Mole Valley DC- LA Perspective

Rob Ivens

- Reminder re Planning
- C4SL
  - The derivation
  - the numbers
  - What do they meant to us
- Providing Confidence in the process
- Future Challenges

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National Planning Policy Framework

It does not say

“safe and Suitable for use”

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Part 2A-Categories

- Four categories
  - **Category 1-2** can be determined
  - **Category 3** may include land where the risks are not low, but nonetheless the authority considers that regulatory intervention under is not warranted.
  - **Category 4** where the LA considers that there is no risk or that the level of **risk posed is low**

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So the numbers

Final Category 4 Screening Levels based on the risk management decisions outlined above

Substance	Residential (with home-grown produce)	Residential (without home-grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37 mg/kg	40 mg/kg	49 mg/kg	640 mg/kg	79 mg/kg	168 mg/kg
Benzene	0.87 mg/kg	3.3 mg/kg	0.18 mg/kg	98 mg/kg	140 mg/kg	230 mg/kg
Benzo(a)pyrene	5 mg/kg	5.3 mg/kg	5.7 mg/kg	76 mg/kg	10 mg/kg	21 mg/kg
Cadmium	26 mg/kg	149 mg/kg	4.9 mg/kg	410 mg/kg	220 mg/kg	880 mg/kg
Chromium VI	21 mg/kg	21 mg/kg	170 mg/kg	49 mg/kg	23 mg/kg	250 mg/kg
Lead	200 mg/kg	310 mg/kg	80 mg/kg	2330 mg/kg	630 mg/kg	1300 mg/kg

This table should be read in conjunction with the Final C4SL R&D report.

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C4SL-Project

- Documents the process to go through
- Gives worked examples of derivation
- Requires the use of
  - current and
  - authoritative TOXICOLOGICAL DATA

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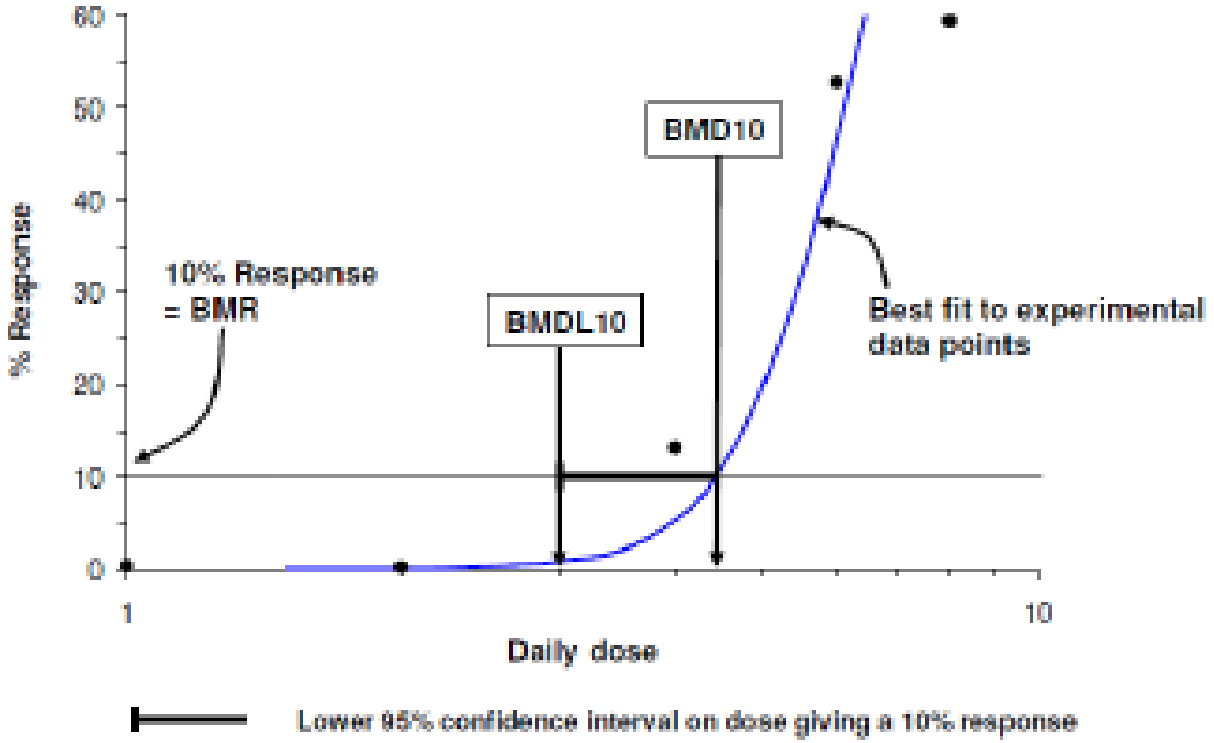
C4SL- Tox is the Key

