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Ref. 2240423-1 (01)

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5th April 2021

REMEDIATION METHOD STATEMENT
Mawles Farm, Sibford Gower, OX15 5RW

1. In relation to the proposed redevelopment of the above site, it has been necessary to investigate the ground conditions to satisfy standard environmental planning conditions.

2. The site is situated to the northeast of the cross-roads of Main Street and Pound Lane, Sibford Gower, approximately 11km to the west of the town centre of Banbury, and may be located by Grid Reference SP 352 378.

3. The proposed development comprises the conversion of the existing barns to create one new dwelling, demolition of the existing steel barn, erection of a replacement ancillary outbuilding and associated works under planning application reference 20/02545/F.

4. The following reports have previously been undertaken by Ian Farmer Associates (IFA) on behalf of Mr and Mrs Broom in relation to the proposed development:

   - Preliminary Investigation Report (PIR), reference 22145, dated September 2020.
   - Ground Investigation Report (GIR), reference 2220483, dated February 2021.

5. It is understood that the above reports have been submitted to the Local Authority in relation to the current planning conditions.

6. Published geological records indicate that the site is directly underlain by the bedrock of the Northampton Sand Formation.

7. The variably permeable bedrock (sandstone and ironstone) is classified as a Secondary aquifer. The site is not located within a groundwater Source Protection Zone (SPZ) and no licensed groundwater abstractions have been identified within 1km.

8. The nearest surface watercourse is a spring feeding an inland river, located approximately 141m to the southeast of the site at its closest point.

9. The preliminary assessments included a review of available historical and environmental data, together with a walkover survey, which identified the following potential sources of contamination on the site:

    - Former agricultural use.
    - Vehicular storage within the central modern barn and the maintenance/lower road access pit in the dairy barn.
    - Made Ground due to previous development on-site.
    - Radon.

10. The site works comprised five window sample boreholes undertaken to depths of between 2.35m and 3.45m below ground level (bgl).

11. The boreholes encountered the anticipated geology, being deposits consistent with the Northampton Sand Formation extending to the full depths of the boreholes, generally described as loose, becoming medium dense, orangish-brown clayey gravelly fine sand. The natural strata were overlain by a thin layer of Topsoil or Made Ground extending to depths between 0.15m and 1.00mbgl. Groundwater was not encountered during the investigation.

12. Samples of soil from the exploratory locations were submitted to a UKAS accredited laboratory for chemical analysis based on the findings of the preliminary assessments and observations on site during the investigation.

13. The contamination risk assessment identified potential risks to human receptors from arsenic identified within the shallow soils, both Made Ground and natural soil, and asbestos within the Made Ground in BH105. Possible risks to plastic water supply pipes were also identified with regard to marginally elevated TPH concentrations in BH103.

14. No significant potential risks were identified with regard to controlled waters or ground gas. However, the site was identified as being within a Radon affected area.

Remediation Scheme

Aim

To remediate the site in accordance with the guidance provided in relation to Part IIA of the Environmental Protection Act 1990 by:

(i) Removing or treating the pollutant;
(ii) Breaking or removing the pathway; or
(iii) Protecting or removing the receptor(s).

Method

The following strategy is proposed to address the potential pollutant linkages identified at the site in relation to the proposed development. A plan showing the proposed site layout and remediation areas is attached, Figure A1.1.

The proposed thickness of the capping layer has been based on guidance provided in BRE 465, which is considered appropriate in this instance given the marginal exceedances of arsenic identified across the site. The guidance indicates that a minimum capping thickness of 345mm would be acceptable. In order to allow for the possibility that slightly higher concentrations may be present outside of the sampling locations, a minimum capping thickness of 400mm is therefore proposed.

Further recommendations are included to address the localised asbestos identified. However, it should be noted that all proposed capping thicknesses are subject to approval by the Local Authority.

