

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From:	Environmental Health	To:	Development Control
Our Ref:	CONS/18/02491	Your Ref:	APP/18/01107
EH Case Officer Extn:	44 6677	Date:	25 January 2019
DC Case Officer:	Tina Pickup		
DC Case Officer Extn:	44 6461		
Application Number:	APP/18/01107		
Site Address:	Land rear of, 97A Lovedean Lane, Waterloooville, PO8 9RN		
Proposed Development:	Land rear of 97A Lovedean Lane, Waterloooville, PO8 9RN		
	Proposed Development: Erection of 3No. 4 bed dwellings including parking and landscaping.		

Observations / Comments:

Firstly, my apologies for the delayed response to this consultation; an administrative error was made when registering the service request on Environmental Health's internal system, and I was not notified that comments were required for this application.

I note that a geo-environmental site investigation was submitted in support of this application. I have now had opportunity to review this document, and I would like to provide some comments.

I note Portsmouth Water has already addressed foul drainage risks, so I will not make further comment in this respect. Portsmouth water has also touched on some geological hazards which are relevant to the design of surface water drainage at the site. I do not see the need to comment further, other than to reiterate that caution should be exercised if proposing to utilise infiltration drainage at this site - there are pollution vector risks, contamination mobilisation risks, and physical hazard risks (long-term ground stability).

Comments here will focus on the Ground Contamination Assessment.

Geo-Environmental Site Assessment (General)

The submitted Phase 1 & 2 Geo-Environmental Site Assessment essentially concluded;

- That soils were too variable / weak for traditional strip foundations or ground bearing slab construction to be viable, within design settlement tolerances (and therefore piling is required)
- Made ground associated with the former chalk pit is at least 3.5m deep, and that the base of the pit feature is present at a depth exceeding 5.0m below current ground level.
- Made ground is encountered widely across the site , but is generally of reasonably shallow depth
- There was no visible asbestos containing materials at the site, and no fibres identified in any screening of soils.

- There is no evidence of gross contamination by means of a spillage of fluid-phase contaminants is present
- That, for various reasons, there is not considered to be any significant pathways to the principle aquifer.
- That contamination is limited to the vicinity of WS101, and
- That contamination is limited in it's depth range, to shallow made ground

I would challenge the basis for a number of these conclusions. In particular, as Portsmouth Water has already adequately described, the distance to the location of the potable abstraction point is irrelevant given that the aquifer system is dominated by fracture flow, and that travel times from this SPZ1 to the point of abstraction have been measured in terms of hours. The absence of groundwater is similarly not taken to be an indicator of a lack of pathway between shallow soils and the chalk (it could conversely represent a very direct vertical pathway from shallow soils to the principle aquifer), and I would regard assumptions made about the variable cohesive soils acting as a functional aquitard to be not well supported by the trial hole logs. If the report indicated that a bulk source may exist at the site, I would require a significantly more robust empirical justification for the conceptual assumption that no pathway exists between shallow soils and the principle aquifer.

As regards the soil quality data, it is noteworthy that all exceedances of GAC were recorded in shallow made ground at WS101. The report concludes at 9.1 that impacted soils at WS101 are vertically restricted to shallow made ground, making the implicit assumption that contamination is also laterally limited to the location of WS101.

The available data does not support such inferences - the only presented chemical data is from shallow soils, so there is no information on the quality of either the deeper made ground or the head deposits. Similarly, it does not follow that a trial hole which has intersected a deposit of 'contamination impacted soils' is necessarily close to the source, or that a delineation exercise should (necessarily) be centred on that location. No outlier test was done to identify WS101 as being likely to belong to a different sample population, and the results of any such test may well be skewed by the small sample size, so being of limited use in refining the site conceptual model.

Exceedances of GAC within shallow soils at WS101 were relatively marginal (up to 200%, not by orders of magnitude), and there was no particular reason to expect there to exist a different sample population here.

