

Our Ref: 4230194/001/HBG

10 August 2023

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Dear Paul

Response to Planning Condition 5

I refer to the planning application and the subsequent Condition 5 as listed below in italics, and Glanville propose the following chemical and laboratory testing for imported unbound material as follows:

'No soil, either from the site or imported to the site, shall be used until it has been tested for contamination and assessed for its suitability for the proposed development; a suitable methodology for testing this material should be submitted to and agreed by the Local Planning Authority prior to the soils being imported onto site. The methodology should include the sampling frequency, testing schedules, criteria against which the analytical results will be assessed (as determined by the risk assessment) and source material information. The analysis shall then be carried out and evidence submitted to and approved in writing to by the Local Planning Authority.'

The proposed soil to be used on the site works will be topsoil to the landscaped areas and will be imported. The extent of topsoil work is fairly localised and as such, the quantity of soil to be used is low. Therefore, we propose a minimum of three tests on the respective imported topsoil, from a specific source and supplier.
Chemical suites to include: -

Standard metals/metalloids (should include as a minimum As, Cd, Cr, CrVI, Cu, Hg, Ni, Pb, Se, Zn); PAH (16 USEPA speciation); TPH (Aliphatic / Aromatic Split) and Asbestos.

Table 1 - Contaminant Screening Values for Imported Soils

Contaminant	Units	Proposed Land Use					
		Residential with home grown produce	Residential without home grown produce	Open Space * (Residential)	Open Space * (Park)	Allotments	Commercial / Industrial
Arsenic (As) [2]	mg/kg	37	40	79	170	43	640
Cadmium (Cd) [2]	mg/kg	11	85	120	555	1.9	190
Trivalent Chromium (CrIII) [2]	mg/kg	910	910	1,500	33,000	18,000	8600

Hexavalent Chromium (CrVI) [2]	mg/kg	6	6	7.7	220	1.8	33
Lead (Pb) [3]	mg/kg	200	310	630	1300	80	2330
Mercury (Hg) [1,2,7]	mg/kg	7.6-11	9.2-15	40	68-71	6.0	29-320
Selenium (Se) [2]	mg/kg	250	430	1,100	1,800	88	12,000
Nickel (Ni) [2,4]	mg/kg	pH <6.0 60 pH 6.0 – 7.0 75 pH >7.0 110					
Copper (Cu) [2,4]	mg/kg	pH <6.0 100 pH 6.0 – 7.0 135 pH >7.0 200					
Zinc (Zn) [2,4]	mg/kg	pH <6.0 200 pH 6.0 – 7.0 200 pH >7.0 300					
Phenol [1,2]	mg/kg	120-380	440-1200	440-1300	440-1300	23-83	440-1300
Benzo[a]pyrene [1,5]	mg/kg	1.7-2.4	2.6	4.9	10	0.67-2.7	36
Naphthalene [1,2]	mg/kg	2.3-13	2.3-13	77-430+	77-430+	4.1-24	77-430+
Total Cyanide (CN) [6]	mg/kg	/	/	/	/	/	/
Free Cyanide [6]	mg/kg	/	/	/	/	/	/
Complex Cyanides [6]	mg/kg	/	/	/	/	/	/
Thiocyanate [6]	mg/kg	/	/	/	/	/	/
Asbestos	-	Non-Detect	Non-Detect	Non-Detect	Non-Detect	Non-Detect	Non-Detect

Notes:

* Open Space levels calculated on the basis of the exposure modelling developed in the C4SL research.

+ Screening values constrained to saturation limit. Higher values may be acceptable on a site specific basis.

[1] Where ranges of values are given for organic contaminants the screening value is dependent on the Soil +Organic Matter.

[2] LQM/CIEH S4UL (2014). Copyright Land Quality Management Ltd. reproduced with permission; Publication Number S4UL 3116. All rights reserved.

[3] C4SL (DEFRA 2014).

[4] Copper, Zinc and Nickel may have phototoxic effects at the given concentrations. Alternative criteria should be adopted for importation of Topsoil or other soils for cultivation. BS3882:2015 and BS8601:2013 suggest values of 200 to 300mg/kg for Zn, 100 to 200mg/kg for Cu, and 60 to 110mg/kg for Ni, for topsoil and subsoil, depending on pH.

[5] Based on the Surrogate Marker approach and modelled using the modified exposure parameters of C4SL but retaining 'minimal risk' HCV.

[6] Screening criteria derived on a site specific basis if test results indicate.[7] S4UL for Methyl Mercury, higher concentrations may be tolerable if inorganic mercury is the only species present. Lower concentrations apply for elemental Mercury

Table 2 - Petroleum Hydrocarbon thresholds for a residential with homegrown produce land use (1% SOM)

Carbon Banding (mg/kg)	Target Concentration (mg/kg)*
C5-C6 Aliphatic	42
>C5-C7 Aromatic	70
>C6-C8 Aliphatic	100
>C7-C8 Aromatic	130
>C8-C10 Aliphatic	27
>C8-C10 Aromatic	34
>C10-C12 Aliphatic	130
>C10-C12 Aromatic	74
>C12-C16 Aliphatic	1100
>C12-C16 Aromatic	140
>C16-C35 Aliphatic	65000
>C16-C21 Aromatic	260
>C35-44 Aliphatic	65000
>C21-C35 Aromatic	1100
>C35-44 Aromatic	1100

* LQM/CIEH S4ULs Generic Assessment Criteria for Human Health Risk Assessment for a residential land use, with 1.0% Soil Organic Matter (SOM). Based on a sandy loam soil as defined in SR3 (Environment Agency 2009).

The completed test results will be submitted to the Local Planning Authority together with the aggregate locations and volumes used as part of a verification report to be submitted upon the completion of the works and within 3 months of the restaurant opening

I trust that these suite of tests are adequate.

Yours Sincerely



Hylton George -Director - Civil Engineering