STUART GUY CONSULTING

Report number 18-05-02 **Date 3rd June 2018**

Environmental Risk Assessment of Land to rear of

39 Wignal's Gate, Holbech, Spalding, PE12 7HR

Non - technical Summary

The site (~5.4 ha) is located in a largely rural setting with houses on one boundary, fields on two boundaries and a cemetery on the other. The area is flat and level with a stream flowing along the eastern boundary. The development plan is to construct 77 dwellings and use the land by the existing electrical sub station as an entry road into the site.

No offsite sources of potential contamination were identified as presenting a significant risk of harm to the site. An electrical sub station was replaced with a unit that has no PCBs for cooling. Therefore, the only source of potential contamination is the historical electrical sub station.

The historical electrical sub station may have leaked some PCBs, but as it will have been many years since it was replaced, any PCBs in the soil will have degraded and been dispersed into the stream. Also, that part of the site will be the entry road and no houses will be constructed within 50 m of the electrical sub station. Therefore, the risk of harm to the environment and to the occupiers of the site is not significant and the risk is acceptable.

No further investigation is necessary for this site in absence of any potential sources of contamination that could present a significant risk of harm to the occupiers of the site or to the environment.

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Report number 18-05-02 **Date 3rd June 2018**

Stage One Environmental Desk Study of Land to rear of

39 Wignal's Gate, Holbech, Spalding, PE12 7HR

Planning Application No. Not known

1. Scope of the Risk Assessment

1.1 Under instructions from Peter Pitt of D Brown Building Contractors Limited, Seas End, Moulton Loosegate, PE12 6JX, I have prepared this risk assessment based on the following:

A Sitecheck Data Report dated 27th May 2018, reference SCD_167769599_1_1.
A Heritage Statement report by Paul Cope-Faulkner, dated May 2017
A Geotechnical report by Lincs Laboratory dated 26th April 2018
A visit to the site on 29th May 2018

1.2 The purpose of this report is to assess whether this site, or potential contaminants from adjacent sites, could present a significant risk of harm to the occupiers of the site or to the environment.

2 Groundsure Report + Google Satellite Image

2.1 The Sitecheck Data report searches features that are recorded on maps or in trade directories of the surrounding area and points to features that may be of concern. As with all automated systems, this tends to identify many features that are not relevant and therefore interpretation of the results is required. This report was part of the Goldfinch Environmental Desk Study for the site to the west and, as little has changed in that area, it was decided that this report would be adequate also for this site.

2.2 The Google satellite image shows that site is in a largely rural setting with houses on the northern border, fields to the west and south and a cemetery to the east.

2.3 Under current land use for the site, nothing is noted.

2.4 Under current land use for the surrounding area, a domestic cleaning services is marked at about 180 m to the north, an inactive scrap metal merchant is noted at about 210 m to the northeast and an industrial/commercial machinery business is marked at about 240 m to the east.

2.5 Under historical land use for the site, an electrical sub station is marked on the boundary with Wignal's Gate.

2.6 Under historical land use for the surrounding area, a railway line running east-west is marked at about 40 m to the south.

2.7 Groundwater vulnerability is classified as non aquifer with negligibly permeable formations and soil leaching potential is not known. The nearest surface water feature is a stream flowing along the eastern boundary.

2.8 Radon above the action level affects < 1 % of homes and no radon protection measures are recommended.

2.9 In summary, the site is in a largely rural setting with an historic electrical sub station on its northern boundary and a cemetery on its eastern boundary, groundwater vulnerability is classified as non aquifer and the nearest surface water feature is a stream flowing along the eastern boundary.

2.10 **Information from Heritage Statement and from Geotechnical report**: The Heritage Statement concluded that no heritage assets were present on the site and also noted that the railway line that ran about 40 m south of the site opened in 1858 and closed in 1965. The logs for the 5 trial pits in the Geotechnical report reported consistent strata of sandy, clayey and silty materials.

3 Site Visit on 29th May 2018

3.1 The site was visited when the weather dry but overcast. It comprises an area of land adjacent to the road that leads into a large field where by far the largest area of the site is located. An electrical sub station is located on the road boundary at the north eastern corner of the site (photo 1). The ground in the gap between the stream and the houses was clean with no evidence for any waste being tipped and the stream on the eastern boundary was clean with no rubbish in it or on the banks (photos 2 & 3).

