MIDDLE QUINTON ECO TOWN

Ground Conditions Summary

Project No. 473000

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1.0 BACKGROUND

The proposed Middle Quinton Eco Town comprises the former MOD site known as the Central Engineers Park, now owned by St Modwen Developments, together with adjacent land owned by The Bird Group.

The MOD site was established in 1941 as a supply depot for the Royal Engineers primarily used for storage and distribution of equipment. Up to 2000 the site was operated as the Central Engineers Park, although activity was largely reduced at the end of its operational life between the period 1992 to 2000. The Bird land includes existing re cycling facilities.

Prior to disposal of the MOD site a series of assessments were undertaken to determine the current ground conditions. These comprised a Phase 1 Land Quality Assessment carried out in 1998 followed by a Phase Two Intrusive Investigation Land Quality Assessment Report issued in January 2004. As no significant changes have taken place on the site since the preparation of these documents it is considered that they record the current situation in respect of ground conditions and contamination on the site.

Similarly on the Bird land a series of site investigations were undertaken in 2000 and 2001 to establish current ground conditions.

This report provides a summary of these documents to inform the evidence base for the Eco Town promotion process and to provide a scope for undertaking a more detailed environmental assessment as part of the development of the site.

2.0 GEOLOGY

The underlying geology of the site comprises localised thin deposits of Glacial Head and Alluvium which are underlain by Lower Lias Clay. Significant areas of made ground occur across both parts of the site. On the former MOD area this consists mainly of black and red ash and clinker. This ranges in thickness from 200mm to 800mm. In some areas the made ground comprises general fill materials which in places is underlain by a deposit of crushed limestone. This was imported to the site to raise levels of low lying areas and improve natural drainage.

The Bird section of the site has made ground of similar depths. This is generally a mixture of silty sandy soil with pockets of ash and clinker similar to that on the MOD part of the site.

The low permeability of the Lower Lias Clay means that drainage to ground is limited. The areas of fill noted above have however helped improve the drainage characteristics of the site. The Lower Lias Clay is classified by the EA as a non-aquifer. Ground water was encountered in limited quantities in a number of boreholes at depths between 0.44m and 0.9m below ground level.

3.0 CONTAMINATION INVESTIGATIONS

A number of intrusive site investigations were carried out on both parts of the site between 1998 and 2003. These consisted of trial pits, window samples and bore holes. Information obtained from these investigations identified some localised areas of contamination on the former MOD land, mainly within areas of made ground. Some localised hydrocarbon contamination was also present in areas historically used for fuel storage.

This contamination was not of a sufficient nature to require remediation prior to re development of the site and can be dealt with as part of normal re development works. The reports confirmed that the site does not present a risk to human health or to the wider environment. Localised areas of elevated radioactivity were

identified within the burning ground towards the west of the site. These are thought to be associated with the burning of luminised artefacts.

Some areas of more significant soil contamination were encountered within the made ground on the Bird land. These were contained within areas of fragmentation waste and consisted principally of heavy metals such as lead, arsenic, cooper, nickel, and zinc. There was also evidence of the presence of PCBs. No significant downward migration however into the underlying natural soils was detected.

4.0 REMEDIATION

Subsequent to the above intrusive investigations remediation strategies were prepared and works carried out on both the MOD site and the Bird land. Remediation works took place on the Bird land in 2001 and on the former MOD site between January and May 2006.

Remediation on the Bird land consisted of the removal of approximately 100,000 tonnes of contaminated soil (fragmentation waste) and replacement with inert fill.

Following this work a post remediation investigation was undertaken. This consisted of a grid of trial pits across the site from which a series of soil samples were tested for traces of contamination. Very limited quantities of fragmentation waste were discovered during this investigation and further quantities of soil were removed from these areas.

The tests carried out as a result of this investigation showed that residual concentrations of heavy metals, PCBs and hydrocarbons were below the intervention levels as set out in UK and European guidance. As noted above the underlying strata exhibits low permeability and therefore the potential for leaching of pollutants into groundwater is minimised.

The works undertaken on the former MOD site were to address the radioactive artefacts contamination. This was achieved by removal and disposal off site. This

work was implemented by Defence Estates, former owners of the site, who required it to be remediated to a standard which would not require further significant remediation works following a change of land use or redevelopment.

Validation tests following this remediation showed that the resultant levels of radioactivity were equal to or lower than the optimum levels recommended by UK regulatory bodies.

5.0 SUMMARY

The Land Quality Assessment Reports confirm that overall (following the remediation already carried out) there are no significant environmental constraints to the development of these sites.

Remediation works were carried out in 2001 on the Bird land to remove contaminated soil identified during a number of intrusive investigations and in 2006 on the former MOD site to remove traces of radiological contamination indentified on parts of the site as a result of the burning of luminised artefacts.

Validation tests following this remediation showed the level of residual contamination to be equal to or lower than the optimum levels recommended by UK and European regulatory authorities.

Further investigations to identify and deal with “local” ground contamination will be required during the detailed design process once development proposals have been finalised. Where commercial or industrial use is proposed only limited remediation will be required within identified hotspots.

Where end uses such as residential development with gardens are located then localised remediation will be undertaken as necessary during ground preparation prior to commencement of construction works. Detailed remediation strategies will be developed and agreed with appropriate authorities prior to commencement of any works.