

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From:	Environmental Health	To:	Development Control
Our Ref:	CONS/21/04154	Your Ref:	APP/21/00189
EH Case Officer Extn:	44 6677	Date:	27 January 2022
DC Case Officer:	Ms Lesley Wells		
DC Case Officer Extn:	4223		
Application Number:	APP/21/00189		
Site Address:	Broadmarsh Playing Field, Harts Farm Way, Havant, PO9		
Proposed Development:	Outline application for the development of new employment units to provide up to 29,000 sq. m (gross internal area) for flexible use across use classes E (light industrial), B2 and B8 with ancillary offices, car parking, service yards, drainage works, landscaping and associated works to prepare the site for development. All matters are reserved except the means of access to the site. RECONSULTATION REQUEST for revised plans and/or documents received		

Summary:

Some potentially material aspects of the contamination assessment have been identified which could be interpreted to be contrary to National Planning Policy, if a strict interpretation were applied. A more nuanced interpretation is arguably available, and additional planning considerations (such as both reasonableness & proportionality) may well apply.

These comments do not make a specific recommendation as to the approval- or refusal- of these proposals, and instead aim to inform the planning decision (against a broader public interest test) of both sides of the possible interpretations.

The interaction of the various related documents (Construction & Material Management Plans, Ecological Assessment, Factual & Interpretive Contamination Assessment, Water Quality Monitoring, Remedial Options Appraisal & Verification Strategy) are discussed, and a consolidated suite of amended conditions is suggested in substitution to those proposed by the Environment Agency (EA), and that previously recommended by Environmental Health.

It was intended to broaden the scope of EA proposed conditions to specifically incorporate Ecological risk drivers and those aspects only relevant to the Local Authority (i.e., Human Health, Built Environment). The EA may wish to review the proposed amendments, particularly in relation to managing the risks of piling via a method statement.

Observations / Comments:

My apologies for the delayed response to this consultation. Given the policy context, the complexities of considering the wider source area, and the environmental sensitivity associated with both the Harbour as a controlled water, and the various ecological designations; it is appropriate that the Council seek to gain a robust understanding of the assessments submitted.

I have now completed a comprehensive review, and would like to highlight some aspects that are subject to some residual uncertainty – for which a judgement on the balance of probabilities is required.

These comments do not make a recommendation either to refuse the proposals on policy grounds, nor do they make a recommendation to approve with conditions. The aim is to assist the planning service, or the Council (as the case may be) in its determination of the application against the applicable policy. Recommendations for conditions apply in the event that the Council is minded to approve the application.

Habitats Regulations Assessment (Appropriate Assessment) (HRA-AA)

I have reviewed the HRA-AA documents insofar as they relate to leachate associated with the waste materials at the site, and how this may affect water quality.

In terms of scope (of the HRA-AA), it is noted that *all matters capable of having a significant effect on designated sites in the Solent* must be addressed, but also that it is the *net emissions into European Sites that is critical*.

On balance, I would concur that the greater portion of potential development impacts are associated with short-term (construction-related) impacts, and that the long-term (development) impacts are likely to be neutral as a worst-case, with a reasonable potential for overall betterment. However, I would also highlight that the HRA-AA addresses the *net* impact associated with the development, and that the contaminated land framework (both the statutory instrument, and the related policy context-) differs in that it is concerned with the *overall impact of contaminants associated with soils at the site*.

In principle (therefore) it is possible to conclude ‘no significant adverse effect’ under an HRA-AA, whilst also concluding that contamination present at the development land is nevertheless contributing to long term ‘significant harm’ to the same receptor. In this sense, the advice of Natural England (which is focussed on the new, development-related inputs) does not have the scope that I’d hoped for, and do not necessarily have wider application (e.g., to consideration of ecological receptors under the Contamination Assessment)

Contamination – Revised Geo-Environmental Assessment (GEA, 19-2099.04 v.4.3)

The GEA was significantly revised following a meeting held with the applicant, the authors, Havant Borough Council and the Environment Agency. I would agree that the revised report broadly reflects the discussions held and has accounted for issues raised.

