

Site Assessment of Rissington

Notes from Upper Rissington Site Investigation Report –

- Former air force base (RAF and USAF)
- Investigations and trial pit logs indicate visual and olfactory evidence of hydrocarbon contamination at three locations TP 127, TP 285 and TP 306
- Substantial quantities of made ground with elevated levels of Benzo (a) pyrene (BAP) and Extractable Petroleum Hydrocarbon (EPH) detected.
- Elevated levels of aliphatic (straight chain) and aromatic (cyclic) hydrocarbons detected in ground water in borehole 11 (appendix c p448)
- EPHs were detected above the UKWIR guidelines (see below) at numerous locations (at least 17). Several locations had EPH levels in excess of 1000mg/kg (pages 510, 511, 512, 514, 517 and 519).
- The majority of the samples in the survey were collected from depths that were between 0.2 and 0.5 meters
- Report (section 2.3) states there are approx 13 underground storage tanks and 12 above ground storage tanks across the site. Due to incomplete records the locations of all the tanks is not known.

Notes from Remediation Strategy

- Strategy applied to phases 1 to 3 only
- Section 3.1.2 parts (i) and (iii) would suggest that if made ground meets the criteria stated in the remediation strategy it will be used elsewhere at the development.
- Tables 1, 2, 3 and 5 in the Remediation Strategy set out the criteria for acceptance for insitu soils. Tables 1 and 5 specifically state acceptable thresholds for EPHs.
- These are summarised and compared with the UKWIR guidance threshold levels in Table A below.

Water Company Guidance – UKWIR report – Guidance for the selection of water supply pipes to be used in Brownfield sites (Report Ref No 10/WM/03/21)

- Section 2.54 – Intrusive Site Investigations states samples should be collected from within a 15 m strip of land that runs along the intended route of the pipe work.
- Samples should be collected from a depth that is indicative of the proposed pipe works and should include samples that have been collected from approx 0.5 meters below the indicative depth. Note: As services are normally laid circa 0.75 meters samples should be collected between 0.75 and 1.25 meters.
- Table 3.1 in the guidance report provides threshold levels for various contaminants (predominantly hydrocarbons) and the corresponding recommended pipe material if the threshold values are exceeded. These are summarised and compared to the site remediation targets in Table A below.

Table A Summary of Acceptable and Threshold levels for EPHs Stated in Site Remediation and UKWIR Guidance Documents

Carbon Ranges (mg/Kg)	Remediation Strategy Table 1 – insitu soils in Garden areas and beneath building slabs	Remediation Strategy Table 5 – Imported Soils	UKWIR Guidance Table 3.1 – Pipe Selection table
C10 – C12	69	160	10 (C11 to C20)
C12 – C16	140	320	
C16 – C21	250	480	
>C21	890	1100	500 (C21 – C40)

Summary and Discussion

The threshold/acceptable levels for EPHs for remediated and imported top soils stated in the site remediation strategy all exceed the threshold levels stated in UKWIR guidance that would permit the installation of basic polyethylene (PE) water pipe work (see Table A)

The site investigation report identified 2 hotspots of hydrocarbon contamination (TP127 and TP306). The borehole and trial pit logs indicate that hydrocarbon odours were also detected at TP285. The analysis data suggests elevated hydrocarbon levels in water samples collected from borehole 1 also numerous locations where hydrocarbon contamination (in excess of the UKWIR limits for PE pipe work occurs) occurs. The locations of all 25 above/below ground fuel storage tanks are not know.

Generally the majority of samples were collected from depths of between 0.2 and 0.5 meters. However water pipe work is generally installed circa 0.75 – 1.0 meter and UKWIR guidance states that some samples should be collected from around 0.5 meters below the proposed depth of the pipe work.

Conclusions

As the UKWIR guidance was published in 2010 perhaps it should have been referenced in the Site Remediation Strategy (March 2013). However it is recognised that the cost of remediating and sourcing imported materials that would meet the UKWIR guidance may be expensive.

The site remediation strategy allows for the import of and spreading across the site of materials that could also exceed the UKWIR threshold levels that would permit the installation of basic polyethylene (PE) water pipe work.

There is also substantial evidence of localised hydrocarbon contamination at levels that exceed this threshold level at numerous locations.

Recommendations

Further discussions with Albion Water are necessary if this site is to gain dual status i.e. ring fencing of some areas where it maybe possible to install basic polyethylene (PE) water pipe work.

Until this time it is recommended that pipe work restrictions should be applied across this development and either barrier type (e.g. Protectaline) or metallic (e.g. ductile iron) water pipes are installed.