

WATCHING OUR WASTE

THE UK MUST REDUCE ITS RELIANCE ON LANDFILL WHILE ENSURING THE VIABILITY OF A MUCH-NEEDED RESOURCE

Words by **Brandon Hooper**



Vast underground burial sites filled with the detritus of our society, landfills are places we would rather forget, yet we all continue to use them. Despite a huge improvement in recycling rates and a 30% drop in the amount of waste sent to landfill in the past decade, more than half of the UK's municipal waste is still disposed of in this way, compared to the EU average of 40%. Unless more waste is diverted to alternative disposal methods, there are fears that the UK could reach its landfill capacity in 2018. So what is being done to reduce the amount of waste sent to landfill, and what challenges do site owners face as we phase out this environmentally damaging habit?

Buried waste not only pollutes the surrounding landscape, but also increases greenhouse gas emissions as the biodegrading material releases large amounts of methane. The European Environment Agency recently estimated that 78m tonnes of greenhouse gas emissions could be saved by 2020 by imposing a Europe-wide landfill ban. As part of the EU's 1999 Landfill Directive, which seeks to reduce reliance on dumps by encouraging the reuse and recycling of waste, the UK's Environment Agency (EA) has closed around 800 sites since 2001. But, while the EA estimates that the landfill capacity of London alone could run out in 2013, the OECD predicts that we could be generating 45% more waste in 2020 than we did in 1995. So there is an urgent need to reduce the strain on the dwindling number of sites, not only by phasing out the age-old

method of burying waste and escalating the recovery and reuse of materials, but also by increasing the efficiency and commercial viability of existing sites.

The property and construction industry has a large part to play, as it is responsible for around a third of all waste in the UK. Good progress has been made in the past decade: according to the Department for Environment, Food and Rural Affairs, between 1999 and 2008 the proportion of construction and demolition waste sent to landfill decreased from 37% to 22%, while the proportion of waste recycled by crushers and screeners increased from 35% to 61%. Much of the good work stems from a greater awareness of the financial, social and environmental benefits of reducing waste to landfill, through schemes such as RICS' Ska Rating environmental



assessment method, and Designing out Waste and Halving Waste to Landfill from the Waste & Resources Action Programme (WRAP).

The Halving Waste to Landfill initiative helps clients and developers, contractors, designers and consultants make more efficient use of material resources at all stages of a project. By reducing waste and developing the use of recycled materials, firms can increase their operational efficiency, save money and improve their corporate social responsibility. In the past two years, more than 670 firms have signed up to the initiative, which WRAP says resulted in a 28% decrease in construction waste sent to landfill in 2009.

One of the best examples is B&Q's new headquarters in Chandler's Ford, Hampshire. Designers Building Design Partnership employed WRAP's Designing out Waste principles to identify nine design changes that would impact on waste reduction, including reusing raised-access flooring panels from the previous building, prefabricating toilets off site and installing pre-cast concrete stairs. In all, the project reduced waste to landfill by 47 tonnes while making significant cost savings.

Meanwhile, RICS has been encouraging sustainable waste management in the commercial sector through its flagship Ska Rating method for office fit-outs. At Camomile Court in the City of London, the fit-out project for the offices of the Westpac Banking Corporation had a target to divert 80% of construction waste from landfill – and actually achieved 99%. Westpac chose Ska Rating to guide and benchmark the environmental performance of the fit-out, and the project team also met 80% of good practice measures set out by the Ska assessors. 'Fortunately, with fit-out and refurbishments

the majority of waste produced is recyclable and a high percentage can be diverted from landfill,' says Mark Francis, an environmental and sustainability manager with BW Interiors and a Ska Rating assessor. 'The key to exceeding the 80% target, such as we had with the Westpac project, is to segregate everything on site so that separate loads can be removed to achieve a higher recycling rate at the transfer station. Ska also helps a project start with the mindset that nothing should be disposed of.'

From the outset the project team ensured disposal of old materials was the last resort. As well as using high-quality recycled products for worksurfaces and sustainably sourced timber, suspended ceiling panels and hard surfaces were reused where possible, and work station chairs, fixtures and fittings were all restored instead of being thrown away.

Reducing our reliance on landfill is vital, but what about the operational effectiveness of the hundreds of sites around the UK? The Landfill Directive states that the UK must reduce its biodegradable municipal waste to 50% of 1995 levels by 2013, and to 35% of 1995 levels by 2020. If targets are not met, local authorities will face fines of up to £180m a year – penalties that could eventually be passed on to taxpayers. A steadily increasing landfill tax acts as a deterrent and encourages businesses and

industry to use alternative methods of waste treatment, such as recycling, composting and incinerating. However, the tax that is helping to wean us off landfill could be having a detrimental effect on the operation of sites – places that should be ideal for the efficient disposal or recovery of waste. 'It's a bit of a myth that we're running out of landfill capacity,' says Mick Sherratt MRICS, a minerals and waste specialist with MTS Consultancy who advises site owners in the Somerset area. 'It's more that it's not economic for many sites to be operational now, mainly because there is such an economic burden for the owners.'

In April, the UK's landfill tax went up to £56 per tonne – a figure that will rise again in 2013 to £72 per tonne. Sherratt argues that although the increasing taxation and high entry fees have been rightly designed to deter people, it could be making many sites inefficient and unviable. 'In some cases it has become more difficult to operate, extend or start new sites,' he says. 'I've had clients come to me and say, "I own a disused quarry, it'll be ideal as a new landfill site, what do I need to do?" Once I tell them about the amount of legislation and high taxes involved, they have second thoughts.'