I have identified some aspects which have the *potential* to be material to the conclusions of the assessment; briefly summarised in Appendix 1.

These factors leave room for the contribution from the site to be unacceptable in respect to consuming available ‘headroom’ within a more limited (but nevertheless significant) geographical area (than that used for dilution calculations), which could tip a borderline environmental threshold over to an unfavourable condition (e.g. with respect to either a WFD quality objective, or an overriding conservation objective associated with one of the multiple protection designations associated with this waterbody).

GEA Water Quality / Ecological Receptors - Summary

Issues (1-3, Appendix 1) are material to consideration of the supporting documentation in the

context of NPPF para. 183 b), and c). I have highlighted these issues to the Environment Agency, being the competent authority for controlled waters. I have not highlighted the above issues to Natural England (as the competent authority for protected areas) but note that the above considerations were not covered within the consultation comments received.

The issues highlighted are not necessarily reasons to object to the proposed development – as has been noted, and as is evident from the HRA-AA; the impacts are not directly linked to development and are instead linked to the prior use of the land. A more nuanced interpretation of para.183 may be reasonable – e.g. rather than interpreting the wording to mean i) 'land should *never* be capable of being determined as contaminated land' (183 b)), interpreting the policy to mean in practice that ii) 'development proposals should be supported by adequate information to show that the site is not *likely* to be determinable as contaminated land *upon completion of the proposed development*' (183 b) & c)).

Similarly, 183 a) provides that the LPA should be satisfied that a site be 'suitable for its proposed use', taking account of 'former activities', as well as 'potential impacts on the natural environment arising from ...remediation'. This text implies a that the policy may be interpreted to focussed upon the suitability of the site in a way that is considered *relative to its existing state*. This may especially be the case where the risk driver is an off-site environmental receptor (i.e., water quality).

Accepting these interpretations would mean that the development could proceed, having demonstrated a worst-case neutral impact, best-case positive impact (betterment, in accordance with the GEA), relative to existing. This could be reasonable especially where development does not prejudice future remedial actions, and would be analogous to the logic applied to any remedial measure which addresses exposure pathways (rather than aiming to reduce the concentration or volume of contaminated material). Both clean cover systems & ground gas protection measures fall within this category, and both apply to this site for the human health limb of the assessment / remedial strategy.

Such a judgement could be supported on the balance of probabilities, on the bases summarised in Appendix 2.

It should be possible to justify support for the principle of development (i.e. accept that 183 c) be interpreted-) in line with the 'balance of probability' & policy considerations outlined in Appendix 2, notwithstanding that the development of the land cannot be said to preclude the possibility of determination of the land as contaminated land at some point in the future (e.g. in relation to new information, or new physical factors which adversely impact the current Conceptual Site Model (CSM)).

This suggested conclusion should be regarded as 'subject to the agreement of the Environment Agency with the interpretations / judgements represented in this response in respect of controlled waters EQS/GAC (or the Agency choosing not to raise any material concerns about the points directly highlighted)'.

GEA Human Health - Summary

Conclusions & recommendations of the GEA are broadly accepted. It is agreed that gas protection measures to Characteristic Situation 3 are appropriate, and that Clean Cover would be prudent within new areas of soft landscaping. It is agreed that there is no need to install engineered Clean Cover in vegetated areas of the site that will not be excavated during the course of development.

Contamination – Remediation Options Appraisal & Verification Strategy (ROA, 19-2099.07 v.2.3)

It is assumed that 'pre-construction site enabling works' do not directly correspond to implementable scope of the outline consent – i.e., form a 'means of access', and that the

described works represent reserved matters.

It is also noted that this document represents an 'options appraisal' and does not represent a 'remediation method statement'. The document does not seek to provide a detailed design or specification for the preferred remedial options, deferring detailed design (or selection of design concepts) to future stages. The report acknowledges this at 1.4, and in this respect, it is likely to be appropriate to seek to secure a 'remediation method statement' at the reserved matters stage, which can account for the evolving detailed design – especially of gas protection measures and foundation options.

