

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From:	Environmental Health	To:	Development Control
Our Ref:	CONS/20/02321	Your Ref:	APP/18/00244
EH Case Officer Extn:	44 6677	Date:	08 September 2020
DC Case Officer:	David Eaves		
DC Case Officer Extn:	44 6549		
Application Number:	APP/18/00244		
Site Address:	Colt International Ltd, New Lane, Havant, PO9 2LY		
Proposed Development:	Outline application with all matters reserved. Mixed use development comprising up to 100 new homes, including up to 40% affordable, 2860 sqm of employment floorspace and improved access onto New Lane and Martin Road. On-site parking for residential and employment uses. Landscaping to be provided, including acoustic bund to rear of employment units and naturalisation of existing watercourse (full details to be submitted at a later stage) (Approved 30.01.19) Request to Discharge Condition No.s 6,7,8,11,14,17,18,19,21 & 25 (22.07.20)		

Observations / Comments:

I have reviewed the supporting documentation alongside Environmental Health's own case-files in respect of the Contamination assessment. For ease of reference, I will take each condition in turn.

I note that information is mostly provided in respect of the residential area only, and that details generally exclude the employment allocation in the East of the site. Comments here are made under the general assumption that a spatially defined discharge is being sought (i.e. for the residential phase of development only).

Condition 6 – re-survey for habitat for badgers

Comment not invited. Documents not reviewed – ecological protections fall outside of the remit of Environmental Health where not directly related to either contamination or pollution impacts.

Condition 7 – Foul & Storm water layouts including details

Details reviewed, and the comments of other relevant consultees are noted. It is assumed that the outline consent c.7 is sought on a spatially defined basis (for residential area only) – on this basis discharge is supported.

If discharge would necessarily apply to the whole outline consent area, then I cannot see that the submitted details could be regarded to be sufficient to support discharge in the absence of details pertaining to the commercial development area.

Condition 8 – Remediation Strategy - Parts 3 & 4

Given the approach that the applicant has taken to meeting the requirements of this condition, it is worthwhile to briefly summarise the relevant documentation;

Documents Reviewed Previously (prior to this application):

- 1) WYG Ground Investigation and Assessment, Jun 2017 (A090070-182-iss.2)
- 2) CRH Updated GQRA and Outline Remediation Strategy, Feb 2019 (12663-revF1)
- 3) CRH Updated GQRA and Outline Remediation Strategy, Feb 2019 (12663-revF2)
- 4) G&W Contamination Assessment Report, Nov 2019 (GWPR3192/CAR/[...]/v1.02)
- 5) G&W Remediation Verification Report & Additional Contamination Risk Assessment, March 2020 (GWPR3514/VR/[...]/v1.01);
- 6) G&W Ground Investigation Report, March 2020 (GWPR3514/GIR/[...]/v1.01);
- 7) G&W Validation Report & Further Groundwater Risk Assessment Report, April 2020 (GWPR3514/VGRA/[...]/v1.01);
- 8) G&W Additional Contamination Risk Assessment, April 2020 (GWPR3514/CAR/[...]/v1.02)

Docs Submitted with this Application (APP/18/00244, 22/07/2020):

- 6) GWPR3514/GIR/March 2020 v1.01 [Reviewed Previously]
- 7) GWPR3514/CAR/April 2020 v1.02 [Reviewed Previously]
- 9) G&W Additional Contamination Risk Assessment, July 2020 (GWPR3514/CAR/[...]/v1.03) [Superseded – Not Reviewed]
- 10) G&W Additional Contamination Risk Assessment & Remediation Method Statement, August 2020 (GWPR3724/CAR/[...]/v1.04)**

Reference was made for the purposes of this current consultation to documents 1),2),4),5),6),7),8) & 10). It should be noted that cross referencing within the reports listed above is inconsistent, and it is assumed (for example) that these represent minor typographical errors, and that (for example) a reference to GWPR3514/GRA/April 2020 is a reference to the GWPR3514/VGRA/[...]/v1.01 report (etc.). If those references refer to report versions not reviewed, comments here may not fully account for investigative & assessment works undertaken to date.

