

27 May 2016

Mr J Lambert
Pegasus Life Ltd
Royal Court
Church Green
Kings Worthy
Winchester

Our ref: CG/08753B

Please reply to: James Morrice

BY EMAIL

Dear James

Bartram's Convent, Hampstead Green – Earthworks Statement (Revision 1)

CGL have been commissioned to provide an earthworks statement for the St Bartram's Convent site in Hampstead, London. This letter includes details regarding the volume of the Made Ground to be removed from site and the removal and disposal process.

Background

The site was previously in use as St Bartram's Convent Hostel, a four storey 1950's building with a lower ground floor level and associated car parking, gardens and garage. The site was terraced into the hillside to the north and is currently undergoing redevelopment.

The Environmental Health Officer (EHO) for Camden noted that in order to satisfy Condition 8 - Contaminated Land, planning application 2015/7197/P (and former application 2014/6449/P). a material management plan or earthworks statement must be provided for the disposal of Made Ground material from site. A disposal plan is required as elevated concentrations of lead were encountered within the Made Ground on site, during the original CGL investigation¹.

It is understood that the majority of the Made Ground found on site will not be retained on site due to significant re-profiling to allow for construction of a basement across the majority of the site, resulting in an excess of material. In addition to the existing Made Ground on site, a piling mat was constructed, the material from which will be incorporated within the volume of Made Ground material to be removed from site.

¹ CGL (February 2015) Bartram's Convent, Hampstead: Geotechnical and geoenvironmental interpretative report and basement impact assessment. Revision 4

Details of Made Ground removal methodology

It is understood that some 7040m³ of Made Ground material will be removed from site. The volume of material to be removed incorporates both the already excavated Made Ground and the existing piling mat material comprising demolition rubble and crushed concrete.

The Made Ground material will be excavated and stockpiled on site prior to removal. To encourage waste minimisation, stockpiled Made Ground should be sorted to remove large foreign bodies from the soil materials, and then stored on a geotextile membrane and be clearly labelled as material bound for landfilling. In particularly dry or windy conditions, consideration should be given to the dampening down of stockpiled Made Ground to prevent high levels of dust being generated.

Following stockpiling, the material will be removed from site by a waste haulier. The assigned waste haulier for the material is GRS Roadstone Limited, with associated registration number: CBDU85432. GRS Roadstone Limited are located at Goldstone Way, Nuneaton, CV10 7RJ.

Following removal of Made Ground material it will be disposed to a licensed receiving landfill. The assigned landfill is Tyttenhanger Quarry, with associated registration number: 1010 1204 69000. Tyttenhanger Quarry is located along Courses Road, St Albans, AL4 0RY.

Verification of offsite disposal of material

Documentation will be provided by the contractors, including;

- Photographs of the earthworks and below ground construction, e.g. service trenches, undertaken;
- Duty of care records for the disposal of soils, and
- A copy of the as built survey data

The aforementioned information will be used to verify the removal of the Made Ground material from site is done in such a way that Condition 8 is satisfied.

Additional comments

It is understood that proposed final finished levels will be below the base of the Made Ground in the majority of areas associated with soft landscaping and all Made Ground will therefore be removed from these areas during releveling works. Proposed ground levels in the remaining area, in the northwest of the site, will be above the base of the Made Ground. However, the client has confirmed that all Made Ground in this area will be removed and disposed of off-site, with the area built up with imported soils.

Although none are included in the current development plans, if areas of Made Ground remain at surface levels, these will be capped with either hardstanding or a 600mm capping layer of clean imported material. The capping layer should be installed in accordance with the previous CGL Report¹. Following installation, independent validation of the capped area must be undertaken to check that the material meets the import specifications for chemical quality and thickness, appended as Appendix A.

Closure

I trust this meets your requirements, however please do not hesitate to contact us if you require any further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read "James Morrice".

James Morrice, Senior Engineer
Card Geotechnics Limited

Enc

Appendix A – Capping soils import specification

Table 1. Maximum permissible concentrations for imported capping layer soils.

