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RWM Exhibition – Keynote Presentation

"Recycling & Waste Management - A Developers Perspective"

Some of the issues covered by this presentation

- Historic Perspective
- Political viewpoint & Government policy
- The key issues
- UK House-building Industry – current status
- Construction Industry initiatives
- Contaminated land regime – definition of waste
- The impact of other external influences
- Commercial implications
- Viability & design stage – options, opportunities and benefits
- Definition of waste – CL:AIRE CoP/EA position
- Case studies
- Future direction
- Final message

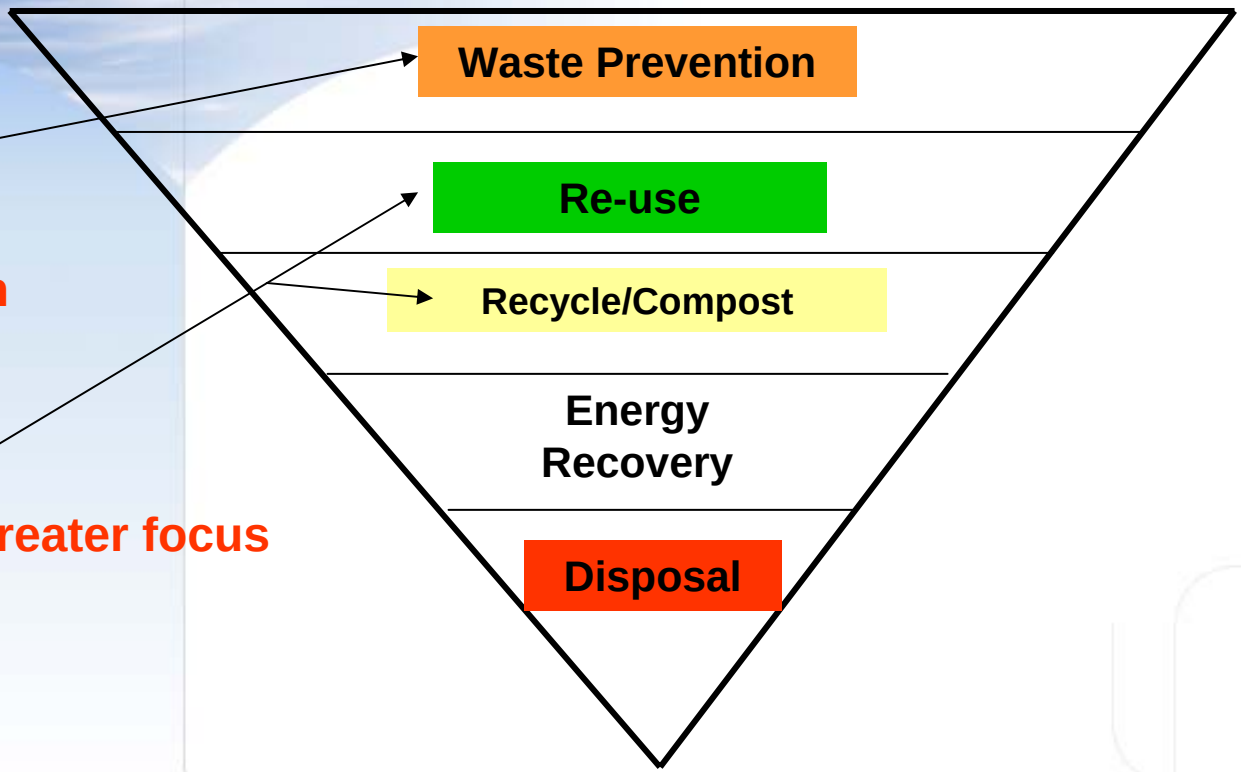
A little bit of history…….

- 3000 BC: First recorded landfill – Knossos, Crete
- 2000 BC: First evidence of composting/waste management – China
- 500 BC: First municipal landfill site – Athens
- 1297 AD: First attempt at waste management law – England
- 1947: Waste management brought under UK planning control
- 1974: Control of Pollution Act *et al* ……..
- 1987/1988: Two major incidents involving migration of landfill gas

The ‘political’ viewpoint/Government position

- *“Businesses must get smarter in how they handle their waste……” (Ben Bradshaw, Environment Minister – 27th March 2006)*
- Despite Ministerial changes, the Government’s message still applies and is one of the underlying reasons for….
- The mandated introduction of site waste management plans (SWMP’s)…. legislation that is welcomed