The concept of the benchmark dose is illustrated below in Figure 2.1.



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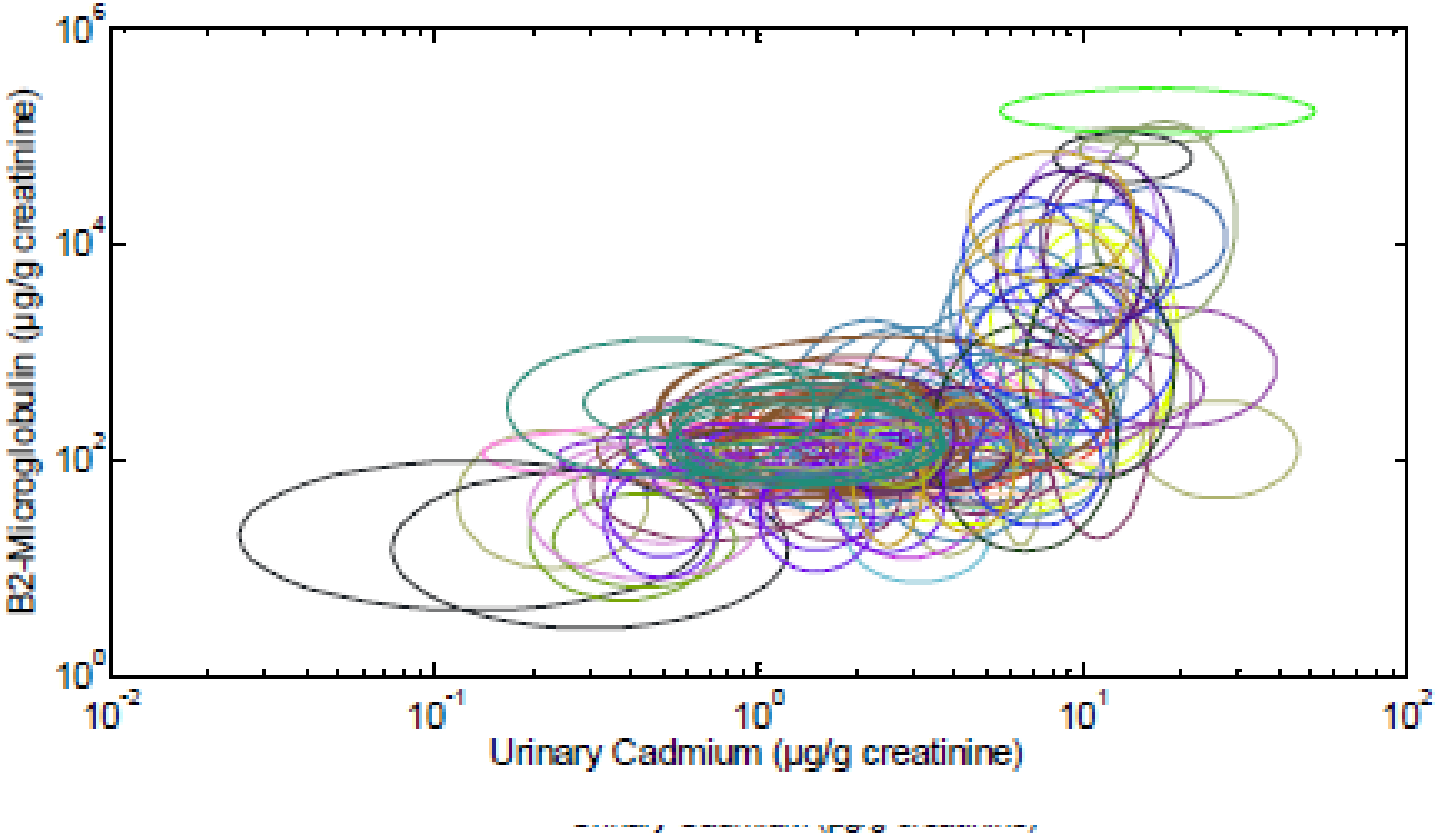
That's Easy then!