Determinant	Maximum permissible concentration ¹ (mg/kg) ²				Rationale		
	Residential with plant uptake		Residential without plant uptake				
	6% SOM	1% SOM	6% SOM	1% SOM			
Arsenic	32	32	35	35	GAC ⁴		
Beryllium	56	56	88	88	GAC ⁴		
Boron	5	5	5	5	Limit for phytotoxic effect ⁵		
Cadmium	11	11	87	87	GAC ⁴		
Chromium (III)	3,200	3,200	3,300	3,300	GAC ⁴		
Chromium (VI)	6.3	6.3	6.3	6.3	GAC ⁴		
Lead	200	200	310	310	C4SL ¹⁰		
Mercury	180	180	250	250	GAC ⁴		
Selenium	350	350	600	600	GAC ⁴		
Copper	135 ³	135 ³	135 ³	135 ³	BS 3882:2007 Specification for Topsoil ³		
Nickel	75 ³	75 ³	75 ³	75 ³	BS 3882:2007 Specification for Topsoil ³		
Zinc	200 ³	200 ³	200 ³	200 ³	BS 3882:2007 Specification for Topsoil ³		
Vanadium	720	720	1100	1100	GAC ⁴		
Benzo(a)pyrene	3.3	2.4	3.6	3.6	GAC ⁴		
Benzo(a)anthracene	19	11	22	18	GAC ⁴		
Benzo(b)fluoranthene	21	14	23	23			
Benzo(k)fluoranthene	21	16	23	23			
Chrysene	190	100	230	220			
Dibenzo(a,h)anthracene	2.2	1.7	2.3	2.2			
Indeno(1,2,3-cd)pyrene	20	13	23	26			
Naphthalene	29	5	35	6.3			
TPH aliphatic ⁶	EC5-6	260	80	260		80	GAC ⁴
	EC>6-8	750	160	750		160	GAC ⁴
	EC>8-10	190	34	190	34	GAC ⁴	
	EC>10-12	1,000 ⁷	1,000 ⁷	1,000 ⁷	1,000 ⁷	Hazardous waste threshold ⁷	
	EC>12-16	1,000 ⁷	1,000 ⁷	1,000 ⁷	1,000 ⁷	Hazardous waste threshold ⁷	
	EC>16-35	1,000 ⁷	1,000 ⁷	1,000 ⁷	1,000 ⁷	Hazardous waste threshold ⁷	
TPH aromatic ⁶	EC5-7	0.43	0.10	3.2	0.88	GAC ⁴	
	EC>7-8	720	140	1,000 ⁷	870	GAC ⁴ / Hazardous waste threshold ⁷	
	EC>8-10	210	37	310	55	GAC ⁴	
	EC>10-12	390	75	1,000	290	GAC ⁴ / Hazardous waste threshold ⁷	
	EC>12-16	660	140	1,000 ⁷	1,000 ⁷	GAC ⁴ / Hazardous waste threshold ⁷	
	EC>16-21	990	290	1,000 ⁷	1,000 ⁷	GAC ⁴ / Hazardous waste threshold ⁷	
	EC>21-35	1,000 ⁷	1,000 ⁷	1,000 ⁷	1,000 ⁷	Hazardous waste threshold ⁷	
Sum of TPH aliphatic & aromatic C5-C10	< 1,000	< 1,000	< 1,000	< 1,000	Hazardous waste thresholds ⁸ (C10+ MPC based on threshold for C25+)		
Sum of TPH aliphatic & aromatic C10+	< 1,000	< 1,000	< 1,000	< 1,000			
pH	5-10	5-10	5-10	5-10			
Phenols	1,200	280	6,000	2,000	GAC ⁴		
Asbestos	No detectable fibres ⁹						

Notes:

1. These maximum permissible concentrations (MPCs) are import criteria only and are not necessarily appropriate for human health risk assessment.
2. In mg/kg dry soil except pH and asbestos.
3. British Standard BS3882:2015 Specification for Topsoil and requirements for use. Table 1. Values taken for pH 6-7.
4. Generic Assessment Criteria generated 'in-house' based on CLEA model Version 1.06. Barium and total cyanide GACs are derived from previously endorsed human health risk assessment models and are conservative values with reference to Dutch Intervention Values.
5. Nable, Banuelos and Paul. (1997). *Boron Toxicity*. Plant and Soil, **Vol. 193**, pp1 81-198.
6. Speciated TPH values must not exceed GAC, or hazardous waste threshold, where indicated above. Assessment of TPH must be made against hazardous waste threshold to confirm imported soils do not classify as hazardous material.
7. GAC derived MPC for TPH fraction limited to 1,000mg/kg based on 'waste thresholds'.
8. Environment Agency. (2007). *A Guide to Hazardous Waste Regulations: How to find out if waste oil and waste that contain oil are hazardous*. HWR08.
9. Laboratory screen by microscopy may be required subject to source of material.
10. Published C4SL for lead (DEFRA, 2014)