To operate at their optimum level, landfills need to be reasonably priced to use and be fed with a consistent volume of waste. But with greater taxes, reduced volumes and higher running costs, owners are feeling the financial pressure. Sherratt believes the rising tax burden is also decreasing the asset value of sites, leaving landowners with already reduced incomes facing the prospect of closing them prematurely. Not only is this bad for the sector but it may also have the effect of diverting sustainable waste management solutions away from an existing site that may be the most suitable place for such a development. Because closed landfills already comply with stringent regulations and have been accepted by the public over a long period of time, they are still the most economic and efficient place to deal with waste.

In his 25 years in the sector, Sherratt says he has never seen so many owners considering prematurely closing sites or not starting new ones. He believes we should not be treating

necessary land that should be protected and suggests landfill tax for complete or a site's life alternatives energy from financial and time and effort obtaining planning. 'Most landfill this country,' sites more waste reduction.

Alun Oliver Consulting witnessed client's reduction promote good instances it says. He had planned to reduce at the end of to meet its declining volume driving waste exemptions use. Unfortunately: had October 1994 operate on a difficult economic businesses to be done their site; Oliver.

'Reduced for reduced look to cost timescale; RICS' waste dynamics decision to a period of planning aware and it should be recycled viewpoint continued.

There's has been burying waste encouraging and comparing the changing will the UK reduction rics.org/ska wrap.org.uk

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The number of operational permitted UK sites that meet the EU Landfill Directive, according to the Environment Agency

45.9m

tonnes were landfilled in England and Wales in 2010, of a total 140m tonnes of managed waste

necessary land use like a 'bad habit', but one that should be revolutionised and enhanced, and suggests this could mean reducing the landfill tax for a period of time to help owners complete or extend unfinished sites. Extending a site's life to allow the operator to develop alternatives such as materials recovery or energy from waste facilities also makes good financial and planning sense, considering the time and effort that has already been put into obtaining planning permission and permits. 'Most landfill sites are very well managed in this country,' he says, 'so we must make existing sites more viable, while increasing alternative waste reduction processes.'

Alun Oliver FRICS, managing director of E3 Consulting in Southampton, has also witnessed the rising landfill tax hinder a client's redevelopment plans. 'Taxing can promote good behavioural change, but in some instances it impedes more than it helps,' he says. He recalls an example where a client planned to regenerate his site, a former quarry, at the end of its life. However, the site is unable to meet its waste capacity quota because of declining volumes. This has had the effect of driving waste to rival sites with tax exemptions that are cheaper for developers to use. Unfortunately it is also a question of timing: had the site ceased operation by 1 October 1999, it would have been possible to operate on a tax-exempt basis. 'Particularly at a difficult economic time when the UK needs businesses to grow and develop, more needs to be done to help operators get the best out of their site,' Oliver says.

'Reduced inputs to landfill is creating a trend for reduced gate prices and margins as some look to complete sites within a defined timescale,' says Steve Haymes MRICS, Chair of RICS' waste working group. 'Clearly the dynamics have changed as a result of society's decision to resort to alternatives. There will be a period of hiatus within the landfill sector, and planning authorities and society should be aware and sympathetic to these impacts. Also it should be remembered that not all waste can be recycled from a commercial and practicable viewpoint, and therefore there will be a continued need for landfill in the years to come.'

There's no doubt that remarkable progress has been made in reducing our reliance on burying waste in the long term, but only by encouraging more households, authorities and companies to divert waste, and by meeting the changing needs of those who manage it, will the UK achieve the challenging landfill reduction targets that loom ahead. ■

rics.org/ska-rating

wrap.org.uk

:A NEW LIFE FOR LANDFILL

INVESTIGATING ALTERNATIVE USES FOR CLOSED AND CAPACITY SITES

With hundreds of closed sites and many others nearing the end of their lifespan, many companies are seeing the potential of landfill as a readily available resource, be it through recovering materials for recycling or tapping methane to generate electricity.

CAPPING LANDFILL

The UK power industry produces around 6m tonnes of coal ash per year. Although half of it is recycled for concrete production, the rest is sent to landfill. Quinton Richards, an environmental scientist and planning barrister, sees this as a needless waste of a resource that could help give a new lease of life to old, unregulated sites that are producing harmful greenhouse gas emissions – the EA estimates that a third of all methane released into the atmosphere comes from such sites. Cheltenham-based company Lichen Renewal is developing an innovative system to 'cap' old landfills with coal ash to prevent methane from escaping so that it can be extracted in a controlled way for use in electricity production. 'Our aim is to turn a liability into a resource,' explains Richards. 'We see Lichen Renewal as a symbiotic relationship with the coal industry – using a by-product of a polluting industry to help capture a gas that contributes to climate change and using it as an energy source.' He believes up to 1,500 landfills – or 'gasfills' – in the UK could be suited to the process. Once safely capped, the restored sites could also be re-landscaped and used for recreational or agricultural purposes. The company is aiming for planning permission and delivery on around seven sites next year, with an eventual aim of introducing the process to more than 30 sites per year. lichenproperties.com

LANDFILL RECYCLING

The regulated landfill at Avondale is one of the largest in Scotland, taking non-hazardous and some compliant hazardous waste from the Forth Valley near Edinburgh. Recognising the need to divert more waste from burial, operator Avondale Environmental is constructing the first phase of a Materials Recovery Facility (MRF), pictured below, with advance enabling works by I&H Brown that will recycle around 200,000 tonnes of 'black bag' mixed waste per year. Following completion in December, Avondale Environmental expects recycling rates to be as high as 60% in the first year, with a later aim of diverting 90% of material from landfill. The operator is also planning to use the methane that is already being efficiently captured at the site to generate electricity to power the MRF. avondalelandfill.co.uk

