CLM Workshop

PAINT THE TOWN RED

The problem with exposure to residential lead

Practical and Cost Effective Remediation and Management Options

By Nicola Peacock

At what level should we require clean up?

- The NESCS Soil Contaminant Standards were not intended to be a ‘clean up’ level, but rather a trigger to assess risk and develop ways to mitigate that risk if necessary
- We do have some New Zealand guidance on clean up of lead in soils as set out in the Ministry of Health’s (MoH) “The Environmental Case Management of Lead-exposed Persons: Guidelines for Public Health Units: Revised 2021”, which suggests the following:

> “Studies by Weitzman et al (1993) and Lanphear et al (2003) for soil lead levels in the range of 1000 to 3000 µg/g, suggest soil removal is probably not indicated, and measures such as improving ground cover and behaviour modification (eg, relocating the principal play area away from the house) may suffice. At soil lead levels less than 1000 µg/g bare soil areas should still be covered (a soft cover such as grass or bark chips is generally adequate), if indicated by use pattern analysis, as soil lead tracked or blown into the house will be contributing to dust lead in the home."

The Problem

- Many lead affected sites are cleaning up all traces of lead contaminated soils to below the NESCS Soil Contaminant Standards (most typically to the ‘residential 10% produce’ standard of 210mg/kg). This is sometimes by choice but mostly by requirement of a regulator when a site is subject to the NESCS.
- This involves very large sums of money for excavation and disposal costs, as well as reintroduction of clean soil. For a small subdivision or single building project, the costs are prohibitive.
- This can have perverse effect of owners choosing to do nothing rather than be forced to spend large amounts of money.
- This is not the only way to mitigate the risk - other options exist and should be chosen based on risk, taking into account the lead concentrations and the way the site is or could be used.

General Health Precautions

Practice Good Personal Hygiene

•Wash hands and exposed skin after coming into contact with soil

•Wash children's hands and faces after playing outside and before eating or drinking

Keep Soil Outside, Not in Your House

•Remove shoes before entering your house

•Use door mats

•Wash boots and tools outside

•Keep windows closed on windy days if dust is being blown around to prevent it coming inside

Make Sure Children's Play Areas Are Safe Places

- Maintain good grass cover in areas where children play
- Do not let children play on bare soil, consider covering bare soil with bark or mulch
- Regularly wash toys used outside

Tips for Ensuring Safe and Healthy Gardening

- Wear gloves as a barrier between your hands and the soil
- If you want to grow vegetables, use lined, raised beds with clean imported topsoil or engage a suitably qualified and experienced practitioner to investigate existing soil
- Wash fruit and vegetables thoroughly before eating
- Wash hands and exposed skin after coming into contact with soil
- Do not disturb soils on windy days

Tips for Animal Handling

- Don’t let animals dig in the garden
- Don’t let muddy pets into the house
- Wash pets regularly if they enter the house
- Keep chickens only if you are certain your land is not contaminated

Prevent Erosion and Access to Soils if Possible

- Don’t allow there to be areas of bare soils that would generate dust
- Keep grass cover healthy and in good condition
- Use dense vegetation or mulches to cover soils
- Cover high use areas with concrete, decking, gravel etc

Simple Capping For an In-use Site – Minimal disruption and cost effective

- 25-50mm layer of clean soil and turf
- 50-100mm layer of bark on non-biodegradable weedmat or geofabric
- 25-50mm layer of pea gravel or similar on non-biodegradable weedmat or geofabric
- Artificial turf
- Concrete/asphalt
- Timber decking
- Install raised gardens for vegetable growing – at least 300mm soil depth on geofabric