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What do they do for us….

	Residential (+ Veg)	Usefulness Planning	Part 2A
Arsenic	37 mg/kg	√	☹
Benzene	0.87 mg/kg	√	☹
BAP	5 mg/kg	√ √ √	☹☹☹
Cadmium	26 mg/kg	√ √ √	?
Chromium VI	21 mg/kg	?	?
Lead	200 mg/kg	☹☹☹	√ √ √

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Lead- a Laymans View of why is it so low

Table 2.5: Proposed choices of oral LLTC values (as blood lead levels) using different PODs

POD ($\mu g\ dL^{-1}$)	POD choice	Effect	Receptor	Margin	LLTC ($\mu g\ dL^{-1}$)
1.2	$BMDL_{01}$ (piecewise linear)	Neurobehavioural	Child	1	1.2
1.8	BMD_{01} (piecewise linear)	Neurobehavioural	Child	1	1.8
4.1	$BMDL_{01}$ (linear)	Neurobehavioural	Child	1	4.1
5.6	BMD_{01} (linear)	Neurobehavioural	Child	1	5.6
1.5	$BMDL_{10}$	Renal toxicity	Adult	1	1.5
1.6	BMD_{10}	Renal toxicity	Adult	1	1.6
2.5	BMD_{15}	Renal toxicity	Adult	1	- -
3.5	BMD_{20}	Renal toxicity	Adult	1	**3.5**
3.6	ave $BMDL_{01}$	Cardiovascular	Adult	1	3.6
6.1	ave BMD_{01}	Cardiovascular	Adult	1	6.1
	CDC Action standard	N/A	Child	N/A	5

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Background- Saviour of Lead

Normal background concentrations of contaminants in England

Substance	Principal domain	Urban domain	Mineralisation domain 1	Mineralisation domain 2	Ironstone	Chalk South
Arsenic	32 mg/kg		290 mg/kg		220 mg/kg	
Benzo-a-pyrene	0.5 mg/kg	3.6 mg/kg				
Cadmium	1.0 mg/kg	2.1 mg/kg	17 mg/kg	2.9 mg/kg		2.5 mg/kg
Lead	180 mg/kg	820 mg/kg	2400 mg/kg			

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But:

- Not all things as well understood as
  - Cd or Lead
- There be dragons in the detail !!!!
  - Not a trivial exercise
  - Don’t expect LA to be capable of checking it
  - Be prepared to fund the LA review or have a bit of a fight

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Confidence- The price to Pay

- How much testing is enough
  - Unbiased sample design CLR4
  - Hot spot assessment
- Sample enough to understand
  - CSM CSM CSM
- Unusual Detects
  - Report them

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Sampling Strategies

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-
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Table A1: Minimum sampling points required for detection of circular hot spots using a systematic sampling pattern at 95% confidence level

Diameter of the circular hot spot that can be detected with 95% confidence (m)	Square grid size G (m)	Area of site (ha)*	Area of site (m^2)	Minimum number of sampling points recommended (N)
11.8	10.0	0.05	500	5
15.2	12.9	0.1	1000	6
19.9	16.9	0.2	2000	7
21.5	18.2	0.3	3000	9
22.5	19.1	0.4	4000	11
23.1	19.6	0.5	5000	13
23.6	20.0	0.6	6000	15
23.9	20.3	0.7	7000	17
24.2	20.5	0.8	8000	19
25.0	21.2	0.9	9000	20
25.7	21.8	1	10,000	21
28.9	24.5	1.5	15,000	25
30.5	25.8	2	20,000	30
31.5	26.7	2.5	25,000	35
32.4	27.5	3	30,000	40
32.9	27.9	3.5	35,000	45
33.4	28.3	4	40,000	50
34.6	29.3	4.5	45,000	52
35.6	30.2	5	50,000	55

