WLGA • CLILC

Requirements for the Chemical Testing of Imported Materials for Various End Uses and Validation of Cover Systems

Prepared by

Welsh Land Contamination Working Group

V.1 May 2013

This guidance is primarily for property owners, developers, environmental consultants, architects and surveyors who require information to assist their submissions to the Local Planning Authority (LPA)/ Contaminated Land Officer (CLO)/ Environmental Health Officer (EHO) in support of planning conditions applicable to the importation of soils, stones or any other similar materials to a development, for the purposes of garden, landscape or engineering use.

It is strongly recommended that, before importing any material to site, the intended sampling regime for that material is discussed and agreed in advance with the Local Authority LPA/CLO/EHO

The process for ensuring all information is submitted in relation to the relevant planning condition is outlined in **TABLE 1** in a series of step by step actions. Adherence to these will greatly assist the LPA/ CLO/EHO to effectively make final recommendation for discharge and will also ensure that contaminative risks from imported materials are avoided.

STEP 1.

Please use **Table 2,** below as an initial screening tool to use when assessing what testing requirements will be required when considering importing material for use at a development site. The Colour Coding is explained as follows:

Green– Usually no testing required go to **Step 3** –*However this category does not include soils being imported from 'greenfield sites'. Where such sources are identified the developer must initially consult with the CLO/EHO, and as a minimum provide Site Investigation data from the proposed site demonstrating chemical testing of the identified soils. Based on the data the CLO/EHO will agree the requirements for further testing (if deemed necessary) in line with* ***Step 2.***

Yellow - Chemical Testing Required. **Go to Step 2** for specific requirements.

Amber - Where it is proposed to import waste/ processed waste materials chemical testing is required, **Go Step 2. However, i**n addition to the chemical testing required, please provide exemption reference number/ Environmental Permit Number/ or waste protocol being used, **PRIOR TO THE COMMENCEMENT OF ANY IMPORTATION.**

Red – Importation of such materials prohibited.

Step 2.

Please refer to Table 3. This details the specific sampling frequencies and analytical requirements, which are dependent on the required quantities and the proposed end use of the development

Step 3.

Please complete and sign the attached declaration form with all necessary information in support of the relevant planning condition number. Failure to complete all sections of this form will result in delays when discharging the relevant planning condition

Table 1 – Process for Submitting Relevant Information on Imported Materials

STEP	RESPONSIBILITY	TASK	REQUIREMENT
1	**APPLICANT**	Submit information relating to proposed materials for import	Application needs to complete an Imported Materials Declaration Form, which can be found at the end of this document.
2		Sampling of intended material(s) (topsoil, subsoil, stone, aggregates etc)	Either the supplier or importer must arrange for a suitably competent third party to undertake necessary sampling of intended materials prior to their importation to the development in line with the sampling frequency of **TABLE 3**. Imported Materials Declaration form to be completed and returned to CLO/EHO.
		Notify intentions to use "Other" Imported Materials (if applicable)	Imported Materials Declaration completed to notify CLO/EHO of the type of materials such as by-products of any chemical manufacturing or processing e.g. furnace slag must be submitted. Such products must be subject to additional laboratory testing to those set out in **TABLE 3** to determine for example a product's chemical stability/leachability etc. Additional testing proposals must be submitted to and agreed with CLO/EHO prior to importation to ensure that potential contaminative risks are avoided.
3	**LABORATORY**	Analysis of submitted samples	Analysis of submitted samples for determinands relevant to the specific development as outlined in **TABLE 3.** All analysis (where applicable) must be subject to MCERTS accreditation(*) at a certified laboratory.
4	**APPLICANT**	Employ a suitably qualified consultant to review analysis	Submission of a report interpreting the laboratory results and a conclusion on the suitability for the sampled material(s) to be used for the intended purpose at the development site.
5	**CLO/EHO**	Review the consultant's comments and raw data	If satisfactory partial discharge to be recommended of relevant planning condition.
6	**APPLICANT**	Notify CLO/EHO following import completion	Confirm the total volume and type(s) of material imported to site to CLO/EHO.
7	**CLO/EHO**	Check receipt of all required information	Consideration to be given to discharge planning condition in full.

(e) Further information is available from Natural Resources Wales at www.naturalresourceswales.gov.uk Telephone: 0300 065 3000.

