

## One Coleman Street – a case study in the use of secondary materials in concrete

The construction of a prime nine-storey 18 000m<sup>2</sup> office development at one Coleman Street in the heart of London is the capital's first major use of secondary aggregates in concrete to reduce the environmental impact of the concrete materials. By using fly ash and china clay stent, the secondary materials content of the concrete, by mass, was increased from about 5 per cent to about 50 per cent and, by value, from about 15 per cent to about 45 per cent.

Most of the UK china clay quarrying industry is based in the St Austell area of Cornwall, but about nine tonnes of waste are generated for each tonne of china clay produced. Current waste production is about 22 million tonnes per annum, making this the most concentrated area of tipping in the UK, and having an overriding impact upon the landscape by creating pyramid-shaped spoil heaps with a dramatic effect on the local landscape, known locally as the Cornish Alps (see Figure 1).

About half of this residual material is unkaolinised granite rock fraction known by the term "stent"



Figure 1. Photograph showing production stockpiles of china clay waste (foreground), uncrushed stent (mid-ground right) and an old spoil heap (background)

which is classed as a natural secondary aggregate (and so exempt from the government aggregates levy). Although used locally, there have been difficulties on utilising china clay stent further afield, mainly due to transport constraints. The designers (Arup) and the project team had to investigate this and ensure security of supply before going ahead and this project is believed to be the first such movement of a significant quantity for use as coarse concrete aggregate.

Although it is a naturally variable material, the exact source was selected carefully and tests carried out to ensure the china clay stent supplied was fully in accordance with current British and European Standards for aggregates, allowing the concrete to be specified and supplied in accordance with BS 8500. No practical difficulties were encountered at the concrete plant or on site due to the use of the china clay stent aggregate or the higher fly ash contents.

The approach taken reduced both depletion of natural resources and dumping of waste. Although there was a small overall cost premium, the client (Stanhope plc) believed this was justified to achieve reduced environmental impact. For further details contact Arup Materials Consulting. [www.arup.com](http://www.arup.com)

### Free site guides for new members

If your clients, subcontractors and contacts have not yet joined the CIEF, then do so before the end of September 2006 and they will receive a free copy of the best-selling publication *Environmental good practice on site* (C650) or the *Working with wildlife site guide* (C567) – essential for the desk of every site manager or engineer and an invaluable reference for everyone. Usual price £40 (offer available for new members only), visit:

[www.cief.org.uk/how\\_to\\_join.htm](http://www.cief.org.uk/how_to_join.htm)

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# CIEF and CIRIA news

## New CIEF members

- Afriso Eurogauge Ltd
- ARM Ltd
- Birmingham City Council
- Carmarthenshire College
- DWF Solicitors
- Network Rail
- Somerset College of Arts and Technology

## Resource efficiency and waste management – a CIRIA conference 7 November 2006, London

Construction and demolition waste accounts for 100 million tonnes of controlled waste arising annually in the UK and 4.5 per cent of a construction company's profit is spent on waste removal.

This conference will take a strategic look at managing waste and will provide practical guidance on how to achieve sustainable waste practices through a series of seminars and workshops. Interactive practical workshops, delivered by recognised industry practitioners, will give delegates the opportunity to explore and debate a range of themes including supply-chain partnerships, designing to minimise waste, and tools available to improve performance such as key performance indicators and site waste management plans.

For further details and to book, visit:

[www.ciria.org/conference\\_071106.htm](http://www.ciria.org/conference_071106.htm)

## Building for 2012 and beyond – CIRIA annual contaminated land conference 8 November 2006, London

Issues surrounding brownfield redevelopment and land remediation continue to challenge, from the debate on the implications of soil guideline values (SGVs) to solutions for dealing with unexploded ordnance. With London hosting the Olympic Games in 2012, new opportunities and challenges for contaminated land professionals have never been greater.

This event will review how government contaminated land policy has affected house building and the property industry, the lessons learnt from Part IIA regimes, and current practice in risk management and risk communication. The conference will in particular demonstrate how these could affect the way that the UK delivers major

international sporting events and other national large-scale re-development projects.

CIEF members are eligible for discounted conference tickets for both, with an additional early bird offer valid until 2 October 2006.