Detailed technical comments were provided to Ground & Water on the 12th June, and a further clarifications were given on 16th June (following review of documents referenced at 6),7) & 8)). Key Points are appended ([blue text](#)).

Additional Contamination Risk Assessment & Remediation Method Statement, August 2020 (GWPR3724/CAR/[...]/v1.04); Risks to Controlled Waters

Environmental Health previously commented that ‘...*it is expected that the risk assessment should reconcile disparity between [results from prior rounds of groundwater monitoring] – either by structured argument, quantitative consideration..., or using a ‘weight of evidence’ approach (e.g. repeat monitoring...)*’.

The revised report does not address this comment, and draws the same conclusion as the GWPR3514/VGRA/[...]/v1.01 & GWPR3514/CAR/[...]/v1.02, for the same reasons. Similarly, the report does not seek to address comments in respect of the scope, purpose, and verification of source removal works in the vicinity of WS1.

Source removal works in that area of the site appear to have targeted a maximum-recorded concentration exceedance of a commercial GAC for human health, and as a result, the removal works appear to have been limited to obvious made soils in this area (up to around 1.0m below ground levels at the time of the works (BGL-C), being 0.3-0.4m below existing levels following placement of 6F2 material (BEGL)).

Made soils at the nearby WS3 are unproven at 3.0m BGL-C, and visual / olfactory evidence of contamination was noted in HEAD Deposits at CRH TP202 at 1.2-2.5m BGL-C and G&W WS1 at 1.5-2.0m BGL-C – well below the maximum logged depth of verification trial holes (HAS/F1-F4) assumed to represent 0.8-1.5m BEGL (0.5-1.2m BGL-C).

The concern is that the source removal works did not target the plausible pollution linkage to the local surface water (identified in the CRH report), and as a result did not seek to inspect, further investigate or remove contamination-impacted natural soils noted at WS1 & TP202, or to investigate the full depth & extent of 'made soils with strong creosote odour' exceeding 3m thickness at WS3.

Similar Visual / Olfactory evidence was not noted in WYG BH5 or BH14, but no visual/olfactory notes were made on any WYG logged holes so it is unclear whether this is a result of recording practice, or represents a reliable absence of visibly contamination-impacted soils. CRH BH5 groundwater results indicated evidence of PAH & Cyanide impact – tentatively attributed to suspended sediments rather than dissolved-phase.

As has previously been noted, there remains 'space' for active pollution linkages to the Lavant – via transport with general groundwater (dissolved-phase, or as colloid/suspension), or via a preferential migration pathway (e.g. surface water drain terminating in an outfall at the Lavant).

The conclusion of the GWPR3724/CAR/[...]v1.04 report in respect of WS1 source removal works and the residual controlled waters risk-) is unchanged from GWPR3514/VGRA/[...]v1.01, GWPR3514/VR/[...]v1.01 and remains heavily reliant upon the favourable result from the (new / replacement-) [G&W]BH5 & the tentative judgement from CRH that the CRH BH5 Groundwater result is a related to the PAH content of sediments.

It is noted that G&W conclude a 'low to moderate' risk of unacceptable harm to the Lavant, but concludes that *'the very slight PAH's and heavy metals contamination are considered reasonable for the setting of the site'* and *'Remediation to what could be considered conservative EQS/DWS standards with respect to metallic and PAH contamination is unlikely to be cost effective, compared to the potential positive impact likely [to be achieved]'*.

The LPA's policy obligation under NPPF para.178 b) is to ensure that *'after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990'*. I am not convinced that the Council should place significant weight upon an unspecified general notion of cost-effectiveness – my understanding is that case law relating to use of planning conditions makes reference to a very specific notion of cost-reasonableness in respect of harming deliverability & the rationality of planning decisions. Given the quantum of development, this appears unlikely to apply. I am interested at this point in defining what needs to be done (if anything additional-) to ensure that the impact upon controlled waters receptors and future residential property is either made-, or can be shown to be acceptable in the long term.

I had anticipated that the revised report would provide additional empirical information, quantitative or robust structured qualitative assessment to assist in resolving the outstanding potential for an active pollutant linkage to lead to an unacceptable ongoing pollutant input to the Lavant; but no additional information is included in the 1.04 version.