Step	Action
1.	Within areas capped by permanent hard standing or buildings, no exposure pathway will exist between the contamination identified within the shallow soils and end users of the site on completion of the development and therefore, no further remediation is proposed in these areas. Within proposed landscaped and planted areas, gravel surfaced areas, and areas covered by semi-permanent hard standing such as stone paving, a capping layer of certified inert material will be placed to break the exposure pathways as follows: • A minimum capping thickness of 400mm is proposed. • Due to the presence of asbestos identified in BH105, further sampling of the Made Ground and screening for asbestos is to be undertaken, as indicated in Figure A1.1, to confirm whether any further asbestos is present that would require an increased capping thickness or localised source removal to prevent fibres becoming airborne. If identified, the results of the further testing will be reported in an updated RMS detailing the additional measures proposed. If not identified, the results will be included or within a validation report and the 400mm capping thickness applied. • Where a paved or gravel surface is proposed, the surface and sub-base can be included within the capping thickness. • In proposed landscaped and planted areas, at least the top 150mm should comprise good quality topsoil. • A geotextile membrane will be placed at the base of the capping layer.
2.	Certificates confirming contaminant concentrations for all imported soils will be obtained from the supplier(s) prior to importation, to ensure that it is suitable for its intended use. The soils will be visually inspected by the ground worker on receipt, and independent chemical analysis of the material will also be undertaken once it is in place. Samples will be taken of the imported soil, which will be tested in a UKAS accredited laboratory to ensure that contaminant concentrations are below the published screening criteria referenced in the ground investigation report, and free from asbestos. The suite of testing will comprise asbestos, metals, speciated PAH and speciated TPH CWG with BTEX and MTBE. The total number of samples will be confirmed once the total volume and source(s) of imported soil are confirmed.
3.	A watching brief will be undertaken by the developer, comprising the visual and olfactory assessment of all exposed soils during site clearance and excavations. Should any previously unidentified contamination or deleterious materials be encountered during ground works, work will stop and further ground investigation, risk assessment and updated remediation strategy will be undertaken as appropriate. Where contamination is identified or suspected, consultation will be undertaken with a suitably experienced engineer to decide the most appropriate action, which may include: • The removal from site and disposal to a suitably licensed tip of all material suspected of being contaminated. The material would need to be classified prior to disposal. • Short-term storage of the suspected material while undertaking verification testing for potential contamination. The material would need to be stored in a contained area to ensure that contamination does not migrate and affect other areas of the site. Depending upon the amounts of material under consideration, this could be either a skip or a lined area. • Following removal of any suspected or contaminated soil, validation sampling will be undertaken around the base and sides of any excavation to ensure no contamination is present in the remaining soils. A Principal Contaminated Land Specialist will be on call should any evidence of contamination be encountered, though will not carry out full time supervision during the ground works. All additional information will be submitted and approved by the Local Planning Authority prior to any further remedial works being undertaken.

Step	Action
4.	During ground works, appropriate health and safety measures will be implemented to mitigate the risk of any known or previously unidentified contamination affecting the site workers and the environs, particularly potential exposure to asbestos fibres identified within the Made Ground. These include: • Informing the site workers of the contamination on the site and the potential health effects from exposure. • The provision of suitable Personal Protective Equipment (PPE), such as masks, gloves and overalls, for workers who may be potentially impacted by working in areas of the contamination. • Ensuring good hygiene is enforced and washing facilities are maintained on the site. Workers are discouraged from smoking, eating or drinking without washing their hands first. • Dust monitoring, and if necessary, suppression measures, such as wheel washing of construction vehicles and damping down of dry soil during excavations through the Made Ground, to prevent contamination becoming airborne.
5.	All waste material will be disposed of to an appropriately licensed site. The chemical testing and assessments previously carried out may be used to aid classification of any soil that is to be disposed of. Any further testing required by the tip prior to disposal will be carried out using a UKAS accredited laboratory. Copies of the waste consignment documentation will be retained by the developer for inclusion in the Final Validation Report.
6.	The Local Water Supply Company will be consulted for confirmation of whether barrier pipe or selection of an alternative material to plastic will be required for any proposed new potable water supplies. Evidence that the required measures were implemented or that they were not required will be retained for validation purposes.
7.	Radon measures will be installed in accordance with BRE Report 211. Confirmation that these measures have been checked and approved by the Local Authority Building Control will be retained for validation purposes.

On completion of steps 1-7 above, a Final Validation Report will be produced, which will include, but not be limited to, the following:-

- Confirmation that the development was undertaken in accordance with the Remediation Method Statement.
- Certification for all materials imported to the site.
- Details of independent sampling and testing of imported soils.
- Details of any further sampling and testing of soils, either in situ, imported, or prior to exportation from the site.
- Waste documentation for any materials removed from the site.
- Details of any observations made during the watching brief and further action taken, if required.
- Confirmation that Radon measures have been installed to the satisfaction of the Local Authority Building Control.
- Evidence to confirm the installation of barrier pipe or that it was not required for new potable water supplies.
- Any further information relevant to the remediation or management of ground conditions at the site in relation to the development.