* 1 ha = 10,000 m^2

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American DQO- Process

Problem Formulation

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Inspection: Process

1. Initial Unbiased Sampling

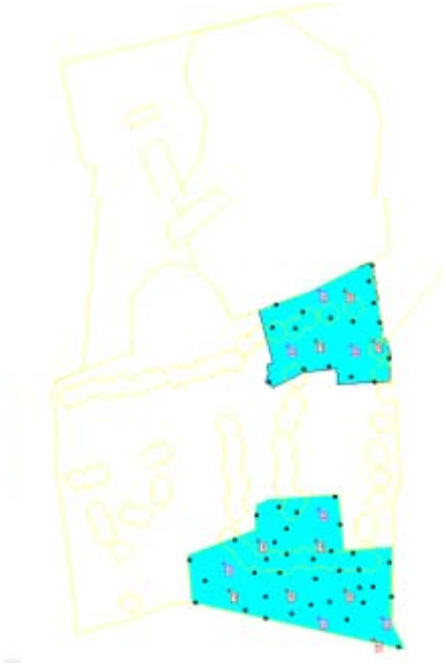
•Gain Baseline data

2. Secondary Unbiased Sampling

•Preliminary info. on extent & scale

3. Randomised Sampling

•Establish representative Concentrations in Areas of Similarity



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Asbestos
The missing C4SL

- ACM- how nasty is it really
- Free Fibres- they are everywhere!
- What's the risk
- What's reasonable
- Need a away forward

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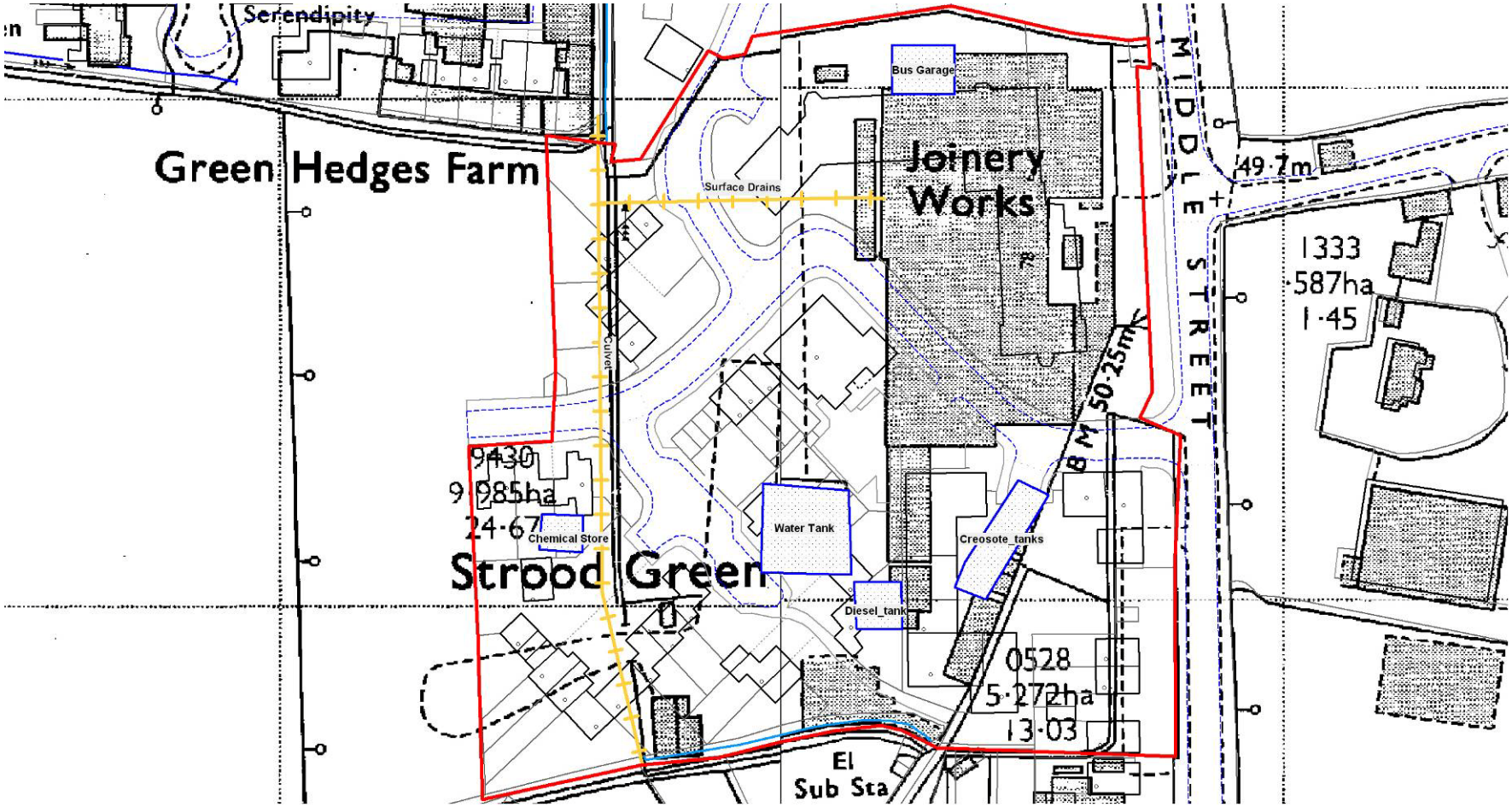