I had also anticipated that the Environment Agency would provide material comment in respect of all controlled waters, but with reference to it's response, it would appear that only risks to the principal aquifer were considered. No explicit or implicit consideration appears to have been given to groundwater within the secondary aquifer or the nearby statutory main river – both being relevant controlled waters receptors for the purpose of Part 2A of the EPA 1990 (and so para 178 b)).

The Council must take a judgement as to whether this site remains potentially determinable as contaminated land following development (where it could be said that a significant possibility of significant harm [SPOSH] exists-), and in addition, whether any sub-SPOSH detrimental impact upon either the local secondary aquifer or the nearest watercourse is compliant with- (acceptable under-) both local policy (DM10 & DM17), and national policy (para's 178-180).

In this respect I am mindful that cyanide and chromium have been recorded within the Lavant either at- or exceeding- EQS-AA concentrations, and that both these contaminants are present on site within reasonably close proximity to the river channel. I am additionally mindful of the argument that the river is likely to be hydraulically isolated from the secondary aquifer by the concrete channel reinforcement / lining & the headwall construction. This suggests that the identified pollutant could in principle be present at the receptor despite these protections – and any deterioration of these structures could result in an increase in the rate of input.

It seems to me that there is insufficient information to confidently dismiss the possibility that the site may be contributing unacceptable concentrations of contamination to the local secondary aquifer and local watercourses in hydraulic continuity (to which the secondary aquifer contributes baseflow). I similarly don't have sufficient information to conclude that any further remediation is absolutely necessary, given the recent favourable result from G&W BH5. As a result, I remain reluctant to recommend approval of the assessment & remediation works in respect of Controlled Waters.

This is necessarily an issue of interpretation & risk tolerance, and it is the planning service that is the ultimate decision-maker (as regards matters of exercise of planning policy). Rather than simply recommending rejection of the latest consolidated assessment report; I would instead recommend in the first instance that the planning service seek confirmation from the Environment Agency that;

- it has considered the contamination reports in respect of risks to both the Secondary Aquifer & the Lavant (in addition to those to the principal aquifer),
- that it considers the risk from the noted contamination (specifically in the vicinity of G&W WS1-WS3, WHG BH5 & BH14, and CRH TP202) to the Lavant to be either negligible, or to be acceptably low in the long term,
- that both diffuse pathways (hydraulic continuity between secondary aquifer and Lavant Baseflow) and preferential pathways (via the external annulus of- & bedding material around- the culverted OWC) have been considered, and;
- that it is satisfied that the soil-Gas results from WYG BH7 do not represent secondary evidence indicative of an uncharacterised hotspot of hydrocarbon contamination in this region that could pose a risk to controlled waters (i.e. Secondary Aquifer & the Lavant) via either of the above-referenced pathways.

It is considered that the Council may rely upon the opinion of the Agency as regards risk to controlled waters (material risk, and the risk of future enforcement being either possible or necessary); provided the Council is satisfied that the Agency has explicitly considered all the pertinent information.

I would additionally highlight that the above referenced regions of the APP-18-00244 site correspond to the commercial development area. In the event that the assumption of the preamble to this response is correct (i.e. that a spatially defined discharge of c.8 parts 3 & 4 is

sought in respect of the residential area only-), the issue of contamination in respect of controlled waters could probably be regarded as not-material to the current application.

Additional Contamination Risk Assessment & Remediation Method Statement, August 2020 (GWPR3724/CAR/[...]v1.04); Ground Gas Risk & Mitigation

The report confirms that it is appropriate to upgrade the assessed status at locations where the ground gas screening value (GSV) falls within the range of Characteristic Situation 1 (CS1), but where either or both the CH₄ or CO₂ concentration falls outside of the normal range for this category (1% & 5% respectively). As a result, gas protection is concluded to be required for plots 1-13 (in the elevated Northwestern portion of the site).

BH7 returned a GSV corresponding to CS2, but it is noted that no buildings overlie this area of the site. As is indicated in the sections above, I would anticipate the results to be indicative of degradation of contaminants present in this region of the site, as there is no evidence of significant proportion of putrescible material within made soils (or significant organic content in HEAD). I have looked at the results of the next nearest gas results (G&W BH4) and would agree that it is appropriate to consider these trail holes as being representative of discontinuous conditions. It is less clear than I would like that conditions underlying plots 34 & 35 more likely to correspond to G&W BH4 than to WYG BH7, but note the low generation rates from both trail holes – which provides some comfort.

