

As mentioned in Section 1, two reports have been prepared for the site by Resource & Environmental Consultants (REC) Ltd and Earth Environmental & Geotechnical Ltd.

The recommendations in this Remediation Strategy are based primarily on the findings of the Phase II Geotechnical & Environmental Site Investigation Report (A3939/21, May 2021) and the subsequent delineation exercise, which are summarised below.

Earth Environmental & Geotechnical Ltd, Phase II Geotechnical & Environmental Site Investigation Report, A3939/21, May 2021

Scope of Works

The site investigation was conducted on the 31st March and the 1st April 2021 and comprised:

- Eight window sample boreholes (WS1 – WS8) to a maximum depth of 6.00m bgl;

Standard Penetration Tests (SPTs) were conducted in the window sampler boreholes, and soil samples were retrieved from the exploratory holes at regular intervals for geotechnical and chemical analysis. Soils were logged by an on-site engineer.

An exploratory hole location plan is presented as Figure 3, overleaf.

Ground Conditions

The recorded ground conditions are summarised as follows:

- **Made Ground –**
 - Asphalt Hardstanding
 - CONCRETE
 - CONCRETE and REBAR
 - Clayey gravelly SAND (containing gravel of red brick, plastic, clinker, timber, concrete, ash, quartz, mudstone and sandstone with redbrick cobbles in WS06).
 - Gravelly SAND (containing gravel of limestone, redbrick, ash, tarmac, sandstone, metal fixings and concrete)
 - Sandy COBBLES of redbrick.
- **Superficial Deposits –**
 - Clayey gravelly SAND (containing gravel of quartz, mudstone and sandstone)
 - Gravelly SAND (containing gravel of quartz, mudstone and sandstone).
 - Sandy CLAY
 - Sandy gravelly CLAY (containing gravel of sandstone and mudstone).

Figure 3: Exploratory Hole Location Plan (A3939/21)



Soil Contamination Assessment

Nine soil samples were retrieved from the site for chemical analysis.

Samples were analysed for the following suite of contaminants: Asbestos, Arsenic, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Thiocyanate, Phenol, Sulphate (SO₄), Sulphide, pH, Sulphur, Soil Organic Matter and speciated Polyaromatic Hydrocarbons (PAH), speciated Total Petroleum Hydrocarbons (TPH), Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs).

Four of the soil samples tested were found to contain concentrations of contaminants in exceedance of assessment criteria values relevant to a residential end use with plant uptake. A summary of the soil contamination encountered is shown in Table 1, below.

Table 1: Summary of EEG Soil Contamination

Location	Contaminant
WS4 (0.25m)	Tetrachloroethene (PCE), Trichloroethene (TCE)
WS5 (1.20m)	Lead
WS6 (0.50m)	Tetrachloroethene (PCE)
WS8 (0.60m)	Arsenic, Lead, Tetrachloroethene (PCE), Trichloroethene (TCE)

Asbestos was not identified in the samples collected from the site.

Soils were generally classified as Non-Hazardous for the purpose of off-site disposal.

Groundwater Assessment

Chemical analysis was carried out on five groundwater samples one of which displayed visual and olfactory evidence of contamination (WS5).

Samples were analysed for a range of contaminants including Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Phenol, Sulphate (SO₄), Sulphide, pH, Soil Organic Matter, Speciated Total Petroleum Hydrocarbon (TPH), Speciated Polyaromatic Hydrocarbons (PAH), Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs).

In general, the laboratory analyses encountered significant levels of contamination above the EQS and Drinking Water Standards for chlorinated solvents (including PCE & TCE).

A summary of the groundwater contamination encountered is shown in Table 2, overleaf.

Table 2: Summary of EEG Groundwater Contamination

Contaminant	Location
Tetrachloroethene (PCE)	WS1, WS4, WS5, WS6, WS8
Trichloroethene (TCE)	WS1, WS4, WS6

Vapour Risk from Groundwater Assessment

The analysis of the groundwater samples has been compared to the SOBRA groundwater vapour GAC ($GAC_{gw vap}$) and an aqueous solubility limit. A risk to human health from volatile compounds was found in the shallow groundwater taken from WS1, WS4, WS5 and WS6.

Ground Gas Assessment

Ground gas monitoring has been carried out on the site and has proved the absence of significant elevated gas levels from the eight boreholes on the site.

The Carbon Dioxide GSV was calculated to be 0.0063 litres/hour, with the Methane GSV calculated as 0.00 litres/hour. These results suggested that the site can be given a “Gas Regime A, Negligible to Very Low risk”.

Remedial Recommendations

Soil Contamination

Based on the results of the chemical testing, exceedances of the assessment criteria for inorganic contaminants were observed in four samples collected from the site, including heavy metals and chlorinated solvents.

The chlorinated solvents in particular pose an inhalation risk to future site users and as a result, remedial measures were recommended.

Groundwater Contamination

It was concluded that several contaminants were in exceedance of the recommended guideline values at locations WS01, WS04, WS05, WS06 and WS08, in perched water within the natural sands.

The installation of a vapour membrane, detailed within a remediation strategy was recommended to reduce the risk to future site users.

Ground Gas

The report concluded that the monitoring dataset indicated the site would fall in Gas Regime A (‘negligible to very low’ gas risk) and therefore ground gas protection measures were not necessary at the site.

4.0 LICENCES & APPROVALS

Various licences, permits and approvals are required at various stages before certain works can commence. Some activities can start before all such approvals are in place.

- (i) Approval of this Remediation Method Statement;
- (ii) All documentation in accordance with the CDM 2015 Regulations
- (iii) A signed declaration by qualified person of the Material Management Plan (MMP) in accordance with CL: AIRE Waste Code of Practice, Version 2, March 2011. This would allow for reuse of excavated soils after demonstration of suitability for use. MMP will be created with due consideration to all proposed remediation and enabling works operations prescribed within this document and will be undertaken by a Qualified Person and a signed declaration submitted to the EA prior to re-use of materials on the site. The importation of material for use within the proposed construction of a development platform will be subject to the compliance with the EEG Protocol for the importation of materials as set out within the specification for material import included within the Appendix of this report.
- (iv) A U1 Standard Rules Permit will be registered for the site which allows the re-use of up to 3000m³ of material within construction with up to 25,000m³ of material permissible to be re-used in the construction of roads.
- (v) A T5 Standard Rules permit allows the screening and recovery of up to 3000m³ of material for sub-sequent re-use in construction will also be registered.

The processing of recycled aggregates will be completed using LAPC Part B Licensed Plant with the appropriate deployment notification to the Local Authority prior to commencement of works. All materials that are recovered as recycled aggregate will be compliant with the requirements of the WRAP protocol and the EEG validation testing requirements and as such would not be deemed to be a waste material.

All materials that are recovered under the WRAP Protocol, U1 or T5 exemptions must be analysed to demonstrate that they are both chemically and structurally suitable for use within the context of the development.

The relevant LAPC, U1, T5 and WRAP Licenses, Exemption and Protocols provides the legislative framework for material compliance during the site remediation and enabling works to be completed by the specialist contractor under the supervision EEG.