TABLE 2. Screening Tool to Assess if Chemical Testing is Required

Nature of Imported Materials	Comments	Chemical Testing required
Bagged or bulk bag quantities of **soils / compost and sand**.	**Applicable only to** materials available from retai outlets such as garden centres, DIY Superstores builder's merchants. All other sources will require testing in accordance with TABLE 3 overleaf, unless otherwise agreed with a CLO/EHO.	**TESTING NOT REQUIRED**
Bagged / bulk quantities of **aggregate, gravel and stone**.	**Applicable only to** material available from retai outlets such as garden centres, DIY Superstores builder's merchants. All other sources will require testing in accordance with TABLE 2 overleaf, unless otherwise agreed with a CLO/EHO	
Naturally sourced materials.	Includes quarry products and peat which have accompanying British Standard certification.	
Recycled, sieved, blended or screened soils, stones or aggregates.	Testing required regardless of whether these are from one source or several sources / suppliers.	**TESTING REQUIRED**
By products from industrial processes. Mechanically screened and sorted demolition wastes.	Additional testing to that in **TABLE 3** will be required to determine the suitability of these materials for specific uses prior to CLO/EHO acceptance for import. This is likely to include leachability testing in line with WAC testing or Remedial Targets Methodology Appendix B Leachate testing.	
Any Unprocessed / unsorted demolition wastes.	Where potential waste materials or previously contaminated materials are to be imported and processed for reuse the Developer must ensure that such materials are suitable for use in accordance with the Definition of Waste: Development Industry Code of Practice V2. Prior to **any importation** the developer **MUST** provide details of an exemption reference number/ Environmental Permit Number/ or waste protocol being used. Under no circumstances should such materials be imported without the above documents being provided, and formal written agreement received from the relevant CLO/EHO and or Environment Agency officer. Additional testing to that in **TABLE 3** will be required to determine the suitability of these materials for specific uses prior to CLO/EHO acceptance for import. This is likely to include leachability testing in line with WAC testing or Remedial Targets Methodology Appendix B Leachate testing.	**TESTING REQUIRED**
Any materials originating from a site confirmed as being contaminated or potentially contaminated		
Materials containaing Japanese Knotweed stems, leaves and rhizome infested soils	It is an offence under the Wildlife and Countryside Act 1981 to spread this invasive weed.	**IMPORTATION PROHIBITED**

TABLE 3 – Sampling Frequencies and Analytical Requirements for Imported Materials

	DEVELOPMENT TYPE				
				Commercial & Industrial	
	Residential	Allotments	Parks, Play Areas, & POSs	With Landscaping	Hardstand Only
QUANTITY TO BE IMPORTED	**NUMBER OF SAMPLES REQUIRED**				
Less than 20m^3	**Please contact CLO/EHO to agree sampling requirements**				
Between 20m^3 - 250m^3	**4**	**4**	**3**	**2**	**2**
More than 250m3	4 per 250m^3	4 per 250m^3	4 per 250m^3	4 per 250m^3	4 per 250m^3
>1000m3	Where significant volumes of subsoil/topsoil are required, it is appreciated that laboratory costs for suitable frequency of analysis could be cost prohibitive. As such an appropriate sampling scheme should be agreed with the CLO/EHO.				
DETERMINAND	**LABORATORY ANALYSIS**				
Arsenic / Cadmium/ Chromium (Total) / Lead / Mercury and Selenium	✓	✓	✓	✓	Optional
Boron / Copper / Nickel and Zinc				Optional	Optional
Speciated PAHs				✓	Optional
TPH [1] Phenol & Asbestos					✓

(1) Further testing will be required for BTEX compounds if significantly elevated concentrations are present in the sample(s) tested.

IMPORTED MATERIALS DECLARATION FORM

1.	Planning Permission Number	2.	Development Address

3.	Proposed use(s) of ALL imported material(s)	4.	Description of material imported	British Standard Certification supplied	
				Yes	No
☐	Engineering use/works (e.g. backfill, sub formation, foundation)	☐	Topsoil	☐	☐
☐	Domestic Garden use (inc. crop growing)	☐	Subsoil	☐	☐
☐	Landscaping (play areas, communal areas, roadside)	☐	Aggregate	☐	☐
☐	Other *Please specify*	☐	Quarry stone	☐	☐
			Other *(Please specify)*_____	☐	☐

5.	Origin of Imported Material(s) ☐
☐	Greenfield Site *(Please specify)*_____
☐	Brownfield Site *(Please specify)*_____ Recycling / Process supplier (*Please specify)*_____
	Other *(Please specify)* _____