Waste hierarchy



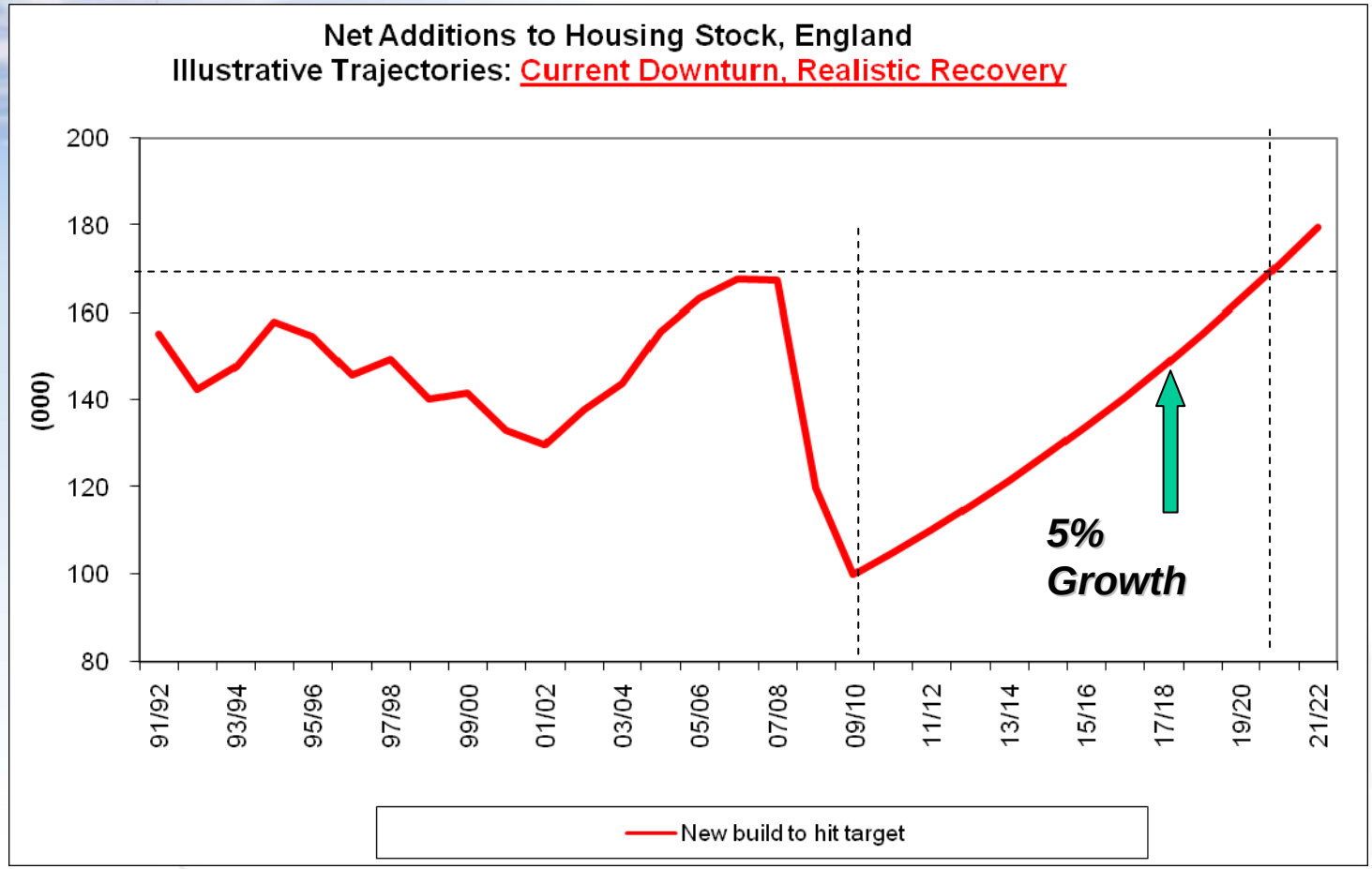
Design stage – waste reduction opportunity

Areas for greater focus

What are we are trying to improve/resolve?

- Each year the UK Construction Industry generates around 90MT's of construction and demolition waste – a significant quantity (circa 25MT's) still ends up in licensed landfill
- Until the the current recession, these figures have been disappointingly consistent despite a number of mitigating initiatives
- In volumetric terms, halving waste to landfill by 2012 is an easily achievable object but for the wrong reasons