As regards risk mitigation proposals, I would make the following observations:

- 1) Section 4.3.5 ('required remediation') describes the requirements for buildings within a CS2 for Type A buildings (High risk) in accordance with BS8485:2015+A1:2019. This section does state that *'13No. plots in the west of the site require ground gas protection'*, identifies these are plots 01 to 13 inclusive, and goes on to describe how one might go about meeting the minimum requirements for buildings with the foundation design anticipated for the identified plots.
- 2) Section 4.3.5 does not fall within the section of the report identified as the '*remediation strategy*' or '*remediation method statement*' – it should be explicitly stated that any acceptance of the GWPR3724/CAR/[...]v1.04 report in support of discharge of c.8 parts 3 & 4 does not limit interpretation of the remedial strategy to the items described in section 5.0 of the report (i.e. that all remediation proposals within the report, including section 4.3.5(.1 & .2) are taken to comprise integral elements of the approved RMS)
- 3) Section 4.3.5.1 describes provisions for plots with a 'voided underfloor', and assumes that effective cross ventilation will be possible. This appears to be incompatible with the engineering drawings, and the authors have not presented a credible method for achieving the suggested ventilation (it appears the specified void former is incompatible with cross ventilation)

As a result, it is considered that measures in accordance with 4.3.5.2 will necessarily apply to all plots (plots 1-13 inclusive), irrespective of the heave protection specification for the bearing slabs. Any recommendation for approval should be regarded as being on the basis that plots in CS2 areas will benefit from structural barrier + gas resistant membrane.

Section 4.3.5.2 notes (for a reinforced slab strategy-) that; *'If the slab cannot guarantee reinforcement and/or [suitable] service penetration, ventilation precautions must be considered'*. Post-construction retrofit would appear to be infeasible, so if this statement (in italics) applies, it will be necessary to prepare a ventilation-compatible blinding prior to commencement.

Subject to the above-referenced caveats / clarifications, the gas risk mitigation strategy is accepted.

Additional Contamination Risk Assessment & Remediation Method Statement, August 2020 (GWPR3724/CAR/[...v1.04]; Human Health Exposure

Sections 5.2 & 5.3 of the report specify a clean cover strategy for all private gardens and public/private soft landscaping areas. With the exception of the elevated Northwestern area of the site, this strategy largely respects the applicants' desire to retain the placed 6F2 material, with the cover system for the majority of the site to be constructed over this material.

Cover system specifications are;

Rear Gardens: 500mm clean cover* over min 100mm break layer (Crush) [* min. 150mm Topsoil 350mm Subsoil]

Soft Landscape Areas: 200mm clean cover* over min 100mm break layer (Crush) [* min. 150mm Topsoil 50mm Subsoil]

The finished ground level requirements for the elevated Northwestern section of the site (Plots 1-25); all bar two require complete removal of the validated 62F material, removal of the existing Terram membrane, and a reduced dig of the 'contamination impacted' soil.

It is assumed that the arisings from reduced dig are likely to be utilised to achieve the required ground elevation in the central portion of the site, yielding a succession comprising: 150mm Topsoil > 350mm Subsoil > 100mm 62F > [variable]mm excavated contaminated Subsoil > [variable]mm pre-placed 62F. This has merit from a sustainability perspective (no material removed from site), however it is reliant upon the soil* not representing an unacceptable leach risk to controlled waters (Secondary Aquifer & Lavant. * - soil meaning unexcavated identified contamination hotspot in vicinity of WS16 underlying the pre-placed 6F2, and Pb contaminated material yielded from the above-referenced reduced dig – notably not suitable for use in private garden areas and so requiring the proposed cover system over).

This strategy is acceptable in principle, subject to competent implementation and verification. It is agreed that the '*course grained anti-capillary*' layer could be formed by recycling the existing 6F2 material (as this material has already been verified by prior investigation to be chemically suitable).