There is also some crossover with construction management planning, in particular as indicated at section 5.5, which anticipates a revised CEMP/CEMS as including an asbestos management plan (AMP) and surfacewater quality monitoring plan (SWQMP). These elements, alongside the Materials Management Plan (MMP) are particularly relevant to the site preparation and enabling, below ground construction works, and clean cover. As above, and it may be appropriate to secure a revised CEMP and supporting documents (AMP/SWQMP) at the reserved matters stage. It is understood that this is anticipated, and that Delta Simons has already provided input on runoff & leachate control elements of the CEMP that relate to the proposed cut & fill operation.

Following comments here assume policy compliance under the preferred primary remediation option (infiltration reduction, no new barriers), discussed in GEA section (above). This section aims to address specific elements of the ROA not covered in the GEA discussion, above.

Section 5.3.2 – (Strategy for Remedial Works); Relict Drainage

This section refers to drainage in context of management of pathways related to surface runoff, during site preparation & construction. These provisions differ from the context of the GEA section 10 (revised Conceptual Site Model), which refers to preferential pathways (drainage) in terms which assume significance only where the outfall is linked to the *landfill waste body, intentionally, for the purpose of water management (during tipping)* (i.e. as headwall discussed at GEA 7.6.2), which does not necessarily provide for the risk of drainage *not designed to drain the landfill waste body, nevertheless capable of acting as a preferential migration pathway* (e.g. due to defects). Former is unlikely for the outfall in the northeast of the site, the latter is possible in relation to that outfall, and one additional.

Delta Simons refers to the North-east outfall as not being marked on any plan – there is however a plan which identifies it as 'HW.4', and that plan shows it serving a highway drainage ditch to the north of the development land. Another outfall, to the South-West, assumed to be 'HW.5' (plan missing, but elevations & spec. correspond to Sewer Network records), is connected to a 36"/900mm conduit which underlies the development land in the West of the site, with at least one Manhole/Inspection Chamber being present within the development redline area (therefore probably corresponding to the tipping area). Preferential migration can occur either through a breach in integrity of the conduit (e.g., through settlement), preferential migration around the annulus (e.g., granular bedding), or through deliberate connection (surface water drains, serving land drainage, etc.). Both HW.4 & HW5 hold potential to act as preferential pathways, but equally both are likely to be in contemporary use for off site infrastructure.

I would not object to investigation of HW.4 in order to confirm it's condition, but I would highlight that the logic which justifies this as a remedial measure also applies to HW.5. CCTV inspection is not the only method of verifying the function of the features as a direct pathway – a water sample could prove informative (e.g., as to the likelihood of the conduit carrying leachate)

I would recommend that a subsequent RMS should provide clarity on the strategic proposals discussed in 5.3.2 of the ROA / Section 10 of the GEA, in respect of drainage.

6.4 – (Strategy for Remedial Works) Ground Gas Protection

This section refers to the need to allow some form of preferential venting to reduce diffusion gradients which encourage ground gas ingress to buildings. It is suggested that 'permeable paving' may be used for this purpose.

Given the overall (primary/preferred) remediation objective of reducing infiltration, the concept of permeable paving should generally be avoided (unless tanked, which would not serve the ground gas objective referred to here-). It is agreed that this should be considered in the design of the development by the ground gas specialist, but I would recommend that specific engineered venting options be adopted that do not risk undermining the objective of minimising infiltration.

6.4.2 suggests that specific measures should be agreed with the Local Authority prior to adoption – 6.4.4 indicates that a specific gas verification plan should be submitted. This would suggest that it is both anticipated, and appropriate that a detailed RMS be sought at an appropriate stage, as indicated above.

6 (Strategy for Remedial Works) Clean Cover & Materials Verification

I note a mismatch in the GAC applicable to the stockpiled soil, and the GAC which apply to the post-placement verification exercise. Given the conservative nature of the stockpiled material GAC, and the disruption that would be caused by excavation of out-of-spec soils (which are not unacceptable to the exposure scenario); this is acceptable.

