

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From: Environmental Health **To:** Development Control

Our Ref: DCS/EH/JPD/130730001 **Your Ref:** APP/12/00772

Ext. No: 6677 **Date:** 30/07/2013

DC Case Officer: Mr. David Eaves

Application Number: APP/12/00772

Site Address: Land South of Ranelagh Road, Havant

Proposed Development: Erection of 79 dwellings consisting of 8No. 1 bed flats, 12No. 2 bed flats, 6No. 2 bed houses and 53 No. 3 bed houses, construction of access from Ranelagh Road, provision of landscaping, open space and associated works. (Re-Consultation)

Observations / Comments:

I have reviewed the Soils Limited Phase 1 Environmental Desk Study & Phase 2 Ground Investigation Report (Ref_13284_DS & 13284_GIR respectively), both dated November 2011. These were not submitted to Environmental Health directly, and are not to my knowledge subject to a formal application to discharge the relevant planning condition(s) at this stage.

Having come across these documents however, it may be useful for Environmental Health to place a response to- / appraisal of- the submitted documents on the planning record for future reference. To this effect, please see the comments below.

Environmental Desk Study

Potential Contamination Sources

The report does not specifically identify the "Brick Field" as a potential source, though this is clearly marked on the 1897 map on site. The term Brick Field usually refers to a site where bricks are typically manufactured and sold. No map issue notes the presence of above-ground structures or chimneys (kilns), nor the presence of clay extraction pits. Manufacturing is typically undertaken in pit kilns, heated by means of crushed coal. This leaves open the possibility of a relatively significant made ground, and significant presence of ash / combustion residue & associated contaminants (PAH/Metals/Semi-Metals).

It is difficult from the available mapping to determine whether this is feature represents a transient (short-term) land use as it only appears on the notation for one map issue.

It is possible however that the use was undertaken for a duration spanning the early 1870's to early 1900's, or indeed (given the absence of associated built structures) that some map issues simply omitted the identifying notation whilst the activity was still being undertaken. This is regarded as potentially the most significant potential contamination source, beyond any heating system (and associated fuel – coal, oil or town gas production) for the glasshouses previously occupying the site.

With respect to off-site sources, the report places little significance on the presence of Marine Engineering works at it's southern boundary (present over past 30 years or so). Whilst this feature is relatively modern, it is likely to represent the most significant potential off-site source. It is worth noting that the Landmark data lists this feature as being >200m distance, but in reality

it's boundary is adjacent to the southern boundary of the development area, with the works structure being located within 6m of the boundary. The >200m distance is a result of the use of point identifiers, and this is the method used for all distances – these should be treated with caution.

Receptors

The report identifies the hydrogeological designation as a Secondary A aquifer (despite the SPZ1 classification for the protection of the principle aquifer), and refers to the High(U) leaching potential designation.

In terms of leaching potential – the “U” (Urban) classification is assumed, due to the likely presence of worked & made ground. This essentially requires site won data to classify. I would also point out that while the nearest potable abstraction point is recorded at 218m west of the site. I am unsure as to which point this refers to – two abstraction licence (registered location grid ref's) fall within this distance, and the nearest spring is within 25m of the site.

Several references in the report imply that Soils Ltd. are assuming that the pumping stations marked extract water actively from boreholes installed within the aquifer, and this is relied upon both to make assumptions with regards groundwater flow direction, and for determining the location of the potable abstraction. This inference has also been relied upon to identify potential off-site sources of contamination that are (and are not) of concern.

I would stress that local potable abstraction in this area is not undertaken by means of pumping from the aquifer; water is instead collected and piped from a network of springs, and the location of abstraction licences is in effect immaterial. Pumping stations are for the movement of water at the surface. *For this reason, the Source Protection Zone should be regarded in the first instance as a valid receptor, and depending upon site hydrogeological data, secondarily the nearest spring feature that is in use for potable supply, or nearest watercourse.*

Conclusions

The site walkover did not identify any evidence of current or former above or below ground storage tanks, or evidence of staining or spillage. With respect to the identified sources, Environmental Health are broadly in agreement with the conclusions of the report.