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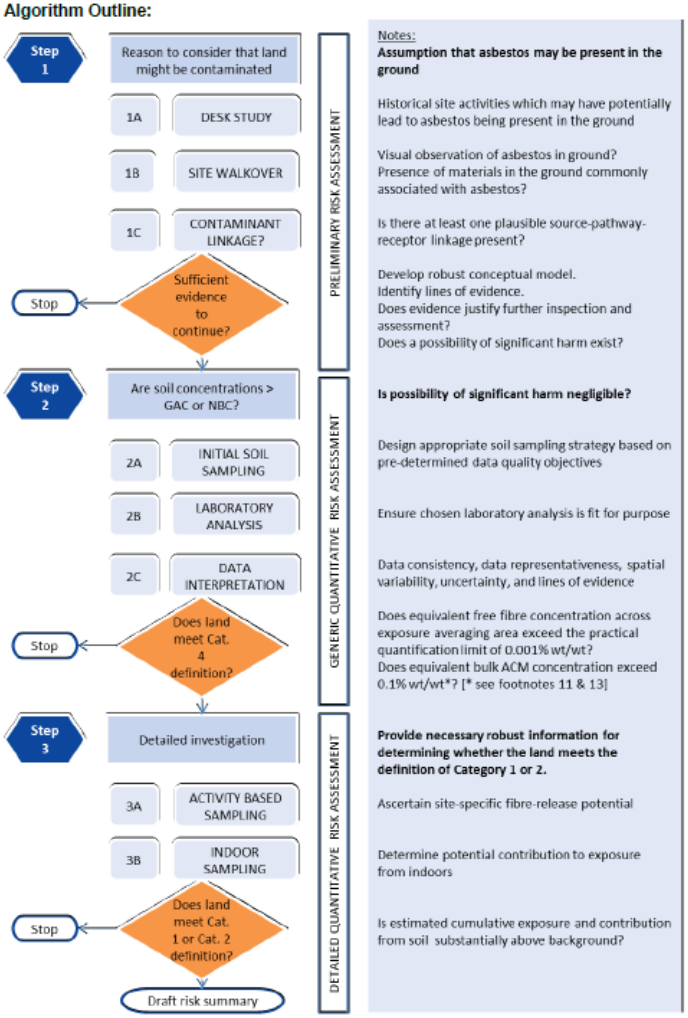
URS

Algorithm Outline:



URS Infrastructure & Environment UK Limited, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD.
www.ursglobal.com

- The equivalent screening criterion for ACM fragments should be 0.1% wt/wt11 (i.e. one hundred

  times the free fibre limit)- Note 12

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