We trust this is satisfactory for your requirements.

Yours faithfully

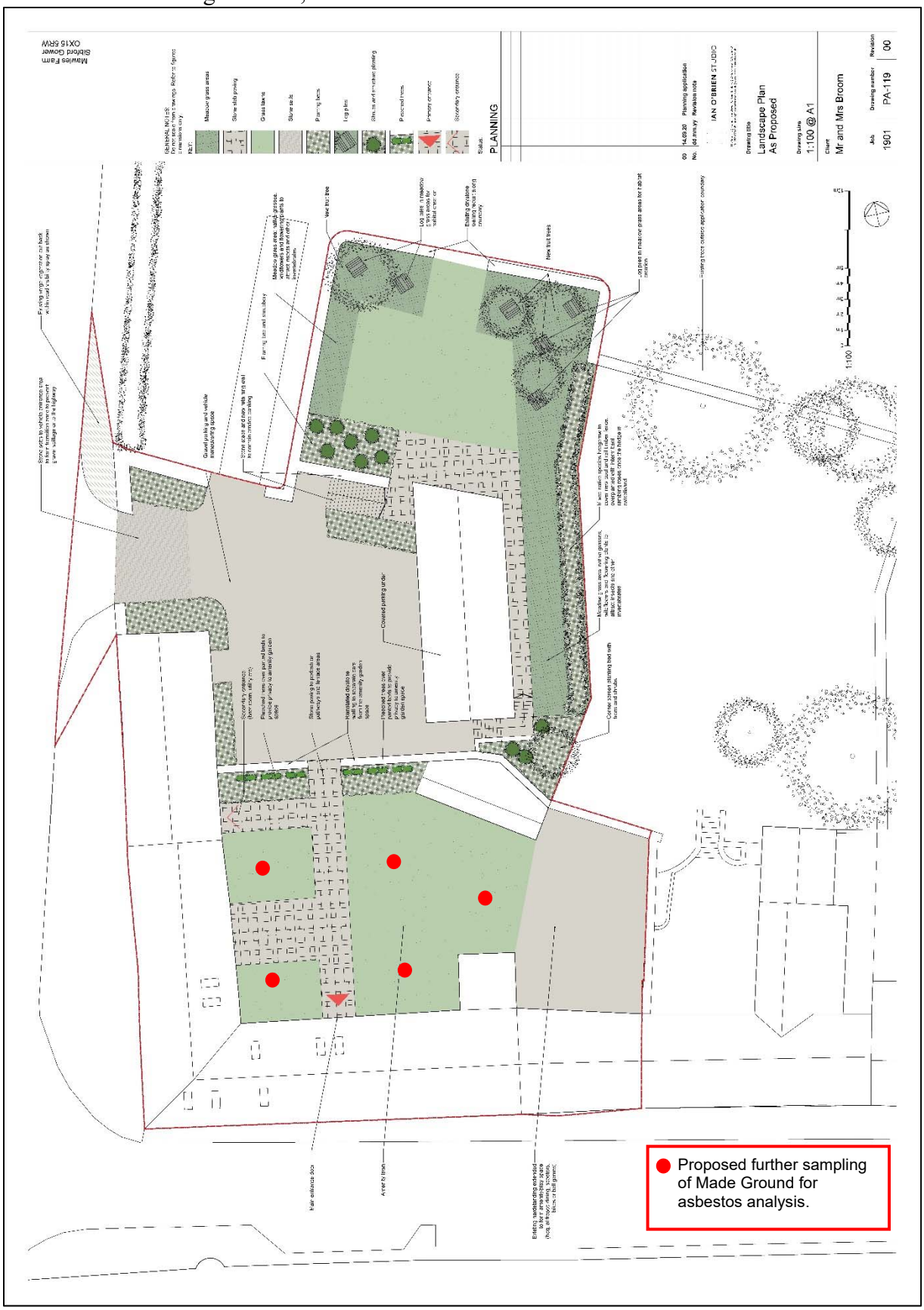
[redacted]

Victoria Tickner
Principal Environmental Engineer

Encs.

Figure A1.1 – Proposed Development Plan

indicated in red in Figure A1.1,



IAN FARMER ASSOCIATES Geotechnical & Environmental Specialists	**PROPOSED DEVELOPMENT PLAN**	Job no. 2240423
	Mawles Farm, Sibford Gower, OX15 5RW	Fig. A1.1