Notwithstanding the above, I would make the following observations;

- 4) The summary of remediation criteria for plots 26-95 includes 'minimum thickness of subsoil' values which allow for placement of 100mm 6F2, even where the stated minimum 500mm minimum soil cover levels won't be met (i.e. some 'minimum' values are actually below the minimum specified in 5.2
- 5) if the cover system for plots 26-95 is implemented exactly as proposed, it could fail to meet an approved minimum standard, and so lead to a refusal to discharge c.9 (verification) pending placement of additional clean material.
- 6) Given the extent of asbestos containing materials (ACM) used in the original Colt Building(s), the excavation, handling and placement of this material should be subject to the proposed ACM watching brief.
- 7) Imported material criteria referred to (Appendix D) are appropriate to Human Health only, and do not directly apply to either residential amenity (suitability for use) or to controlled waters (in respect of the leaching risk). TPH Values of 135g/kg (grammes per kilo) will

not be accepted as suitable for use. It is expected that an upper limit of 10g/kg within the bounds of the Appendix D GAC should be adopted as an appropriate cap for amenity purposes. Similarly, US95 values for Copper or Zinc >25% of the Appendix D GAC should ideally be considered against pathways to controlled waters (relative to placement areas, elevation & succession).

- 8) It appears the Figure 12 may be inconsistent with the cover strategy stated within section 5 of the report with reference to soil depths.
- 9) It is unclear how the landscape strategy could be delivered (in respect of public realm planting) without the specific construction of tree pits for larger specimens, as the proposal allows only 200mm depth of soil in communal soft landscaping areas.

Summary of remediation proposals

- 1) Hotspot remediation (16m diameter centred upon WS1), to reduce human exposure risks (following exceedance of commercial GAC)
 - Shallow made soils removed in an approximate 350 sqm area, representing just under 50% of the originally specified area
 - Contamination-impacted natural soils (HEAD) outside of scope of remediation
 - Contamination-impacted soils are thought to remain to the South and West of the remediation area
 - Remediation had narrow scope – limited to human exposure risk mitigation
- 2) Remediation in region of BH2 for Amosite
 - Not specifically undertaken to date.
 - Appears requirement negated by 'non-hazardous' classification based upon a proportional composition assessment.
 - Proposal superseded by cover strategy.
- 3) Remediation of hydrocarbons in vicinity of WS16 (for HH).
 - Not specifically undertaken to date.
 - Proposal superseded by cover strategy & qualitative controlled waters risk assessment.
 - Contamination-impacted soils to be retained in-ground beneath plots 68-70 inclusive
 - With reference to section 5.2, the cover depth for these plots should slightly exceed the minimum.
- 4) Remediation of made soils for ACM removal in vicinity of TP206 & HP203
 - Not specifically undertaken to date.
 - Appears requirement negated by 'non-hazardous' classification based upon a proportional composition assessment.
 - Proposal superseded by cover strategy.
- 5) Asbestos Management Strategy (Proposed)
 - Not specifically covered in detail within any reviewed report.
 - It is assumed that the non-specific proposal to *'take account of the presence of asbestos fibres... in drafting of construction method statements'* amounts to the 'asbestos management strategy'
 - It is noted that the above-referenced text pushes asbestos management to 'construction method statement(s)', and so potentially outside the scope of the remediation method statement & verification requirements.

- It is considered that ACM falls within scope of the discovery strategy (5.4), otherwise, it is accepted that low-level ACM content is a health and safety matter for site groundworks personnel
- 6) Install Further GW monitoring wells (assessment proposal)
 - Installed and reported on within GWPR3514/CAR[...]/v1.02
 - 7) Gas protection plots 1-13 (West of site)
 - Considered within scope of GWPR3724/CAR/[...]/v1.04 RMS, irrespective that the works are not specifically defined, and are not described within section 5.0
 - Acceptance subject to caveats above
 - It is considered that this proposal is subject to verification, irrespective of the ambiguity of language used at 5.3 (Validation) - '*works outlined above*', where section 5 doesn't deal with gas protection for plots 1-13, remediation of made soils for ACM removal in vicinity of TP206 & HP203, or the proposed Asbestos Management Strategy
 - 8) Cover system (plots 1-25 & 26-95, soft landscaping areas site wide)
 - Considered within scope of GWPR3724/CAR/[...]/v1.04 RMS
 - Validation requirements covered in sufficient detail by section 5.3

It is considered that the proposed remediation strategy may be taken to comprise 7) & 8) only. Acceptability of this to the Council is subject to it's satisfaction with respect to controlled waters risks, in respect of which Environmental Health feels that greater assurance may be appropriate, but for which a clarification of the views of the Agency should be sought (as outlined above).