Current status of the UK housing market



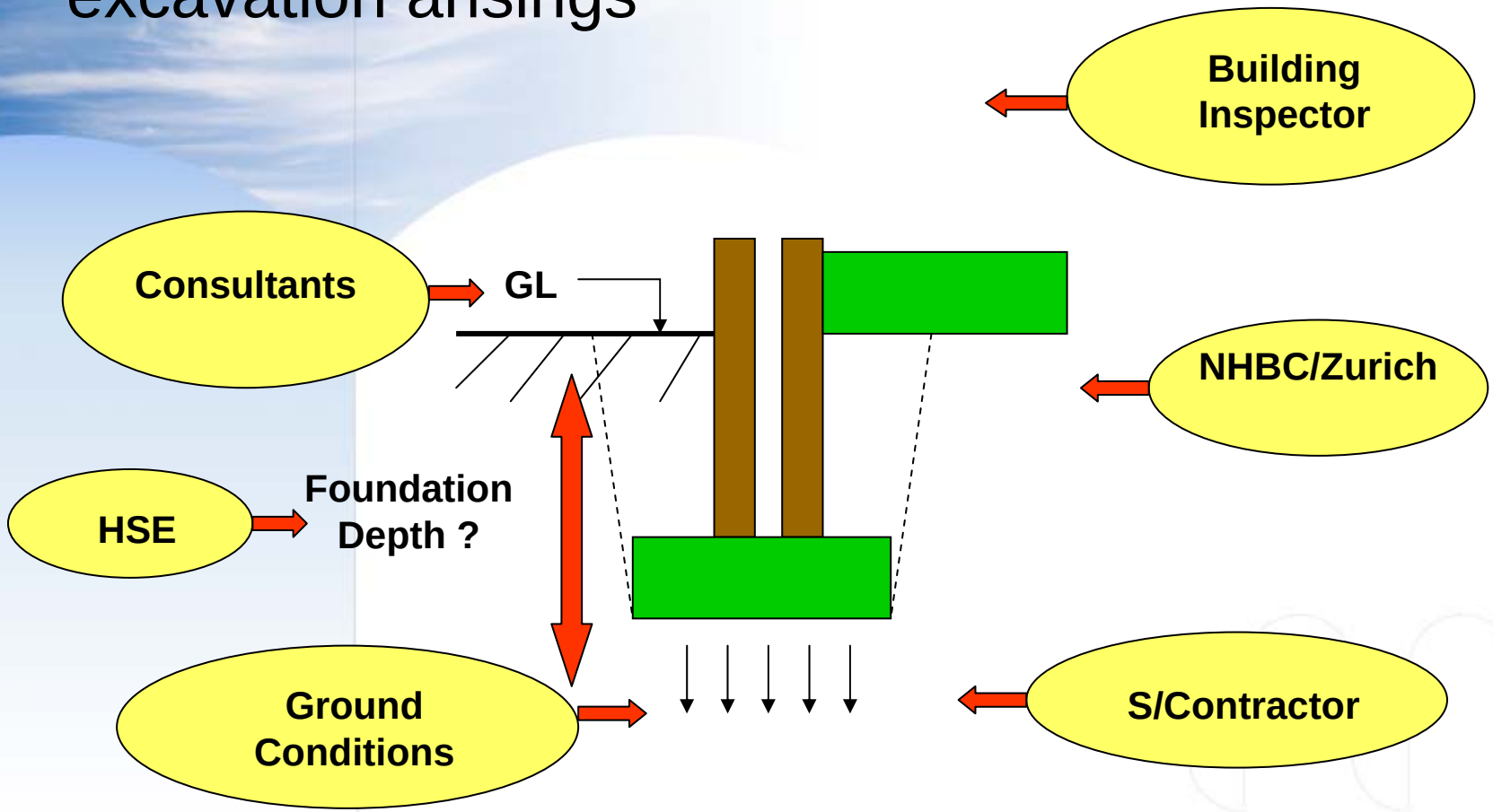
Construction waste - Industry initiatives and progress

- Recycling of Plasterboard is now commonplace (Rates of 80 – 100%)
- Similarly, timber waste
- Discarded bricks, blocks and concrete from the construction process are being crushed and re-used as low grade fill under driveways
- SWMP's have brought greater focus to the re-use of discarded construction materials
- Most companies now measure their performance in these areas as part of corporate responsibility KPI's, in addition to setting reduction targets (Miller Homes recycles approximately 80% of its construction waste).
- Waste reduction/management now a prominent feature of the design & procurement process

Contaminated land regime – site preparation

- In a construction context - we still do not have a sensible and workable definition of waste. However….
- The most recent version of the WFD (Nov ’08) does offer us some hope that certain excavated materials will no longer be classed as ‘waste’
- Recent High Court decision in the ‘Inglenorth Case’ – helpful in defining ‘waste’
- Current suite of SGV’s & TOX reports still incomplete – the debate continues as to the robustness and ‘fit for purpose’ of updated and emerging guidance
- Recent/forthcoming changes in guidance & regulation:-
  - Transposition of Article 6 of the Groundwater Directive into UK law – imminent? Are the implications fully understood?
  - EU Soil Directive
  - Re-use of soils on site – DBERR/Defra guidance not entirely helpful

Other factors that can influence the quantity of excavation arisings



Is this waste or an under-used resource?

