

feature

Halving Waste to Landfill



As a signatory to the Halving Waste to Landfill initiative, Kier Regional has shown it is committed to reducing waste to landfill and increasing reuse and recycling rates.

Kier Regional has considerable experience in forecasting the waste arising from its projects and identifying and implementing options to reduce this waste and increase waste recovery. The key to this is having an effective site waste management plan (SWMP) in place.

BRE (Building Research Establishment) has developed, for Kier Regional, a bespoke version of its online SWMP tool, SmartWaste. This was adopted by Kier Regional in June 2008 as standard, replacing a number of individual company paper-based systems. SmartWaste requires a project to identify waste streams, forecast the quantity of waste arising and evaluate options to reduce, reuse or recycle it. A member of staff on each project, with sufficient authority and knowledge, is made responsible for drawing up the plan and ensuring it is followed and continually reviewed and updated as the project progresses.

Whenever possible we begin preparing our SWMP at the design phase of a project. At this stage opportunities to reduce waste are often the most significant. This can include designing buildings with the dimensions of the proposed materials in mind, as was the case at Castell Nedd Primary School in South Wales. Here the buildings were designed to suit the size of the proposed bricks and blocks to avoid offcuts and other wasted material. Movement joints were also positioned to suit brick and blockwork joints.

The design stage SWMP often identifies opportunities to reduce the amount of excavated material going to landfill. By looking at potential waste streams at the design stage on a recent project for South Gloucestershire Council, the opportunity to crush, on site, the

excavated rock and use it as fill material was identified. This idea was adopted and, to date, approximately 10,000cu m of excavated material has been diverted from landfill.

During the preconstruction phase of a project, the drawings are reviewed jointly by our design and construction teams and key supply chain members to identify opportunities to reduce waste through the use of Anderson



standardisation and off-site manufacture. At the Garrett Anderson Hospital, Ipswich, the architect, site team, dry-lining contractor and plasterboard manufacturer worked together to identify several opportunities to reduce waste, such as rationalising the number of board systems. By implementing this and other measures, a plasterboard wastage rate of 20 per cent was achieved compared with the current industry average of 25 per cent.

Where the work involves the demolition of an existing structure, a

pre-demolition audit is carried out as part of the SWMP to identify what can be salvaged from the redundant building. Wherever possible, we will look to recover materials for reuse. At Bowbridge School, Newark, recovered bricks were used to construct the school's energy cabin.

If recovery is not possible, materials such as bricks and concrete would be crushed to produce secondary

aggregate for use in the temporary works or, with the agreement of the structural engineer, for incorporation into the permanent works.

We have in place company procedures covering the planning, ordering, delivery, storage and handling of materials, all of which help eliminate or reduce the production of unnecessary waste. To avoid over ordering, all material take-offs are independently checked. Also Kier Regional uses programming software to continually monitor a project's progress to ensure materials are called off and delivered

just before they are required. This eliminates the need to store large quantities of material on site, reducing the potential for damage.

Where waste cannot be avoided and space is available, it is segregated on site into separate waste streams before disposal. This increases the recovery rate at the waste facility and makes it easy to identify materials, such as scrap timber, that could be reused on site. Where segregation is not possible, mixed waste is sent for sorting at a recycling facility or waste transfer station with a high, verifiable, recovery/recycling rate. Kier Regional has a partnering agreement with a number of local waste contractors, such as Premier Waste, in the north of England, which has an exemplary record of reusing and recycling construction waste. We also work closely with online materials exchanges such as that run by Eastex, where we have had some success in keeping surplus building materials in circulation.

Our supply chain, through site inductions, toolbox talks, standard signage and posters, is made aware of the requirements of a project's SWMP and the contribution it can make to reducing waste and increasing waste recovery. On the Carmel College project, in the north of England, the site



team is currently working with WRAP (Waste & Resources Action Programme) to identify the best ways of helping our supply chain reduce the amount of waste it produces during the construction phase.

We are also carrying out trials, in conjunction with WSP Environmental



on the Kent BSF programme, of the Green Grinder. This is a mobile plant which processes, on site, a variety of construction wastes, including aerosols, paint cans, plastics, plasterboard, timber, metals and cardboard. We believe this innovative technology has the potential to significantly improve waste recycling and reuse rates on our projects.

Reviews of SWMP on completed projects have shown that for certain waste streams there is considerable variation between the quantities of waste forecast and that actually produced – forecasts have both underestimated and overestimated the amount of waste. It has proved

particularly difficult to predict the quantity of packaging waste a site is likely to produce.

We are currently working with Envirowise on two education projects in Norfolk to look at how we can overcome this particular problem. This

includes testing Envirowise's Waste Estimator, which has been designed to estimate the weight and volume of packaging that will be created from a construction project. Envirowise is also helping us to identify opportunities to reduce the amount of packaging waste delivered to site.

It is important on a construction project to close what is known as the 'recycling loop' – that is to use, where practicable and where the specification allows, materials with a recycled content. We have considerable experience of evaluating recycled content and specifying building materials containing higher recycled content. For example, on the Norwich Schools PFI we used the WRAP Recycled Product Guide to identify which blocks had the highest recycled content and met the performance specification. As a result we selected Tarmac Topblock Hemelite, which has a recycled content of 55 per cent.

On the North East Estates framework, working with Defra, Kier Regional has carried out research into the suitability and affordability of building materials with a recycled content. Following evaluation, a number of these materials were selected for use in the refurbishment of Foss House and Mallard House offices in York, including Renewal carpet tiles (86 per cent recycled content) and Corus Structural Steel (60 per cent recycled content).

Following a recent presentation by WRAP to Kier Regional's design managers, we are now using their NetWaste tool at the design stage on a number of projects. The NetWaste tool assesses both material wastage rates as well as reused/recycled content of a construction project.