However, only pesticide / herbicide risks have been considered with respect to the glasshouses (present from >1867 to <1932), and the possibility of contamination from artificial heating (fuel / burners, inclusive of on-site fuel production common during the later 1800's) has not been considered.

Given the inferred groundwater flow direction (which as noted above, and discussed below, is not necessarily an reasonable assumption), contamination from such a source might be expected to be confined to the site. If local flows differ however, it is possible that contamination could migrate off-site.

Glass houses were similarly not confined to the site, and the site configuration (in terms of the use of service buildings, and service infrastructure positions); so it remains possible that any potential source could exist off site, or indeed not be present at all. The absence of consideration of these issues however means that the intrusive investigation will not be designed to target this potential source.

In the same way, not identifying the Brick Field or Marine Engineering works as potential sources of concern (on-site & off-site respectively) will likely lead to information gaps in the intrusive investigation.

The report does however identify on-site uses as being a medium risk, and does recommend intrusive investigation. Radon protective measures are noted to be required, and flood risk is

identified. Off site sources >150m distant (from the site boundary) are deemed low risk, and on-site sources of bacteriological contaminants resulting from agricultural landuse are deemed to be low or negligible risks. Environmental Health agree with all these conclusions.

Ground Investigation Report

General

Some errors are noted in the objectives / location sections, whereby the text of the report does not appear to relate to the proposed development or red line site areas. Comments are made here on the basis that these represent report errors and the scheme remains as consented.

The description of site works (notably pre-dating the desk study report) states that selection of locations for Boreholes & Trial Pits was undertaken on the basis of proposed site drawing (development scheme) to provide site wide coverage. However, no sample positions intersect the former glasshouse complex, none are positioned close to the southern boundary of the site adjacent to the Marine Engineering Works, and all sample points in the vicinity of the Brick Field are located at the periphery of the marked boundaries (and therefore the likelihood that features such as pit kilns would be intersected by the investigation is limited).

With this said however, it is accepted that without great effort to achieve a high sample resolution, the intersection of any features of interest (within the brick field area, by trial-holes) without a desk-based indication of probable location would likely be as much a matter of luck than by investigation scheme design. This serves to highlight the importance of the watching brief required by condition 8.

In terms of the Geological succession, this is noted to be relatively consistent across the site, consisting broadly of worked topsoil / made ground / Head / Lewes Nodular Chalk. Very little thickness of made ground was identified within the trial holes, and where encountered mostly consisted of brick rubble, ash, flint cobbles & organic soils. No visual or olfactory evidence of contamination was recorded in any of the trial holes, and where encountered, the Chalk was noted to be 'structureless' and [nearly] 'completely weathered' (Putty Chalk).

Groundwater

Groundwater was encountered in two of the 4 trial pits at 2.3m & 3.0m below ground level (BGL). Windowless Samples (wells) were dry upon construction, but groundwater rest levels fell within the range of 1.4m – 3.6m BGL.

Levels relatively consistent at individual holes, but fairly disparate between locations. There is some local variation in ground levels, but not to a degree comparable with the GW differences of circa 2.2m. This would seem to indicate (in conjunction with the poor infiltration rates indicated) that GW flow / gradient / recharge is likely to be slow / weak & spatially sporadic.

Whilst levelled groundwater data (from spot heights – indication of height from datum) does indicate a strong bias toward westerly flow; it is considered more likely that these differences can be explained by local variability in water bearing capacity of the underlying superficial geology than by a strong, directional flow gradient.

Conceptual Site Model (CSM) & Sampling Strategy

This section refers to the desk study (presumably prepared prior to the undertaking of phase 2 works). As might be expected from the omission from the Desk Study, the use of part of the site as a Brick Field is not considered in the design of the sampling strategy.

Off-site sources are noted as those located at distance of the site. The presence of engineering works (of significant scale) adjacent to the southern boundary of the development site does not appear to have been a factor accounted for in the sampling strategy.