I would agree that post-placement disturbance of installed clean cover (e.g., for tree planting and service installation), and I would expect the verification report to evidence the disturbance & reinstatement of cover to accommodate such works.

6. (Strategy for Remedial Works) Services / Utilities

This section refers to several design issues which are currently uncertain – water supply pipework requirements, service corridor design, and specialist design of buried concrete, due to the 'highly aggressive' ground conditions arising from ammonium concentrations within the waste body.

Concrete design is particularly relevant to the proposed CMC ground improvement. This technique may demand the use of a weak concrete mix, which could be particularly vulnerable to aggressive ground conditions. If a vibro-stone column is opted for as an alternative (to overcome this limitation), this could have significant consequences for the ground gas regime (providing preferential venting), and may have significant implications for the efficacy of the infiltration reduction strategy (providing vertical permeability into the waste body).

Design issues associated with the Piling methodology, and CMC ground improvement are expected to be considered under the condition 3 proposed by the Environment Agency consultation response. It is considered that it would be appropriate to broaden the scope of this condition to explicitly consider CMC to be within scope of the definition of 'deep foundation', and to consider interactions between the construction methodology and the objectives of the RMS.

Construction Environmental Method Statement / Construction Environmental Management Plan (CEMS/CEMP) & Materials Management Plan (MMP)

Notwithstanding the submission of the Readie Construction Environmental Method Statement dated 28/04/21, it is understood that a revised document is in-draft to secure the operational

deliver of strategic remedial actions discussed at 5.4 (disposal of water), 5.5 (Environmental Management); and 5.6 (previously unidentified 'hotspots' contamination).

It is expected that the revised draft will take account of previous comments made by Environmental Health (CONS/21/01452, 15/06/2021), and that it will include provisions to manage specific activities associated with the implementation of the Materials Management Plan, insofar as they relate to process risks (runoff, drainage, dewatering, dust control, etc.), as distinct from the matters strictly limited to the Definition of Waste Code of Practice (DoWCoP; concerning the status-, origin- & destination- of materials)

There is a need for consistency between these related documents (and their directly counterparts – verification reports, AMP, SWQMP) and the Piling Risk Assessments, Contamination RMS, and Verification Report. Given this, it is considered to be appropriate to seek to secure a revised CEMS/CEMP at the reserved matters stage, which can account for the evolution of detailed design work undertaken in the interim.

Recommendations (Conditions)

Condition [1]: Remediation Method Statement (RMS)

Prior to the commencement of any specific phase of development approved by this planning permission (other than site clearance, forming the means of access, or any other date or stage in development as may be agreed in writing with the Local Planning Authority), a remediation method statement shall be submitted to- and approved in writing by- the Local Planning Authority.

The Method Statement shall be based upon the Remediation Options Appraisal & Verification Strategy 19-2099.07, and shall provide details of proposed remedial & risk mitigation actions that could not be designed in detail at the outline stage.

Reason: *To ensure that the development does not contribute to-, is not put at unacceptable risk from- or adversely affected by-, unacceptable levels of contamination. This is in line with paragraph 174 e) & 183 of the National Planning Policy Framework & DM17 of the Havant Borough Local Plan (Allocations) [2014]*

Condition [2]; [Recommended Substitution of Condition 1 of 3, Environment Agency Consultation Comments Ref: HA/2021/123019/04-L01 22/12/2021]

The contamination 'watching brief' referred to at section 4.1 of the Delta Simons Report No. 19-2099.07 v2.3 shall be observed during all groundwork operations. If suspected contamination is encountered which is qualitatively out of keeping with ground conditions described within the Factual Geo-Environmental Investigation Report (19-2099.04); works in affected areas of the site shall cease until the Local Planning Authority has been notified of the discovery, and a scheme to deal with the risks associated with the suspected contamination has been submitted to- and approved in writing by- the Local Planning Authority.

