Raising standards to protect homeowners
NHBC Requirements for Soil Capping Systems

Matthew Lennard
Senior Environmental Engineer

NHBC – British Sugar Topsoil Seminar January 2019
Contents

• Who is NHBC?
• NHBC Conditions
• Purpose of cover systems
• NHBC requirements
• Further information
Who is NHBC?

- Leading Warranty and Building Control provider
- Raising standards in the new house building industry
- Provide consumer protection for new homebuyers
Who is NHBC? Buildmark Warranty

Contaminated Land Cover included under section 5 of warranty

- **Valid Claims** - If substance/s within the site curtilage result, or could reasonably be expected to result in a Statutory Notice being served.

  The maximum claim relating to a Home under Section 5 is **the Original Purchase Price**, up to a maximum of:

  - **£1 million** for a newly built Home; or
  - **£500,000** for a converted Home

- **Financial limits** -
The CML initiative ("Revised Finallling Procedures")
Mandatory Conditions = no warranty = no mortgage = no sale
Mandatory = Verification Reports
NHBC Standards Chapters 4.1 and 10.2 (Formerly 9.2)
NHBC requirements – Cover systems

- Check that capping is appropriate
- Design it
- Install it
- Verify it
Cover systems - Is it appropriate?

- BRE 465 Cover systems for land regeneration
- Mitigate marginal contamination
- No hydrocarbons, volatiles, etc.
- Widely used (and accepted)
- Not suitable everywhere (shallow water table)
- Needs design and verification

BRE 465 - Currently being reviewed by AGS
Cover systems - Design it

• Think about final site levels – is there space for capping?
• BRE 465 design chart / spreadsheet
• It’s not just 600mm
• Pick sensible “contamination of cover” values (are they achievable?)
• The shaded zone…
Cover systems - Install it

• The easy bit (?)
• Do what you said you’d do (or, what was agreed)
• But if plans change, let us (and LA) know, in advance.
• Look out for unsuitable materials, odours, colours etc… would you want it in your garden?
• Remember, we’ll be asking questions if we’re not happy – make sure those doing the work do it right
Cover systems - Verify it

1. Soil quality (topsoil and subsoil)
2. Soil thickness
3. Chain of custody
4. Reporting
Verify it – 1. Soil quality testing requirements

• Need to ensure materials are suitable for use
• Chemical testing requirements depends on the source of the capping materials
  • Greenfield, agricultural land or forestry land
  • Other development sites
  • Commercial providers including manufactured soils
  • Unknown?
Verify it – 1. Soil quality testing requirements

• If sourced from a site or sites where no sources of contamination has been identified:
  • in desk study/walkover
  • site investigation
  • and appropriate documentation is available

Then NHBC would not normally require any additional testing above BS:3882:2015.
Verify it – 1. Soil quality testing requirements

• Examples of source sites where additional chemical testing may not be required include:
  • Agricultural land
  • forestry land
  • or manufactured soils from green wastes where good quality controls are in place.
Verify it – 1. Soil quality testing requirements

Agricultural, Greenfield or Forestry

- A minimum of a desk study and a site walkover is required to confirm that no historical or visible evidence of contamination.
- If no potential source of contamination is identified then no additional testing above BS:3882:2015 is required.
- Where a potential source of contamination is identified then chemical testing required.
Verify it – 1. Soil quality testing requirements

Commercial Providers (inc manufactured soils)

- Copy of suppliers chemical test certificate required.
- Certificate should be current and representative of the material actually being used on site.
- The frequency of testing should be linked to the former use of the source site/ potential for contamination
- Where good controls are in place then additional testing may not be required.
Verify it – 1. Soil quality

Unknown source or contamination suspected

• If the source is unknown or from a site where contamination is suspected then sufficient testing required to confirm suitable for use.
• The sampling frequency will depend on a number of factors including the number of plots being constructed and the source of the capping materials
Verify it – 1. Soil quality

- NHBC consider good practice would be for the following suggested sampling frequency of each material:

<table>
<thead>
<tr>
<th>No of Plots</th>
<th>Nominal sampling frequency</th>
<th>Suggested min No of tests per site of each capping material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>1 test per plot</td>
<td>3</td>
</tr>
<tr>
<td>5-10</td>
<td>1 test per 2 plots</td>
<td>5</td>
</tr>
<tr>
<td>10-20</td>
<td>1 test per 2 plots</td>
<td>5</td>
</tr>
<tr>
<td>20-30</td>
<td>1 test per 3 plots</td>
<td>7</td>
</tr>
<tr>
<td>30-40</td>
<td>1 test per 4 plots</td>
<td>10</td>
</tr>
<tr>
<td>Over 40 plots</td>
<td>1 test per 4 plots</td>
<td>10</td>
</tr>
</tbody>
</table>
Verify it – 1. Soil quality testing requirements

• Not just BS3882:2015 plant nutrients, human health contaminants should be considered depending on source.
• Chemical testing requirements should be discussed with a suitably qualified person and agreed with NHBC (and regulators)
• No simple answer – it depends on the source and the available documentation.
Verify it – 2. Soil thickness

- The Inspection regime for capping thickness will depend on the number of plots being built

<table>
<thead>
<tr>
<th>No of Plots</th>
<th>Depth Inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>Each plot</td>
</tr>
<tr>
<td>5 to 20</td>
<td>1 in 2</td>
</tr>
<tr>
<td>20-30</td>
<td>1 in 3</td>
</tr>
<tr>
<td>&gt;30</td>
<td>1 in 4</td>
</tr>
</tbody>
</table>
Verify it – 3. Chain of custody

• **Important if materials verified off-site in advance**
• **Haulage delivery notes may be acceptable, but the more info the better (A selection would be acceptable)**
• **Can you confirm the certificate relates to the material imported to site?**
• **A visual inspection of soil on delivery essential (does soil visually compare with that described on suppliers test report?)**
Verify it – 4. Reporting

• To include:
  • Plot numbers
  • Confirmation of depth
  • Details of plots actually proven
  • Photos of depth check holes
  • Chemical test data
  • Chain of custody
  • Site plan showing sample and depth check locations
  • Report
Verify it – 4. Reporting

• What causes problems
  • Sampling ratio
  • Wrong analysis
  • Testing out of date??
  • Poor photos
  • Exceeding agreed concentrations
  • Wrong depths, missing membranes
  • Getting info to us late in the day…
Some typical verification photos
Garden areas

Also need to consider!

• Getting more and more contacts due to poor quality of gardens:
  • waterlogging
  • over compacted soils
  • poor growing medium.
Garden areas

Clauses 10.2.8 & 10.2.9 have been revised.

To help reduce the risk of waterlogging in garden areas, action, such as rotavating, is recommended to restore drainage characteristics of soil which has been compacted.

In situations where there is heavy compaction, such as under temporary roads, more heavy duty equipment may be required to loosen the ground or remove material.
Further information

- NHBC Standards Technical Extra Issue 08 November 2012 [www.nhbc.co.uk/Builders/ProductsandServices/TechnicalExtra/](http://www.nhbc.co.uk/Builders/ProductsandServices/TechnicalExtra/)
- Or call us –0344 633 1000, ask for “Technical Services”
Thank you for listening!

Questions?

Matthew Lennard
MLennard@nhbc.co.uk
01529 421080
Raising standards to protect homeowners