

Kincardine By-Pass

A ScotAsh product case study

QUEEN'S AWARD FOR ENTERPRISE WINNER 2005

PFA's critical role in ground engineering works

ScotAsh supplied more than 300,000 tonnes of materials for the construction of the A985/A876 Kincardine Eastern Link Road, which was completed in July 2004, five months ahead of schedule.

The £10 million project, built by RJ McLeod and designed by Tony Gee and Partners, consulting civil and structural engineers, involved the construction of 2.2 km of new road, new signalised junctions and a new roundabout.

The road, which connects with the northern end of Kincardine Bridge, will divert approximately 80% of the traffic from Kincardine village.

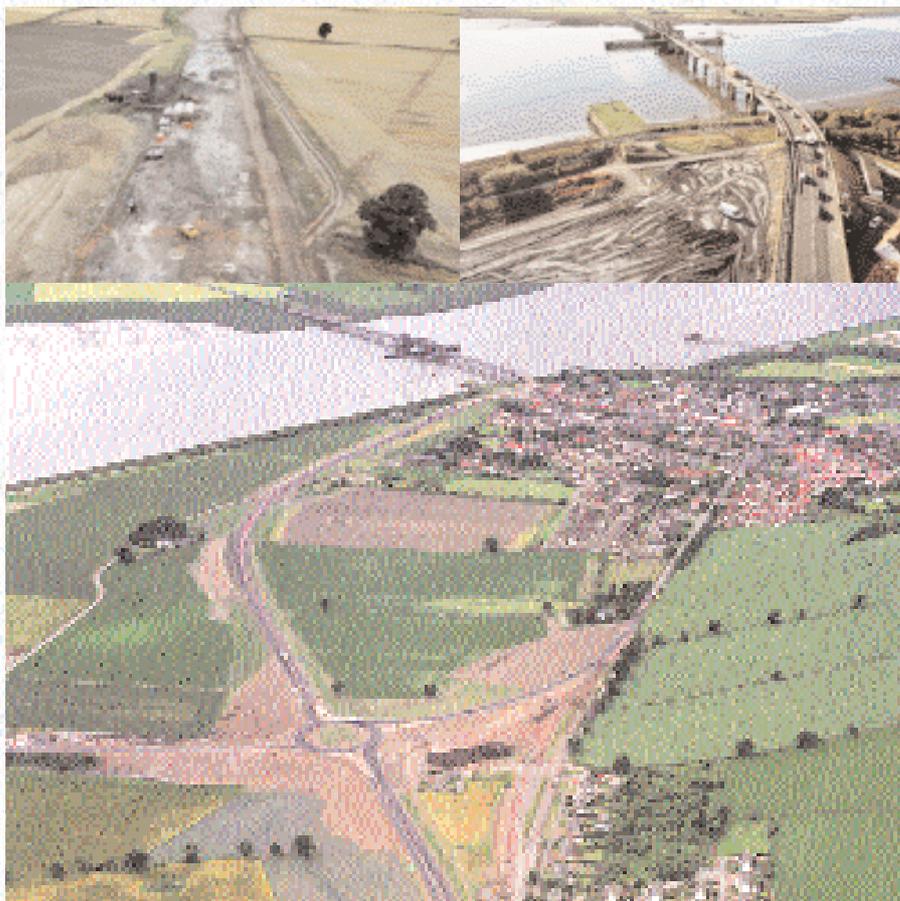
The project is the first phase of the Upper Forth Crossing at Kincardine, which will see a second bridge constructed over the next few years.

Designing and building the Kincardine Eastern Link Road posed a number of challenges for engineers involved in its design, including extensive undermining and poor ground conditions – around 700 metres of the new road were built on land reclaimed from the River Forth.

ScotAsh supplied over 230,000 tonnes of material to be used as fill, to stabilise old mine shafts and for the construction of embankments.

Some 81,000 tonnes of Pulverised Fuel Ash (PFA)-based grout were used for filling voids – approximately 74,000 cubic metres of sub-surface coal seams beneath the carriageway and its junctions. In addition, around 3,100 tonnes of bagged cement and 2,600 tonnes of bulk cement from ScotAsh were used during the construction of the road.

Trojan General Purpose Grouts from ScotAsh have unique properties, mainly related to the characteristics of the PFA. The PFA particles consist mainly of hollow spheres of between less than



Construction work at the Kincardine Eastern Link Road

Main picture supplied courtesy of RJ McLeod

one micron and 150 microns in size.

These form a continuous grading, which improves the rheological properties of the grout.

Some of the advantages of PFA-based Trojan Grouts include:

- Economy – the material is light, so gives a good yield
- Reduced water to solids ratio
- Increasing compressive strength with time
- Reduced bleeding
- Reduced shrinkage

- Reduced permeability
- Increased resistance to sulfate attack
- Improved flow properties.

ScotAsh produces a range of general purpose grouts including PFA-lime grouts, and PFA-Portland Cement grouts containing sand or clay.

We also produce a range of specialist grouts such as water resistant and anti-washout grouts, anti-shrink and accelerated grouts and flow modified grouts. See our product information sheet for more details, or log on to www.scotash.com

To contact ScotAsh please telephone, fax or visit our website

T 01259 730110 F 01259 731055 W www.scotash.com

ScotAsh Limited, Longannet Power Station, Kincardine, FK10 4AA, Scotland