All investigation, assessments & other actions required shall be undertaken by competent persons, and the scheme shall be implemented as approved

Reason: *To ensure that the development does not contribute to-, is not put at unacceptable risk from-, or adversely affected by-, unacceptable levels of water pollution arising from previously unidentified contamination sources at the development site. This is in line with paragraph 174 e) of the National Planning Policy Framework, Policy DM10 of the Havant Borough Local Plan (Core Strategy) 2011, & DM17 of the Havant Borough Local Plan (Allocations) [2014]*

Condition [3]; [Recommended Substitution of Condition 2 of 3, Environment Agency Consultation Comments Ref: HA/2021/123019/04-L01 22/12/2021]

Prior to occupation of any relevant part of the approved development, a verification report which demonstrates both the satisfactory completion- & efficacy- of works set out in the approved remediation

method statement [referred to at 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 Delta Simons Report No. 19-2099.07 v2.3 (the approved Verification Strategy) & the Piling Method Statement [referred to at Condition 4], to demonstrate that the site remediation criteria have been met.

Reason To ensure that the site does not pose any further risk to human health or the water environment by demonstrating that the requirements of document 19-2099.07 v2.3 (the approved Verification Strategy) have been met, and that remediation of the site is complete. This is in line with paragraph 174 & 183 of the National Planning Policy Framework, Policy DM10 of the Havant Borough Local Plan (Core Strategy) 2011, & DM17 of the Havant Borough Local Plan (Allocations) [2014]

Condition 4 [Recommended Substitution of Condition 3 of 3, Environment Agency Consultation Comments Ref: HA/2021/123019/04-L01 22/12/2021]

No piling or deep foundation columns shall be constructed until a Method Statement which demonstrates how groundwater will be protected, and how the efficacy of the protection measures will be verified, has been submitted to- and approved in writing by- the Local Planning Authority.

Unless specifically excluded by agreement, the Statement shall include;

- a) details of piling methods, to ensure that the risks of contaminant mobilisation are minimised and that the wider remedial objectives outlined within the Delta Simons Remediation Options Appraisal 19-2099.07 will not be prejudiced,
- b) details specification &/or design of materials, to ensure that the piles or deep foundation columns are not put at unacceptable risk by aggressive ground conditions, and;
- c) details of a water monitoring program, to be undertaken both during and after piling to demonstrate the efficacy of the methods in minimising mobilisation of contaminants

Reason

To ensure that the proposed Piling or other deep foundation does not harm groundwater resources in line with paragraph 174 e) & 183 of the National Planning Policy Framework, and DM17 of the Havant Borough Local Plan (Allocations) [2014]. Contamination may be present on site.

Condition [5]: Construction/Environmental Management Plan [Suggested substitution to Condition 1, Environmental Health Consultation Ref: CONS*21/00753 19/04/21]

Prior to the commencement of any specific phase of development approved by this planning permission (other than site clearance, forming the means of access, or any other date or stage in development as may be agreed in writing with the Local Planning Authority), a Construction Environmental Management Plan shall be submitted to- and approved in writing by the Local Planning Authority. Unless otherwise agreed with the Local Planning Authority, the plan shall include: -

- (a) Details of transport logistics in accordance with section 6.1.2 of the Delta Simons Air Quality Assessment Report Reference 19-2099.03.
- (b) Procedures for managing deliveries & collections at the site, including parking, loading, materials handover and transport to secure storage areas, and the means of minimising the risk of release of fuel and other materials capable of causing harm to health or the environment
- (c) Provisions for the segregation & storage of wastes destined for treatment, recycling, or disposal, alongside details on how leachate generation from stockpiles will be minimised &/or appropriately managed to prevent cross contamination of materials or release of leachate to controlled waters.
- (d) Measures to ensure safe pedestrian movement on the public highway & footpaths
- (e) The means of minimising dust, smoke and fume emissions from the site during construction works, including minimising dust emissions from vehicles transporting materials or waste from the site.