This assessment does not specifically address what are arguably the primary risks to the site (beyond general anticipated presence of Made Ground). Site coverage by trial holes / sampling was restricted as access to various areas of the site was limited by various noted factors.

No trial hole is located within the area of the former glasshouses, no access was possible to land at the shared boundary between the engineering works and the development site, and similar restrictions hampered the investigation of the central portion of the marked Brick Field.

TP3 & DP2 were however located broadly peripheral to the marked Brick Field, and WS1 was not badly positioned to intercept any contamination that might originate from the Northern group of Glasshouses, assuming that the inferred westerly gradient is in fact representative of site conditions.

This section describes a general lack of any evidence of contamination, with the exception of a 'thin veneer' of made ground at WS1, of less than 0.25m depth; described in terms of being of little significance (agreed).

The revised CSM removes ground gas pathways & receptors, and identifies distant off-site receptors as being of low risk. The CSM continues to list on site Farm/Stable environment & made ground (associated with historical development) as Medium risk. The Nurseries continue to be assessed in line with that presented in the Desk Study – i.e. low risk. As described above, I do not feel that there is currently sufficient information to support such a conclusion.

The report does conclude that further intrusive work needs to be undertaken in the area where access was restricted at the time of initial investigation. I would wholly support a further phase of investigation, and would recommend that some additional investigation be undertaken in the Brick Field area to improve confidence in the conclusions of the report.

Determination of Contaminants of Concern

The sampling suite employed is considered to be adequate and sufficiently broad in the context of the potential sources identified.

It is noted that all soil samples targeted a depth of <0.5m BGL, i.e. human health receptors.

Results of Chemical Sampling & Generic Risk Assessment

Broadly speaking, reported results from sampling of both soils & groundwater were favourable. I take no issue (given the site won data presented) in the use of a 6% soil organic matter (SOM) weighted screening value being used for comparison with sample results, and the majority of results do fall well within acceptable levels.

Lead levels are similarly marginally elevated, but only exceed GAC / SSV at the 1% SOM weighted value, and I agree that site won data confirm that an SOM weighting between 2.5% & 6% is appropriate (actual values recorded at between 1.2% & 11.5%, the majority at the upper end of the range).

Zinc results are identified at levels in excess of the SSV ('residential with plant uptake') in 5 of 8 samples, but the maximum value recorded falls well short of the CIEH GAC screening value. There is noted to be a big disparity between CIEH GAC's and ATrisk Soils SSV's for zinc (3750 mg/kg GAC, 130mg/kg SSV); probably as a result of to input parameters / exposure scenario's modelled. With specific reference to zinc, the SSV without plant uptake = 19,000 mg/kg, compared with 130mg/kg (with uptake); indicating that the majority of exposure sensitivity is within the consumption of home-grown vegetables.

On balance, given the CIEH GAC's presented for allotments & residential, and giving consideration to the drinking water standard, it would seem that the Atkins SSV for residential

exposure represents an overly conservative value. Whilst a US95 for zinc on the basis of the available samples is not unlikely to exceed the SSV, I am not particularly concerned with the zinc concentrations identified.

Results presented for Lead & Zinc arguably demonstrate some impact to the land from previous land use, but not at a level considered likely to be significant for human health (for the proposed development).

I note that no groundwater monitoring results are presented in the report, and whilst the report implies that leachate testing was undertaken, no results are presented. The only indication provided is that 'no elevated levels of determinands tested for', and no EQS exceedance. In the majority of cases EQS reportedly refer to drinking water standards, which in the context of the SPZ1 is considered appropriate.

For completeness of records, I would like to see the lab sheets to confirm the exceedance data table presented in the report.

Drinking water standards for zinc are beyond the range likely to be leachable from the soils, and are not of particular concern, and Lead leachability is PH dependent and generally inhibited at higher PH's (as are likely within groundwater at this site).