3.2 A walk down the field on the eastern side revealed a very neat and well-kept cemetery (photo 4) with the stream flowing about 2 m below it and the field. A very healthy potato crop was growing in most of the field (photo 5), with the remains of the flower crop referred to in the Heritage Statement (photo 6). There was no trace of the railway line that was closed in 1965 to the south of the site.

3.3 There is a second entrance to the site on the northwest corner where the potato crop could be seen (photo 7). Looking along the northern boundary, there was no evidence for any dumping of waste (photo 8)

3.4 A walk around the area did not reveal any signs of potentially contaminating processes. The domestic cleaning business was run from a domestic dwelling.

4. Conceptual Model

4.1 The site (~5.4 ha) is in a largely rural setting with houses along the northern boundary, fields to the west and south and a cemetery across the stream. The former scrap yard is too far away to have any impact as is the machinery business. The railway line was some 40 m from the southern boundary of the site and any small amounts of contamination from soot, oil

and grease would have little impact on the site. Any contamination associated with the cemetery is isolated from the site by the deep ditch and stream flowing in it, so it will have no impact on the site. The only significant potential source of contamination could be the electrical transformer that has been replaced.

4.2 The site and the area surrounding it is level and flat, the ground under the site is impermeable and the nearest surface water feature is the stream flowing along the eastern boundary at about 2 m below ground level. The development plan is to construct 77 dwellings and use the land by the electrical sub station as an entry road to the site.

4.3 The suggested model of 'source, pathway, target' in which all three components have to be present will be considered for this site. In this context, the source will be a potential contaminant, the receptor will be human or environmental and the pathway will be some process whereby mass transfer from source to receptor occurs.

4.4 Possible pollutant linkages:

Contaminant	Pathway	Receptor
Polycyclic chlorinated biphenyls (PCB) from electrical sub station	Inhalation and ingestion of dust Incorporation into home-grown food Water transport into the stream	Occupiers of the buildings Groundwater and aquifer

5 Conclusions and Recommendations

5.1 The old transformer was replaced some time ago with a unit that has no PCBs to cool it. If the old one had leaked a little of the PCBs, then over the last 30 years it would have been washed very slowly into the stream or degraded. The position of the old transformer is on the entrance road and no houses are to be constructed within 50 m of it. Therefore, the risk of harm from PCBs to the environment and to the occupiers of the buildings is not significant and the risk is acceptable.

5.2 No further site investigation is necessary for this development.

6 Summary

6.1 The site is located in a largely rural setting with houses on one boundary, fields on two boundaries and a cemetery on the other. The site and surrounding area is flat with no slopes in any direction. No offsite sources of potential contamination were identified as presenting a significant risk of harm to the site. An electrical sub station was replaced with a unit that has no PCBs for cooling. Therefore, the only source of potential contamination is the original electrical transformer.

6.2 The historical electrical sub station may have leaked some PCBs, but as it will have been many years since it was replaced, any PCBs in the soil will have degraded and been dispersed

into the stream. Also, that part of the site will be the entry road and no houses will be constructed within 50 m of the electrical sub station. Therefore, the risk of harm to the environment and to the occupiers of the site from PCB is not significant and the risk is acceptable.

6.3 No further investigation is necessary for this site in absence of any potential sources of contamination that could present a significant risk of harm to the occupiers of the site or to the environment.

6.4 Those workers whose main job it is to grade sites or excavate significant quantities of soil could be subject to cumulative exposure to various substances on many sites and they should wear overalls and gloves, even if the soils do not present a significant risk to the health of the workforce. For example, the presence of water contaminated with Weil's disease is a small probability but working on many sites increases the risk of infection to a worker. Localised contamination from small amounts of chemicals that could have been discarded is an unlikely event, but if heavily discoloured or highly odorous materials are encountered, then appropriate advice should be sought.

Stuart Guy, BSc, PhD, C Chem, MRSC, C Eng, MIMMM

Photo 1 Electrical sub station on Wignal's Gate road next to entrance to eastern side of site



Photo 2 Stream from near the entrance to the site at north east



Photo 3 Stream from part way down field



Photo 4 Cemetery on eastern side of stream



Photo 5 A potato crop was growing in most of the site



Photo 6 Remnants of flower crop on southern part of site



Photo 7 Potato crop from northwest corner, looking south



Photo 8 No evidence for any dumping of waste from northwest entrance