Condition 11 – Foundation strategy

Details reviewed principally in respect of the contamination risk. I would agree the views of both the Agency & of Portsmouth Water Company, that piling activity is unlikely to pose any material risk to the principle aquifer – in terms of turbidity, or as a preferential migration pathway for contaminants.

The Contamination Assessment indicates that sediment transport could represent a significant vector for contaminants at the site (to controlled waters), however it is recognised that CFA piling is proposed, and that this does represent a 'least-risk' piling method as regards contaminant mobilisation.

It is not anticipated that the short-term mobilisation risk could appropriately be considered to be so severe as to preclude the adoption of the proposed piled foundation solution – it should be sufficient to regard the possibility of mobilisation as falling with scope of the contamination discovery strategy (GWPR3724/CAR/[...]/v1.04 RMS 5.4)

No objection is raised to the discharge of c.11.

Condition 14 – and Construction Management Plan

It is understood that my colleague Mark Moss has reviewed the construction method statement and raised no objection to discharge of c.14.

Condition 17 – Sustainable Urban Drainage (SuDS)

The comments of other relevant consultees are noted. I have not reviewed the Micro drainage calculations, as these don't concern pollution risk.

It is noted that the residential-area drainage (sheet 4) shows a Klargest bypass separator installed downstream of the hydrobrake & cellular attenuation tanks. Permeable paving providing majority of TSS attenuation to help prevent siltation of the system. Roofwater inputs are un-trapped, but maintenance provisions are comprehensive, and maintenance access is to be provided to attenuation tanks.

It is assumed that the outline consent c.17 is sought on a spatially defined basis (for residential area only) – on this basis discharge is supported.

If discharge would necessarily apply to the whole outline consent area, then Environmental Health would object in the absence of details pertaining to the commercial development area (pollution control structures in accordance with chapter 26 of the SuDS Manual C753).

Condition 18 – Construction Environmental Management Plan (CEMP)

It is not clear that my colleague reviewed the CEMP, so I have reviewed the document for completeness. The comments of the Highways consultee in particular are noted, relating to the draft status of the document and absence of appendices.

This notwithstanding, some minor observations are outlined below:

- Section 5.7 could (possibly should) be substantially fleshed out to cover the ACM strategy, and to explicitly cover the discipline required in recording soil movements across the site to prevent subsoils generally (*en masse*) contaminated with Pb (or 'hotspot' PAH or TPH contamination-impacted soils) being placed as a subsoil component the clean cover system for either garden or soft landscaping areas.
- 5.8.1 should ideally contain details of measures to protect the ordinary water course (OWC, monsoon drain) from runoff from adjacent or elevated land – e.g. creation & maintenance of a local bund, ditching or planting and maintenance of filter strip(s), for example.
- 5.11.2 refers to response procedures which are to be produced at some future point and are not included in/with the draft CEMP. It is recognised that a CEMP is a living document, but these should ideally be included. At a minimum, the planning service should be satisfied that from an enforcement perspective the reference to these procedures at 5.11.2 of the draft CEMP is sufficient to support enforcement actions where the actions of site personnel fall short of what the planning service would regard such procedures as implicitly and reasonably comprising. Where this is not the case, it is probably safer to require that the procedure be included in the approved version of the document. I prefer to rely upon physical protections where there are OWC's on site that are connected to the main river network within a short distance (see 5.8.1, above)
- It is recommended that a provision be inserted into section 6.0 (Conclusions) stating that a copy of the CEMP will be maintained in the site office for ease of reference of site personnel.

Given the comments of the HCC consultee, it is anticipated that amendments & additions to the CEMP will be required. I would recommend that the above-referenced amendments are sought prior to approval of the CEMP.