Conclusions & Recommendations

Key conclusions of the report are:

- (1) Further Investigation of areas of the site inaccessible at the time of the Phase 2 intrusive investigation *is required*
- (2) Fibre screen (for asbestos) was negative in all soil samples, but that an appropriate asbestos survey is required prior to demolition of existing structures on the site
- (3) Appropriate (basic) radon protective measures are required within all new residential dwellings constructed on the site.
- (4) Based upon the results obtained as part of the phase 2 intrusive works, no soil or groundwater remediation measures are considered necessary for the protection of Human Health
- (5) Groundwater flow is to the West
- (6) Based upon (5), contamination impacting groundwater from the area beneath hardstanding would have been identified within groundwater monitoring results.
- (7) Based upon the results obtained as part of the phase 2 intrusive works, no soil or groundwater remediation measures are considered necessary for the protection of controlled waters.
- (8) A contamination discovery strategy must be implemented during construction works
- (9) Additional groundwater sampling should be undertaken prior to commencement of site works, and post demolition to ensure that no contamination is mobilised as a result of groundworks.
- (10) WAC tests should be undertaken on any material destined for off-site disposal
- (11) Site won non-hazardous material can be re-used on site following the CL:AIRE Voluntary CoP scheme.
- (12) Chemical analysis of imported topsoil must be undertaken to confirm suitability for use (i.e. both as a growing medium and in terms of being non-hazardous).

I agree with (1), but would additionally require that the planned additional phase of investigation aim to target soils underlying the former Glasshouses and Brick Field features; and consideration be given to a sampling location close to the extant marine engineering works.

With respect to conclusions (4) & (7), I would agree based upon the presented information. However, it is considered that the sample resolution / distribution is not necessarily sufficient to extend this conclusion to the entire site area.

As indicated in the 'groundwater' section above, I would disagree sufficient data has been collected to demonstrate a probable groundwater flow direction (conclusion (5)). There is conflicting information presented within the report with respect to the mobility / recharge of groundwater which diminishes confidence in this conclusion.

I similarly disagree with conclusion (6), chalk is clearly encountered at varying depths (as shown by logs), and various chalk units are anticipated to be likely at this site, not necessarily in clear succession (i.e. dept on weathering). There may therefore exist a pathway on an un-investigated area of the site.

The nearest GW monitoring point (to the stables area hardstanding) is between 42m (min) & 124m (max) perpendicular to hydraulic gradient, and unless source area is significantly large, given prevailing GW conditions migration would be expected to be slow, or dilution high – depending upon interpretation of site won data.

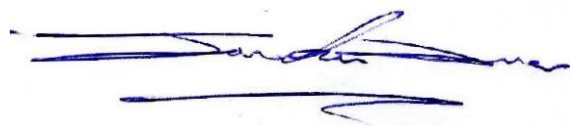
As the GW monitoring points are not down-hydraulic gradient of all potential receptor / compliance points (SPZ1 covers whole site, and any point of the SPZ could be deemed to represent the compliance point) - this blanket assumption is not necessarily appropriate. In line with conclusion (1), the area should be subject to investigation - I would suggest by means of trial pits (~2.0m Depth) to allow inspection of a wider area of soil profile.

With respect to conclusion (9), this is agreed as a sensible precaution, but if appropriate Phase III works (additional intrusive SI) does not ID any contamination, this should not be necessary with the construction methods being proposed. Piling solutions, or significant excavations with the chalk strata would need to seek consent / agreement of PWC due to potential turbidity issues, but phase III intrusive works & discovery strategy should aim to be sufficiently robust as to not require groundwater sampling pre- & post- demolition/groundworks.

With reference to conclusion (10), it is recommended that WAC test results are submitted to the LPA for completeness of records, and could for example be used to demonstrate compliance with the 'unexpected contamination' condition (i.e. demonstrating that no contamination was identified in excavated materials).

All other conclusions (2, 3, 8, 11 & 12) are agreed.

Best Regards,



Jonathan Driver
Environmental Control Officer