For further details and to book go to:

[www.ciria.org/conference\\_081106.htm](http://www.ciria.org/conference_081106.htm)

## Green property profit 28-29 November 2006, London

The CIEF is pleased to support Newzeye's Green Property Profit conference. With policy and regulatory developments happening now and in the next 12 months, the property industry is facing new demands and pressures which are likely to affect prices, market preferences and our general approach to building and development. This conference will tell you all you need to know about the new face of the industry and how to continue developing in a profitable, environmentally sound way. CIEF members are eligible for discounted tickets. To book, click [here](#)

## Civils 2006 28-30 November 2006, London

CIRIA is pleased to participate in this year's Civils exhibition taking place at Olympia, London. Civils is the UK's largest exhibition to encompass the needs of the civil engineering industry while reflecting on opportunities available within the sector. Visit the CIRIA stand (K66) to find out about our latest projects, publications, events and more. To book your free exhibition ticket register at [www.civils.com](http://www.civils.com). We look forward to seeing you on the CIRIA stand.

## Helping rain to drain

Heat waves or prolonged periods of drought followed by intense rainfall can cause localised flash flooding. CIRIA's new guidance *Designing for exceedance in urban drainage – good practice (C635)* provides advice for the design and management of urban sewerage and drainage systems. It aims to improve engineers, planners and designers' appreciation of the risks associated with urban drainage systems and how these risks may be mitigated, available from the CIRIA online bookshop:

[www.ciria.org/acatalog/C635.html](http://www.ciria.org/acatalog/C635.html)

# Sustainability research, news and initiatives

## New EcoHomes scheme for old housing stock

EcoHomes XB is a new scheme designed specifically for existing housing stock. Developed in collaboration with the Housing Corporation, the new environmental assessment scheme enables property managers and landlords to assess the environmental efficiency of their stock and identify the potential for improvement in all four million existing homes owned and managed by housing associations and local authorities – critical to meeting the UK Co2 emissions targets. For further information email [bream@bre.co.uk](mailto:bream@bre.co.uk)

## Victorian terraces reborn

A new collaborative programme between The Prince's Foundation, BRE, the EEDA and the University of Hertfordshire will transform Victorian buildings into energy efficient homes for the future. It will begin with the refurbishment of a Victorian stable block at BRE's headquarters, and demonstrate how older buildings with solid walls, poor insulation, draughty windows, inadequate heating and in a state of general disrepair can be transformed to provide attractive, flexible and energy efficient accommodation for the future.

The completed scheme will incorporate a demonstration house, an adjacent refurbishment education centre, workshops and first floor offices and meeting rooms. Companies or organisations which believe they could contribute skills and expertise are invited to contact BRE. For more information contact Ursula Garner. Tel: 01923 664361.

## A bat house for London

Artist Jeremy Deller (Turner Prize 2004) and the Bat House Partnership are pleased to announce a national competition to design a bat house at the WWT London Wetland Centre, to be launched later this year. The competition will be open to artists, architects, the wider public and schoolchildren. The Partnership intend to realise the winning proposal: a building of aesthetic and environmental excellence, built with sustainable materials, that offers homes to bats and an educational visitor attraction for people. The Bat House Partnership hopes the competition will highlight the need for architects, builders, planners and conservationists to work together to produce wildlife-friendly building design – and provide real solutions.

For more information visit: [www.BatHouseProject.org](http://www.BatHouseProject.org)

Also see the Bat Conservation Trust website [www.bats.org.uk](http://www.bats.org.uk) and helpline 0845 1300 228



Photograph courtesy of The Bat Conservation Trust and J J Kaczanow

## CIEF event notes now available to download from [www.cief.org.uk](http://www.cief.org.uk)

- **Toeing the line:** Controlling water pollution from linear construction projects – 2 March 2006, Edinburgh
- **Microgeneration:** Integrating low carbon technology into commercial development – 25 April 2006, Kings Langley
- **Microgeneration:** Integrating low carbon technology into housing developments – 23 May 2006, Manchester
- **Microgeneration:** Integrating low carbon technology into building projects – 30 May 2006, Glasgow
- **Transport and accessibility for sustainable communities** – 12th July 2006, London
- **Sustainable schools:** easy as ABC? – 17 July 2006, London

## CIEF events calendar 2006

Please visit [www.cief.org.uk/events](http://www.cief.org.uk/events) for the latest information and events, and to book your place.