Condition 19 – Site Levels

Site levels information only reviewed in the context of condition 8. See c.8 comments above for highlighted risks of incompatibility between proposals under c.8 and c.19.

No objection to discharge of c.19, it is considered that c.8 should respond to the constraints of

the approved levels. Where significant incompatibilities arise that cannot be resolved within the constraints of the approved levels, s73 is available. It is expected that these comments are sufficient to make the applicant aware of the potential conflict, and where there is strict adherence to proposed levels and the proposed cover system (plot schedule) without regard to the potential conflict, this will be at the applicant's risk.

Environmental Health will expect the minimum cover depth proposed under c.8 to be achieved.

Condition 21 vehicle parking/material storage

It is noted that the Martin Road materials storage area is in an elevated section of the site, 7m from slope and around 18m from the on-site watercourse.

The advantage of a storage area on this part of the site is recognised, and I would refer the planning service to the recommendation under c.18 5.8.1, which could address concerns relating to the position of the proposed area relative to the OWC. Alternatively, I would recommend precautionary earth bunding on eastern edge of this storage area (with some contiguous protection west of it's northerly & southerly extents), and/or the planting / retention of filter strip vegetation behind (down-topographic-slope of storage area).

I note that the Lower storage compound/storage areas are located >100m from Lavant.

I note that both entrances on Martin Road are each marked up as In/out gates for vehicular access from Martin Rd. without an apparent one-way system. This being the case, I'm unclear as to why a wheel-wash is to be provided only on one of these accesses. This may represent a drafting error. It is expected that the wheel wash will either mobile, capable of serving both accesses, or the accesses operated on a one-way basis. Failing that, it would be acceptable to provide a wheel washing unit at each site egress point available to plant and delivery/operational vehicles.

Condition 25 Road / footpath design

Submitted details have been briefly reviewed, and I have no adverse comments to make.

Mr. Jonathan Driver

Environmental Control Officer

[See appended text in respect of c.8 – summarising recent dialogue with Ground & Water Limited]

-/VR/-/v1.01; Cover proposals for Garden Areas & Soft Landscaping

- ...comments made [by EH] in respect of site cover are broadly considered to be unaffected by the revised / new information (-/CAR/-/v1.02 & -/VGRA/-/v1.01).

-/VGRA/-/v1.01; WS1-region hot-spot remediation;

- the documented works are noted. I am unclear as to the vertical extent of the source removal excavation[*] – principally on the basis of the comment that “...*trial holes was excavated through the base of the void created, the aim to determine if any deeper hydrocarbon contaminated was present.*” I’m not sure if this refers to one of the [logged] trial holes HAS/F1-F4, or to all. I am also unclear on whether HAS/F5-F9 holes were logged, or whether samples were taken & scheduled for analysis. [*- trial holes logged do not necessarily represent a log of the source removal excavation. Comment within report indicate that obvious made soils were removed, probably to a max. depth of around 1.2m relative to current (raised) ground levels].
- the maximum depth of verification trial holes was 1.5m BEGL, whereas visual / olfactory evidence of contamination impact in this area was coincident with groundwater in HEAD deposits between 1.5 & 2.0m BEGL (with reference to WYG & CRH reports, and CRH report figure 5)[NB ~1.8-2.3, relative to current levels at the time of the G&W report].
 - G&W Responded: “*For completeness a trial holes was excavated through the base of the void created, the aim to determine if any deeper hydrocarbon contaminated was present. The trial pit revealed cohesive Head Deposits, with no visual or olfactory evidence for hydrocarbon type contamination)*”
 - EH commented additionally: “...*verification trial holes were not necessarily[*] deep enough to encounter the previously noted visual / olfactory evidence of contamination (present at ~1.6m-2.0m...)*” [*- HAS/F5-F9 holes were not logged, and could in principle have intercepted the previously identified smear zone within HEAD]
- I also note that reference is made to comparison of verification samples within human health commercial landuse scenario GAC[only-], and that elevated PAH results are dismissed as insignificant without explicit consideration of the controlled waters Conceptual Site Model.
- The conclusion (that remediation is sufficient / successful with respect to it’s controlled waters risk reduction objective) is noted to rely heavily upon the prior results from surface water sampling, and [in particular-] those from the (new / replacement-) [G&W]BH5. I would not dismiss those results, but would similarly recognise the prior groundwater samples & leachate results. It is expected that the risk assessment should reconcile disparity between these – either by structured argument, quantitative consideration..., or using a ‘weight of evidence’ approach (e.g. repeat monitoring...).
- [Prior reports refer to surface water monitoring demonstrating no impact to water quality at the Lavant, however-] A review of the WYG report has also flagged a result from SW5 which appears to show a dissolved-phase Chromium concentration in excess of the Freshwater EQS-AA. CRH soils results indicate that CrVI is present in groundwater on site at levels exceeding EQS-AA, ...result should be confirmed. [additionally; SW4 CN is recorded at EQS-AA, equivalent to levels recorded in several groundwater & leachate samples within the site]
- As regards the spatial extent & position of the works, I note that a 16m radius from the approximate position of WS1 would include trial hole positions WS1, WS2, TP202, [WYG]BH5. Plotting the indicative position of the excavation works shown on VGRA