- (f) *The means of preventing track-out of mud & spoil on to the highway, and preventing runoff from- or excessive infiltration to- the site from adversely impacting adjacent surface waters.*
- (g) *The means of minimising the impact of noise and vibration arising from construction processes*
- (h) *Details of the training of site operatives to follow the Construction Management Plan requirements.*
- (i) *The Asbestos Management Plan & Surfacewater Water Quality Monitoring Programme, and other specific environmental controls mentioned at section 5.5 of Delta Simons Report 19-2099.07*

Reason: *To ensure that the construction process is carried out in a manner which will minimise disturbance, pollution & nuisance to neighbouring properties and the public realm more generally, and prevent pollution of nearby surface waters, or impacts to sensitive ecological receptors. To avoid inappropriate parking practices or the turning and manoeuvring of construction vehicles which adversely impact either the use- or safety- of the public highway. This condition is imposed having due regard to policies DM10 & CS15 (Havant Borough Local Plan (Core Strategy) 2011), and the National Planning Policy Framework 2018.*

Mr. Jonathan Driver
Environmental Control Officer

Appendix 1 – Elements of GEA Potentially Material to acceptance of it's conclusions

1) *Saline Environmental Quality Standard (EQS), Nitrogen*

The Environment Agency had previously requested that (ground & surface-) water monitoring be compared against appropriate saline EQS.

The EQS used for ammonia within the GEA appears to derive from the Water Framework Directive (WFD) for a freshwater body. Whilst alternative saline-environment Generic Assessment Criteria (GAC) for Ammonia is available from a different source, and would appear to be met (subject to my understanding of it's application being correct-); I note that closest analogous WFD quality standard for a saline environment to that referred to within the GAC differs in both it's scope, and it's units (it refers to 'Dissolved Inorganic Nitrogen').

The scope of the WFD standard is likely to include Nitrates & Nitrites, substances for which the Agency has previously expressed concern. The GEA does not address the WFD water quality benchmark, and I would highlight that I lack the necessary knowledge of the proper application of the WFD standard to make an independent assessment of it's significance (or otherwise).

For example, I am unclear on which basis the unit-conversion ought to be undertaken, nor on whether the scope of the 'plain English' description (i.e., 'dissolved inorganic Nitrogen', WFD Standard) is directly analogous to the 'Total Nitrogen' metric referred to in Delta Simons 19-2099.09 03/12/2021. For this reason, I am similarly unclear whether it is sufficient to rely upon the difference between the results of surface water samples taken from different up- & down-stream location (which are limited in number and would not support a statistical assessment of the significance of a marginal difference), or whether a similar pathway calculation should be sought as undertaken in relation to Ammonia.

2) *WFD Pollutants not included within sampling suites*

It is noted that there are failures of WFD standards for priority hazardous substances that could be associated with Landfill Leachate. Both Langstone Harbour and the Hermitage Stream have recorded failures for Total Mercury, and Polybrominated diphenyl ethers (PBDE), and the Hermitage also has a standard failure for Nonylphenol. Of these, only Total Mercury was included within the sampling suites used within the GEA.

This is understandable, as both Nonylphenol & PBDE are not commonly included in site investigations, however, given that there are environmental failures and that the site represents a potential source of these contaminants; this is a *potentially* significant area of uncertainty.

3) *Ammonia Assessment, Southern Migration*

The GEA uses the ConSim model to estimate the contribution of the site to ammonia emissions from the site within the leachate flux. I would not agree that the assessment of this pollutant linkage is representative for the following reasons;

- The assessment considers migration within gravels beneath the southern landfill (where attenuation might occur) – rather than considering transit through fill materials (where concentrations in leachate are conceptually more likely to be 'augmented' rather than 'attenuated')
- It is unclear that the 500 ug/l EQS for ammonium is the appropriate value for comparison in this assessment; it derives from a drinking water quality standard. See comments under 1), above.
- The dilution assessment is based upon two key assumptions, i) that that an EQS failure must necessarily derive solely from the development land-, and ii) that an EQS exceedance within the entire waterbody is necessary (after 'complete mixing')- in order

for the contribution to be considered significant. These assumptions depart from the typical methodology applied to controlled waters assessments, and I would expect also from the way that EQS are applied for waterbody classification purposes.