Excavation Arisings:

Typical medium-sized UK house-building company

(Data based on 2005/6 research)

Spoil classification	Quantity m^3	Tonnes	Disposal cost
Inert	303,456	485,530	£3.7M
Non-hazardous	11,200	17,920	£0.32M
Hazardous	2,680	4,288	£0.15M
Totals	317,336	507,738	£4.17M

What do these figures represent?

- 507,708 Tonnes: sufficient to cover the whole of Wolverhampton to a depth of 150 - 200mm
- Cost/dwelling - £1486 or ……circa £25k/acre
- Ave quantity/dwelling – 113m^3 (181 Tonnes)
- Arisings – predominantly inert and/or non-hazardous but with ‘engineering utility’ and therefore capable of being re-used, subject to satisfactory risk assessment

Viability & design stage – missed opportunities?

- Above ground construction – opportunities to design out waste (see WRAP guidance)
- Site preparation - look at risk-assessed excavation arisings as secondary raw materials & maximise on-site re-use
- Consider the use of risk-assessed excavation arisings for inert cap/cover systems on the host & possibly other sites
- When dealing with contaminated land consider in-situ, process-based remediation if site characteristics/constraints allow
- If possible raise road floor and external levels – for example a 450mm rise in general levels provides an opportunity to…….

Potential benefits

- Retain approx 30 – 50m^3 of spoil per dwelling on site – but consider need for planning consent (inc. design& access statement)
- Minimise our dependency on landfill whilst achieving significant savings in ‘disposal’ costs (Reflect in SWMP)
- Provide more sustainable construction solutions, for example in-situ remediation – but be wary of long-term effectiveness
- Consider alternative foundation solutions, for example, semi-stiff rafts requiring minimal excavation

Reasons for such an approach….

Consider simple strip foundation

Strip or Trenchfill 0.90m deep	Strip or Trenchfill 1.50m deep	Strip or Trenchfill 2.0m deep	Strip or Trenchfill 2.50m deep	Raft Foundation
30m^3	44m^3	94m^3	126m^3	**Negligible**
£720	£1056	£2256	£3024	£0?

Piling possibly more cost-effective at this depth – thermal piling even more sustainable

Recent Initiatives from CL:AIRE

- Code of Practice “The Definition of Waste” (Sept 2008) is welcome but this still does not effectively tackle the issue
- The CoP is voluntary and requires that a ‘Qualified Person’ be retained to determine whether or not indigenous soils can be re-used on the host site – factor into GI brief but an additional cost
- Further CoP being developed that may allow the re-use of risk assessed excavation arisings on other sites. Useful and a much more sustainable approach

Rationale for a more sustainable approach to construction

- We are not making more effective use of risk-assessed secondary raw materials - Consider PFA – a versatile secondary raw material used extensively in UK construction but…..
- When used for the grouting of shallow coal workings the EA consider this to be a waste treatment activity requiring an Environmental Permit (EP)
- EP = blight and diminution in property values (by up to 40%) - Defra Report Feb 2003
- The alternative is less sustainable and more costly; consider a typical case study……

Case Study - grouting of shallow coal workings

- Site located in Greater Manchester in a former mining area
- PFA for grout mix considered but excluded – substituted with natural, quarried sand due to prevailing/current EA policy
- Consequences – 54% increase in the number of drilling/grout nodes; cement content of the grout increased by 67%; period for grouting extended by four weeks; increased CO_2 emissions
- Increase in cost – a staggering 137%
- Not a sustainable approach and possibly in contravention of the ethos of the original WFD

What can/should we be doing?

- Consider the benefits that can accrue at the design stage – ‘Design-v-Waste Mitigation’
- Revisit and re-think part of the science that underpins the contaminated land regime
- Make more effective use of the downturn by formulating more coherent, co-ordinated and workable contaminated land and remediation guidance that seeks to minimise excavation arising
- Start working together, i.e. regulator, developer and consultant to produce better guidance
- Look at more sustainable construction options

A message for us all

- There are challenging times ahead for all stakeholder interests but remember… sustainable construction remains our over-arching objective
- Imperative that we work together
- Both Regulators and our supporting consultants must become more innovative and commercially aware
- Dedicated training & the development of robust, sensible guidance are intrinsic requirements

A final thought…….

- During the course of this presentation…….
- Within a House-building business somewhere in the UK…..
- Around 180 Tonnes of spoil will have been deposited in a licensed landfill somewhere
- Contributing how much CO_2…….?
- We all need to be better focused and learn to appreciate and understand the wider picture.
- Inevitable tensions & conflicts but these are the seeds of opportunity

Thank you for your time and attention