Report Figure 4 suggests that the work was centred upon WS2, covering an area around 50% of that initially anticipated.

- Review of the results in this area of the site would appear to support there being a nearby source of contamination (that has not been linked to any specific feature), with some evidence of impact in WS1, WS2, WS3, TP202 & BH5, noted in both made soils and within head deposits. With reference to groundwater monitoring / log notes, the transport mechanism is unclear – but clearly active.
- The reason for calling for a flexible approach to source removal was in large part to minimise uncertainty of the extent of the source term in this region of the site, which is so proximal to the environmental receptor and may be subject to some preferential migration (along the exterior of service runs terminating at the Lavant).
- It might be helpful in future discussions to clarify whether the conclusion that there exists ‘no remaining plausible pollutant linkage to controlled waters’ is contingent on the remediation of the hotspot (as suggested), or is a conceptual challenge to the CRH controlled water S-P-R CSM presented in Figure 5 of that report.

-/CAR/-/v1.01; Ground Gas Assessment / Risk Mitigation Proposals;

- I welcome the confirmation that it is intended to provide a level of protection sufficient for CS2, as recommended in prior reports.
- My expectation is that the gas source likely reflects degradation of hydrocarbon contaminants in soils ...for this reason, I would tentatively regard the gas results as a proxy for organic contaminants in soils
- I would expect any proposal to reducing gas protections for buildings to be supported by a robust conceptual model which accounts for the available (and any new-) monitoring data. I don't think we are presently at a stage where I could agree that a reduction in protection level is defensible, but I would not discount the possibility of constructing a persuasive argument

-/CAR/-/v1.01; Cover Depths / System

- I welcome the confirmation that it is intended to provide a level of protection sufficient for CS2, as recommended in prior reports.
- Whilst I note that no site-wide cover system was deemed necessary in the lower-lying central portion of the site, this was contingent on the removal of the hotspot in the vicinity of WS16 (which is now understood not to be proposed).
- Omission of a geotextile over the 6f2 would change the strategy ...fruit-bearing or otherwise edible trees & shrubs (that are likely to require deeper soil over their lifecycle, and so likely to breach the break layer).
- ...petroleum screening has not been a ubiquitous feature of the selected suites, and as a result, room remains for a greater degree of hydrocarbon impacted soils than is suggested by the ‘two-hotspot’ model presented.
- In the absence of any other plausible explanation for elevated soil gasses (and significant O2 depletion captured in the dataset), degradation of hydrocarbons in soils is considered to be as plausible an explanation as any. For this reason, where a flexible and investigative approach to hot-spot removal is abandoned (losing the linked opportunity for in-situ observation and screening), I would be inclined to take a more precautionary approach to the cover system(...).

-/CAR/-/v1.01 & -/VGRA/-/v1.01; Way Forward

- I would expect from your prior comments, that there is an ongoing process of data

collection, risk assessment and evolution of the RMS.

- I am happy to be flexible on amendments to the outline RMS, provided that there is a robust CSM which both supports it, and which is convincing in it's dismissal of the highlighted results that are of concern