Suggested Minimum Capping for a New Development

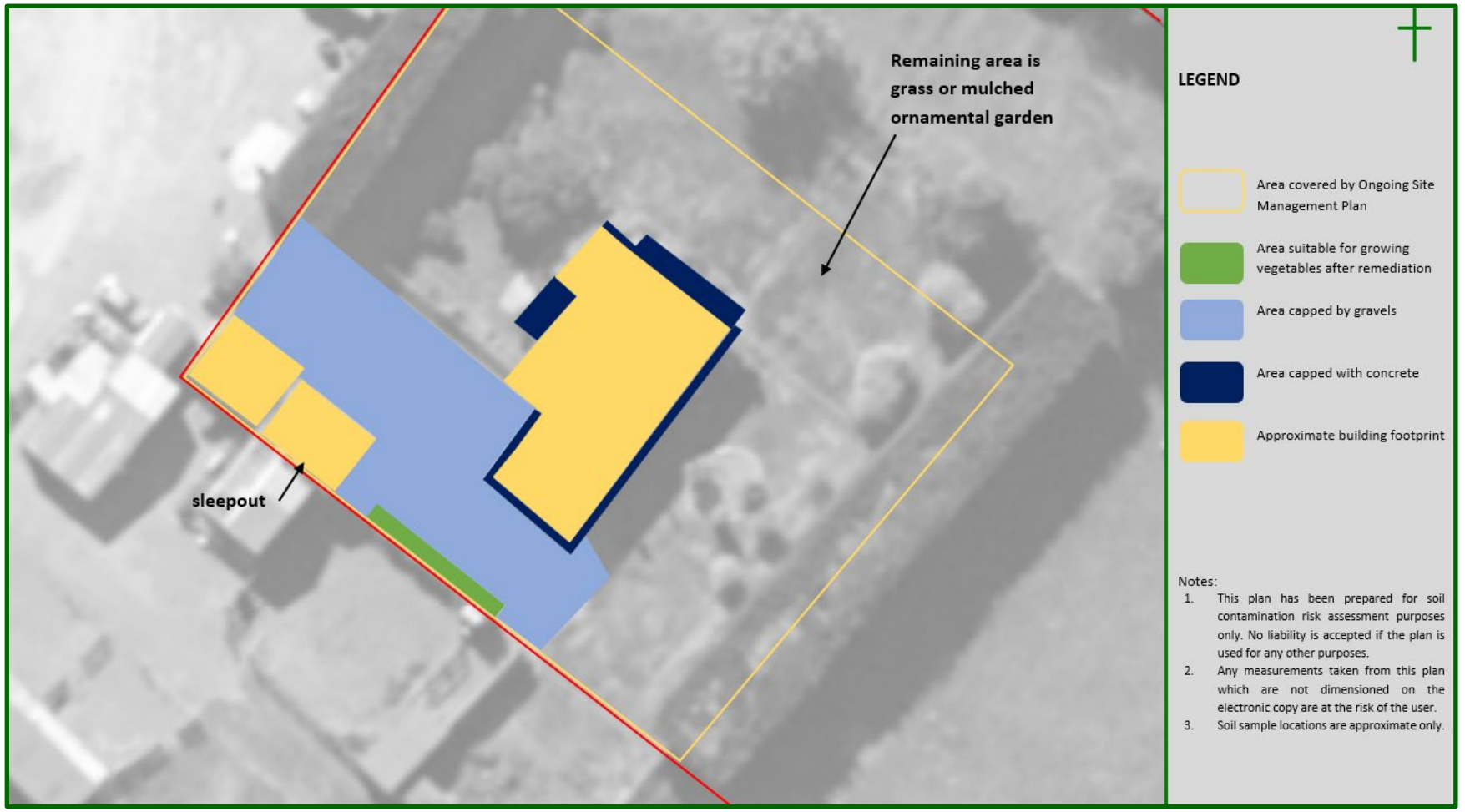
- 100mm layer of clean soil and turf on non-biodegradable geofabric
- 100mm layer of bark on non-biodegradable geofabric
- 100mm layer of pea gravel or similar on non-biodegradable geofabric
- Artificial turf on top of 100mm layer of hardfill on
- Concrete/asphalt
- Timber decking
- Install raised gardens for vegetable growing – at least 300mm soil depth on geofabric

MOMENTUM ENVIRONMENTAL LTD.

wasteMINZ

Example site – lead levels 250-900mg/kg

Example site – mixed controls



Lead levels:

175-373mg/kg

174-760mg/kg

400-6,790mg/kg