<b>3 October 2006</b>	Designing out waste- upstreaming solutions – joint event with CPN,	<b>Edinburgh</b>
<b>10 October 2006</b>	Stakeholder Engagement- what, why and how?	<b>London</b>
<b>October 2006</b>	Queen Margaret University site visit,	<b>Edinburgh</b>
<b>October 2006</b>	CSRR – Business risks and opportunities for construction,	<b>London</b>
<b>November 2006</b>	Buying better buildings – sustainable procurement,	<b>London</b>

## Carbon limited – introducing personal carbon trading

This new RSA project will explore the potential for personal carbon trading and find out whether we really will be carrying around a carbon credit card in the not too distant future. In the search for a way of achieving cuts in greenhouse gas emissions quickly, personal carbon trading is rapidly gaining a great deal of support as a potentially fair and effective tool. It could provide us all with a real financial incentive to reduce our carbon emissions through more intelligent use of energy. For more information on the project please visit:

[www.rsa.org.uk/projects/carbon\\_trading.asp](http://www.rsa.org.uk/projects/carbon_trading.asp)

## Making it happen – the Kent design guide

The Kent design guide (first published in 2000) has now been updated and includes technical appendices on biodiversity and sustainable construction. These documents will be adopted as supplementary planning guidance all local authorities in Kent, and aims to encourage well-considered contemporary schemes that fit into the existing landscape. For more information and to download or order a copy of the guide please click on the link below or email [reinfo@kent.gov.uk](mailto:reinfo@kent.gov.uk)

See electronic version at

[www.kent.gov.uk/publications/council-and-democracy/kent-design-guide.htm](http://www.kent.gov.uk/publications/council-and-democracy/kent-design-guide.htm)

## Use Pod to help reach sustainability targets

Scottish Water have recycled one of their waste water treatment plants to create a state-of-the-art composting facility, using thousands of tonnes of green and garden materials including grass cuttings and wood chips from Local Authorities and Scottish businesses (which otherwise would have been sent to landfill) to create Pod compost.

Benefits of using peat-free Pod compost in construction projects include:

- soil improvement; mixing Pod with poor soil improves its quality and lessens the need for additional fertilizers. Disposal and haulage costs that are incurred when exporting materials off-site are also reduced
- flood prevention; used on sites with a poor soil make up, Pod's
- water holding ability means that potential flooding can be easily avoided

- meeting sustainability targets; Pod can contribute towards the 10 per cent of recycled materials by value target for public construction project, in support of Scotland's sustainable development strategy.

The Deerdykes plant was developed in phases, and supported with a grant from WRAP. For further information contact [compost@scottishwater.co.uk](mailto:compost@scottishwater.co.uk) or [click here](#).

## Planning a greener London

Supplementary planning guidance on *Sustainable design and construction* (published in May 2006) helps architects, developers, designers and other professionals implement the policies of the London plan and ensure future developments across London meet the highest standards of sustainable design and construction.

These will include measures to:

- re-use land and buildings
- conserve energy, materials, water and other resources
- ensure designs make the most of natural systems both within, in and around the building
- reduce the impact of noise, pollution, flooding and micro-climatic effects
- ensure developments are comfortable and secure for users
- conserve and enhance the natural environment, particularly in relationship to biodiversity
- promote sustainable waste behaviour in new and existing developments.

The SPG is applicable to all development types and associated spaces and gives performance-based minimum requirements, with specific information on different building types provided where relevant. It gives architects, developers, designers and other professionals ideas where to find good technical advice and guidance on achieving development that can contribute to the Mayor's vision of London as an exemplary sustainable world city.

Visit: [www.london.gov.uk/mayor/strategies/sds/spg.jsp](http://www.london.gov.uk/mayor/strategies/sds/spg.jsp)

**Draft further alterations to the London plan** will be available for public consultation in Autumn 2006 and will have major implications for sustainability in the capital with new policies to double Co2 emission reductions, and setting Co2 reduction targets for the first time. New developments will be required to use "decentralised energy" systems and should have the highest standards of green building design. Consultation begins on 15th September 2006, see: [www.london.gov.uk/mayor/strategies/sds/further-alt/la-draft.jsp](http://www.london.gov.uk/mayor/strategies/sds/further-alt/la-draft.jsp)