Descriptions of made ground differ across the site, and it is probably appropriate to treat all occurrences as a single unit until the data indicates otherwise. The possible exception to this might be the infilled chalk pit, which differs in character if only in relation to it's depth & extent.

I will return to this in recommendations for further work (below).

Ground Gas

Three rounds of gas monitoring were undertaken over a relatively short period in the summer of 2018. These indicate some degree of biological degradation occurring within soils, returning elevated CO₂ & depleted O₂, but very low gas flow (low generation rates). Concentrations of CH₄ were all below limits of detection.

The report concludes that the maximum concentration of CO₂ at 5.0% is potentially grounds to upgrade the gas risk of the site (relative to it's calculated screening value, which responds strongly to the low flow rates recorded), to a level where gas protection would be considered to

be required. My interpretation of the guidance is that results characteristic of CS1 should show maximum CO₂ concentrations which are *generally below* 5.0% and that a single result at this level should not necessarily be regarded as a threshold trigger for gas protection to be required - though I would agree that it may be justification for some additional rounds of monitoring to better characterise the gas regime at the site over a more varied period (e.g. including autumn or winter seasons, falling pressure conditions etc.).

Conclusions of table 10.1 (that further monitoring is necessary, and is preferable to submitting a scheme to mitigate an assumed risk) are accepted.

Tier 1 Qualitative Risk Assessment

Table 9.1. concludes that further assessment is required for Cadmium, B(b)F, B(a)P & D(a,h)A. Not included in the table is the result for Zinc, which returned a maximum value 3480 mg/kg. Being of low toxicity this determinant does not exceed its corresponding human health screening value - however this substance is significantly elevated relative to other samples and expected 'normal' concentrations. All maximum values are reported at WS101 at 0.15-0.25m below ground level, and calculations undertaken by Environmental Health show all these results to be outliers.

9.1 concludes further investigation of shallow soils is necessary 'in the vicinity of WS101 ...to delineate the extent of near surface impact through the advancement of shallow dug hand pits'

9.2 concludes that there is negligible risk to controlled waters, citing conceptual reasons which I do not agree are well supported by the available empirical data at this point. I accept that there may be a low risk to controlled waters, but if this is the case, it would likely be related to a lack of source volume at the site and not to the reasons cited.

What is known is that WS101 indicates that some made soils at the site are significantly impacted by contaminants. It is also known that the made ground in the former chalk pit is at least 3.5m thick (WS103). Whilst the report concludes that the material below this depth comprises head deposits, it is a reasonable assumption that when active the base of the chalk pit was chalk (not Head deposits). It follows that the material described as Head deposits may represent anthropogenically placed material (Made Ground or worked soils), and that the depth of made ground within this feature may therefore not have been proven (i.e. it may exceed 5m). Anthropogenic wastes materials could be present beneath the maximum depth of WS103 (within the chalk pit).

The report relies upon the physical description of made ground at WS101 to identify this as being the only deposit likely to be of concern. WS103 is fairly lightly dismissed on the strength of the shallow soil sample only.

Conclusions & Recommendations for further work

The proposed landuse is sensitive, and the geology of the site introduces further environmental sensitivities which increase the need for decisions to be based upon robust site-specific information.

I would interpret the greatest potential risks to future site occupants to be the quality of shallow soils at the completed development (at or placed within landscaped areas allocated to each unit, whether as formal garden, amenity space, or as 'woodland'), and ground gas (for which there are numerous local potentially contributing features - one of which on site).

The greatest risk to groundwater would appear to be the deep made ground (landfill) at the former chalk pit.

I agree with the authors that further investigation of made ground is necessary, and I would also agree that WS101 may be an outlier. However, I disagree that the logical conclusion is that WS101 is the only likely deposit which may warrant investigation, and that the further investigation should be limited on the strength of the submitted report.

The investigation collected samples throughout the soil profile, but only scheduled shallow soils for chemical analysis. Only 5 locations were sampled, and descriptions of made ground vary both with depth at any given location, and laterally between locations. The sampling rates and stratification limits the conclusions that can be drawn on the basis of the available data.