- The assessment does not explicitly account for the 'background' concentrations at the receptor, or the available 'headroom' for deterioration within the bounds of acceptability.

Appendix 2 – Addressing uncertainty in Site Contamination Impacts on Controlled Waters & Ecological Receptors, on balance of probabilities

- 1) *Saline Environmental Quality Standard (EQS), Nitrogen*
 - i. Current WFD waterbody status would suggest that the 'Total Nitrogen' metric used in the GEA is not directly analogous to the 'Dissolved Inorganic Nitrogen' metric used for classification of a waterbody by its chemical quality.*
 - ii. Current 'high' quality status within the Hermitage would suggest that existing inputs are not unacceptable*
 - iii. There is broad equivalence between surfacewater sample results (obtained from up- and down- stream locations), which *suggests* that the site is not contributing a substantial proportion of the total Nitrogen present within the Hermitage, and
 - iv. Additional credible sources (of Inorganic Nitrogen) exist within the near vicinity
- 2) *WFD Pollutants not included within sampling suites*
 - i. The location of the detected exceedances has not been checked, and may not be proximal- (i.e., likely to be directly linked-) to the development land, and,
 - ii. Additional credible sources exist within the near vicinity; neighbouring historic landfill & reclaimed land, and wastewater treatment outfall.
- 3) *Ammonia Assessment, Southern Migration*
 - i. Current 'good' (borderline) quality status within Langstone Harbour would suggest that existing inputs are not unacceptable with respect to the waterbody classification*
 - ii. A clear attenuation gradient has been demonstrated in the assessment of the Eastern Migration, the principles of which are reasonable to conceptually apply to the Southern Migration – especially the extended flow path beneath the toe piling, which is believed to be deeper at the Southern Bund Structure.
 - iii. The Southern Migration Assessment did not account for flow through the fine matrix of the chalk (weathered surface of natural deposits, or bund material), within which attenuation is likely to occur at greater rates than are accounted for within the assumed gravel aquifer
- 4) *Sub-surface Construction*
 - i. A separate piling risk assessment is to be undertaken under an EA recommended condition, and
 - ii. The CSM provides no particular reason to expect that piles founded within the structureless chalk are likely to significantly increase the depth- or of rate- of vertical migration of leachate. Piles are anticipated to utilise displacement installation techniques to maximise skin friction (limiting potential for annulus voids acting as a preferential migration pathways), and installation depths are unlikely to be sufficiently deep as to terminate within significantly fissured chalk (weathered chalk persists to significant depth and should be structurally competent).
- 5) *Environmental Betterment;*
 - i. (Following a period of rebalancing of leachate flux, which may initially increase for a short period during construction phases-) a degree of betterment is expected for all pollutants associated with leachate, as a result of reduction in leachate production which is likely to indirectly[^] correspond to the reduction in infiltration across the site (reducing one source of waste-body moisture, possibly the most significant source for regions of will with the greatest decomposition potential)
- 6) *Policy Interpretation (Local Policy);*
 - i. DM17 provides that development on contaminated land will be granted where an appropriate investigation of potential risks has been undertaken and identified risks are *mitigated*
 - ii. DM17 also required that (any) necessary remediation measures must ensure that the development *does not have a negative effect* on ...the wider environment

- iii. Taken together, 6) i. & ii. above leave room for an interpretation more akin to that applied to the HRA-AA, where the ability to determine land as 'contaminated land' falls within the bounds of *reasonable un-certainty*, and is not considered *likely*.
- iv. DM17 does not refer to absolute benchmarks (e.g., exceedance of an EQS), and discusses 'impacts' and 'mitigation' in relative terms only. (Note: national policy also applies – see main text)

(* - please note, I lack the necessary expertise to comment authoritatively on the appropriate application of WFD quality benchmarks)