



**THE REVOLUTIONARY DURAKERB
IHT Awards 2008
'Award for Innovation'**

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INTRODUCTION - PLASTIC MILK BOTTLES?

It started with a question from a design engineer in the office kitchen,

“How many plastic milk bottles does it take to make a kerb?”

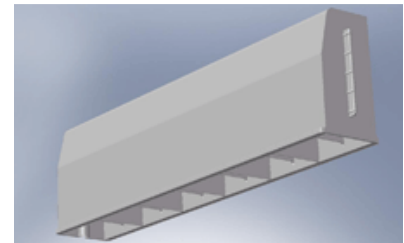
Imagine the laughter that one created! Nevertheless, construction workers' long term health and the environment eventually proved to be the big winners. In November 2006, A-one in partnership with The Durakerb Group became the first company in the country to receive Highways Agency approval to use the revolutionary, lightweight Durakerb on the nation's trunk road network.

SPAWNING THE IDEA

The Durakerb Group were invited to make a presentation to A-one's designers as part of the 'Pencil Case Workshop' forum. It was clear from the outset that a 'step-change' in thinking would be required from the client, the designers and the construction team. As the idea was developed designers faced constant jibes; *“it'll never work”* and *“don't be daft”*. The determination and belief in the product was strong though, and the designers fought through the negativity to pave the way for the first use of lightweight plastic kerbs on the trunk road network.

THE DURAKERB

The Durakerb is a revolutionary lightweight and environmentally friendly kerb. The cellular construction lightens the product whilst maintaining the extremely high strength, in the same way as structures have been designed in aeronautical and automotive industries.



BENEFITS OF DURAKERB

The Durakerb has a number of benefits over traditional concrete kerbs.

- ***Reduced Disruption to the Road User*** - The lightweight nature of the Durakerb enables operatives to quickly position and lay kerbs. Experience to date indicates laying rates up to four times faster than for concrete kerbs. Thus Durakerb has the potential to significantly reduce the time during which traffic management is required on the network.
- ***Improved Safety*** - Mechanical handling of concrete kerbs reduces the risk of long term injury through improper use and repetitive manual handling. However this does not tackle the health risks at source – the concrete units (67 kg) still exist. In comparison, the Durakerb only weighs just over 5kg and doesn't require any mechanical handling. The Durakerb addresses the health risk at source and doesn't rely on control measures to reduce risks to an acceptable level. This aligns with the Health and Safety Executive's recent 'Better Backs' campaign, which sought to address the 4.9 million working days lost annually due to back problems.

- **Reduced Environmental Impact** - Durakerb is manufactured from a blend of 100% recycled polymers. This comprises a mixture of high density polyethylene (HDPE) - principally plastic containers, and low density polyethylene - principally plastic sheeting. By using these low-grade waste materials, Durakerb uses waste which would otherwise be destined for landfill. The equivalent of 1250 x 1-litre HDPE recycled milk cartons go into making a single Durakerb and every 100m of Durakerb diverts 0.5 tonnes of material away from landfill. The Durakerb encompasses all of the principles of The Waste and Resources Action Programme set up to promote Government waste strategies.



CONSULTATION

A-one initiated early discussion with the Highways Agency's Safety, Standard and Research (SSR) branch regarding the use of Durakerb which, being highly innovative, is not covered by current standards. A-one secured a Departure from Standard allowing the first, pioneering, use of Durakerb on the trunk road network.

SSR, in granting the Departure, commented;

“The Pavement Team has been consulted extensively regarding the use of these lightweight re-cycled plastic kerbs prior to this submission and has not seen any parameter that may restrict their performance. Indeed, they have performed both in independent testing and in LA trials in a far superior manner to extruded asphalt kerbing which is presently a permitted option in the 1100 Series of the SHW. They do appear to have ‘everything going for them’ and if trials on the trunk road network continue to demonstrate these advantages then it is likely that they will be included as an option in the SHW in due time.”



CLOSED LOOP RECYCLING AGREEMENT

A-one have continued to develop an effective partnership with The Durakerb Group and are now developing a 'closed loop recycling' agreement.

Now the milk bottles that the design engineers and managers use for their morning coffee will be recycled into Durakerbs – a reflection of A-one's commitment to lead by example.



FIRST INSTALLATION

The first Durakerb units were installed on the A1(T) in Northumberland in March 2007. The construction team reported that all the units were successfully installed in a short space of time.

Chris Beadle, A-one's Construction Manager commented,

“the Durakerb was installed exactly as traditional concrete kerbstones have been for decades but quicker and safer. We didn't have to retrain the installers and where necessary the product was cut with hand tools – this reduced noise levels and also eliminated the dust exposure compared with concrete. The Durakerb was easily knocked down to level and the interlocking feature ensured 100% alignment every time.”



During an inspection nine months later, there were no visible sign of deterioration in the condition of the Durakerbs. Despite being installed in a layby where kerb strikes and overrun are commonplace, no evidence of scuffing, spalling, chipping, cracking or colour deterioration was recorded.

SUMMARY

A-one are committed to 'zero tolerance' on health and safety, and take design and construction duties under the Construction Design and Management Regulations very seriously. A-one also recognise the environmental impact of maintaining and improving the trunk road network and always seek new and innovative ways to promote sustainable procurement. The Durakerb fulfils both these policies.

Andrew Sharp, A-one's Roads Design Manager commented,

“The designers have shown a willingness and determination to ‘make the product work’ and have initiated a step-change in thinking throughout A-one and the Highways Agency. The closed loop recycling agreement now being developed shows a long term commitment to fulfilling Government recycling and sustainable procurement strategies.”