6.	Volume(s) of Material to be Imported	7.	No of samples taken (per source)
☐	Less than 20m^3	☐	2-3
☐	Between 20m^3 - 100m^3	☐	4-6
☐	More than 100m^3	☐	More than 6 *(please specify)* (NB: All analyses (where applicable) must be subject to MCERTS accreditation(*) at a certified laboratory)

8. Suitability of Use

Confirmation that soil imported does not contain any evidence of Japanese Knotweed stems, leaves and rhizomes. YES☐ NO ☐

Confirmation the imported soil does not contain any unprocessed / unsorted demolition waste YES☐ NO☐

Confirmation that the soil imported does not contain contaminated or potentially contaminated by chemical or radioactive substances YES ☐ NO ☐

Confirmation that the soils imported is suitable for use for the intended purpose on site YES☐ NO☐

Signed:……Date:……

Name:……Position:……

Company Name and Address

Validation of Capping Systems

Capping Systems are an engineered remediation solution frequently used to address contamination issues on development sites. They offer a simplistic and effective method to ensure that the risks from any residual contamination to future site users are adequately managed ensuring minimal long term exposure.

In essence capping systems or clean cover systems, as they are also referred to, involve the placement of a predetermined thickness of certified clean subsoil and/ or topsoil over areas of insitu contamination. They are predominately used when concentrations of contaminants are marginally in excess of SGVs/GACs. Where significantly elevated concentrations are identified or when hydrocarbon and other organic contaminants are present the use of a cover system as a single remediation method is not normally viable, and additional remediation technique(s) are likely to be required. A detailed assessment of the nature and extent of contamination must be undertaken by a suitably qualified consultant or specialist to determine if a capping system in isolation is a sufficient remedial solution.

Whenever capping systems are used the quantity of material to be imported will be dependant on the size of the garden and depth of cover material required. Full design details of the cover system including the proposed depth cover and risk assessment supporting why it is sufficient, must be detailed in a Remediation Strategy for the site and agreed with the LPA/CLO/EHO prior to the commencement of the verification of imported materials. The required depth will be dependant upon the type and concentration of contaminant(s) that will remain in situ and the proposed end use of the site. Whether any additional design measures are required as part of the cover system, such as a warning geomembrane or capillary break layer should also be clearly considered and details provided.

If the purpose of importing materials is for any other reason then the depth of cover may not need to be approved by the LPA/CLO/EHO although you are advised to check.

CIRIA Special Publication 124 'Barriers liners and cover systems for containment and control of land contamination', 1996 and CIRIA Special Publication 106 'Remedial Treatment for contaminated land', 1996 both provide advice on the provision of imported material as a cover/barrier to contaminated ground. The BRE document 'Cover systems for land regeneration - thickness of cover systems for contaminated land', 2004 also provides advice on designing a cover system although this document is heavily caveated and was designed for use in limited scenarios as detailed in the document (which should be read fully).

Verification of Capping Thickness

Capping systems need to be validated to demonstrate that the agreed thickness of clean cover has been achieved and this must be undertaken by a suitably experienced consultant or specialist. There are three main elements that must be verified to prove that the capping system is suitable:

- Details of the origin of the capping material (as detailed earlier in this document)
- Confirmation that the agreed capping thickness has been achieved
- Chemical analysis results which confirm that material used in the cover system are certified clean and free from contamination. (as detailed earlier in this document)

The most common and simplistic way of verifying capping thickness is by the excavation of trial holes (usually hand dug) within completed areas. A verification report should document all trial holes (including a plan showing their location) and the confirmation of thickness should be confirmed through a log which should describe the material encountered in accordance with BS5930. The log descriptions should be supported with photographs of the trial holes with a scale reference (tape measure/ staff) to fully demonstrate the capping thickness.

Alternatively, on some sites it may be convenient to use data from level surveys made before and after cover system placement from which the thickness of cover materials can be calculated.

For housing developments the frequency of thickness verification will be dependant on the number of plots and also whether the capping material came from a variety of sources/locations. Table 4 below provides a **suggested minimum frequency** based on plot numbers. However advice and approval should always be sought from the LPA/CLO/EHO before commencing work.

Table 4. Verification of Capping Thickness

Development Size	Frequency for Verification
1- 5 Plots	1 per plot
5-20 Plots	1 in every 2 plots
20-30 Plots	1 in every 3 plots
> 30 Plots	1 in every 4 plots
Adapted from NHBC Technical Extra Note Issue 8 Nov 2012	