There is little desk study information which would lead us to conclude that made ground should differ substantially between locations, and it would seem reasonable to conclude that made ground at the site is likely to be characterised by numerous small deposits of material of varying character & origin (of which WS101 is representative of one), present as residues from materials handled-, or as deposits of waste disposed of at- the site.

I would recommend that subsequent site investigation not prematurely limit the assessment area, and should seek to establish;

- a) the extent to which WS101 shallow soils results are limited in both lateral and vertical extent (as proposed)
- b) the 'average character' of shallow topsoil / made ground within 1.0m of surface, to improve confidence that WS101 represents an isolated deposit and not a chance intersection of a trial hole with 'widely distributed but sporadic' made ground of an aggregate character which could be considered to be significantly contaminated.
- c) whether head deposits (subsoil) within 1.0m of the surface have been significantly impacted by overlying made ground.
- d) the character of soils placed within the former chalk pit, specifically considering their water pollution potential (e.g. including leachable fractions).
- e) a more accurate characterisation of the local ground gas regime (as proposed)

I would not wish to pre-judge the outcome of such an investigation, but consider that a good quality follow-up investigation could avoid the need for precautionary mitigation measures to be implemented through the course of development.

I have no objection to the principle of these proposals, subject to these risks being addressed as a condition of development. Suggested wording below:

Condition 1 [Contamination Assessment – omitting EDS, based upon submitted EDS proposals]

Prior to the commencement of any specific phase of development approved by this planning permission (other than demolition, site clearance, or any other date or stage in development as may be agreed in writing with the Local Planning Authority), an assessment of the nature and extent of contamination at the site, whether originating from within or outside the curtilage, shall be submitted to and approved in writing by the Local Planning Authority.

The assessment may comprise separate reports as appropriate, but shall be undertaken by competent persons and unless specifically excluded in writing by the Local Planning Authority, shall include;

- 1) An intrusive site investigation based on the proposals outlined within the Geo-Environmental Site Assessment Ref: A10965; to provide sufficient data and information to adequately identify & characterise any physical contamination on or affecting the site, and to inform an appropriate assessment of the risks to all identified receptors.
- 2) The results of an appropriate risk assessment based upon (1), and where unacceptable risks are identified, a Remediation Strategy that includes;
 - appropriately considered remedial objectives,
 - an appraisal of remedial &/or risk mitigation options, having due regard to sustainability, and;
 - clearly defined proposals for mitigation of the identified risks.
- 3) A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the Remediation Strategy (2) are complete, identifying any requirements for longer-term monitoring of pollutant linkages, maintenance of engineered mitigation measures, and arrangements for contingency action.

All elements shall be adhered to unless agreed in writing by the Local Planning Authority.

Reason: Having due regard to policies DM10 of the Havant Borough Adopted Core Strategy [2011] and DM17 of the Havant Borough Local Plan (Allocations) [2014], Contamination may be present within made ground at the site and in the vicinity, that could pose a risk to future occupiers of the site, to the principle aquifer and the quality & security of the local potable water supply.

Verification (Standard) [2]

*Prior to the occupation of any relevant part of the permitted development, any verification report required in accordance with **condition [1]** shall be submitted to and approved in writing by the Local Planning Authority.*

The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan, and must demonstrate that site remediation criteria have been met. Where longer-term monitoring of pollutant linkages is identified as being necessary, the report shall clearly set out plans for monitoring, provision for maintenance, relevant triggers and contingency actions (a "long-term monitoring and maintenance plan").

The long-term monitoring and maintenance plan shall be implemented as approved.

Reason: Having due regard to policies DM10 of the Havant Borough Adopted Core Strategy [2011] and DM17 of the Havant Borough Local Plan (Allocations) [2014], Contamination may be present within made ground at the site and in the vicinity, that could pose a risk to future occupiers of the site, to the principle aquifer and the quality & security of the local potable water supply.

Mr. Jonathan Driver
Environmental Control Officer