
FAHEY'S CONCRETE LTD.

PENINCE, PAR, CORNWALL. PL24 2SX

Telephone: St Austell (01726) 850086

Fax: St Austell (01726) 852244

Sustainability of Fahey's Concrete.

Fahey's Concrete Ltd is a truly independent company based at Carne Cross, Par, and just over one mile from the Eden Project. For over forty years Fahey's Concrete has been producing ready mixed concrete and have been members of the Quality Scheme for Ready Mixed Concrete (QSRMC) since July 1993. As an independent company all the revenue generated by the business stays in the area and as far as possible Fahey's Concrete trades with local companies for raw materials, consumables, support services, etc.

Fahey's Concrete believes in being as self sufficient as possible with its' own fabrication, workshop and vehicle maintenance facilities, with the ability to build, repair and maintain the production plants and the large fleet of vehicles required to operate efficiently and economically. Fahey's Concrete vehicles are used to collect products required for the production of and delivery of concrete to site.

By looking in turn at the ingredients used in concrete production, the economic reasons and the local impact, Fahey's Concrete hopes to illustrate that it is committed to the production of sustainable concrete.

Cements:

The most important and expensive ingredient of concrete is cement, which comprises some 10-20% of concrete. The type of cement used is Ordinary Portland Cement (CEM I - OPC) to BS EN 197 – 1, Portland Blastfurnace Cement (CIIIA or CIIIB) to BS 8500 - 2 which is a normally a blend produced at the plant of usually 50% or 30% CEM I to BS EN 197 - 1 and Ground Granulated Blastfurnace Slag (GGBS) to BS EN 15167-1 (other blend levels can be produced to suit exposure condition but the blend level will effect the rate of strength development of the concrete although not the ultimate strength).

All the cements used by Fahey's concrete are produced by Dragon Alpha Cement at their modern and efficient cement works at Mataporquera, Cantabria, Spain (for further information please visit www.dragonalfacement.com to view their full certifications including BES6001). It is shipped from Santander in purpose designed cement carriers to a brand new state of the art storage facility in Plymouth operated by Westcountry Cement Ltd.

Ground Granulated Blastfurnace Slag (GGBS) is a by product of steel production and until a use was found for it in concrete production, was stockpiled in huge tips in the form of slag around the steel plants. The slag is processed by Hanson UK to produce a fine powder, now marketed as Regen, which has cementitious properties and can be



Directors: K.J. Fahey, S.M. Fahey & N Fahey

V.A.T. No. 643 5121 63

FAHEY'S CONCRETE LTD.

PENINCE, PAR, CORNWALL. PL24 2SX

Telephone: St Austell (01726) 850086

Fax: St Austell (01726) 852244

Page 2 of 4.

blended at the concrete plant with CEM I in the proportions specified in BS 8500-2 to produce a cement. Concretes produced with this type of cement have enhanced chemical resistance and although this type of concrete has a slower rate of strength gain, it continues to increase in strength over a longer period and ultimately results in a stronger and more durable product. The GGBS is now taken by ship from Port Talbot in South Wales to Teignmouth in Devon to utilise shipping movements and reduce road traffic.

All cements are collected from Plymouth and Teignmouth by Fahey's Concrete fleet of cement tankers. Although it is not practical to carry other products in cement tankers, liquids cannot be carried because of the tanks which have to be kept dry to prevent hydration of the cement, foodstuffs are out of the question, china clay in powder form is usually carried in tipper lorries, and not many other powders are stored in silos which require pressurised discharge, every effort is made to utilise our fleet as efficiently as possible. Having plants at St Austell, Camelford and Okehampton, and making cement deliveries on behalf of other companies throughout the South West, usually means that the tankers fit in as many loads on a round trip as possible.

All cements are stored in silos, which are now all fitted with modern reverse air filter systems, which allow the discharge of cement under pressure with no contamination to the air. This process is constantly monitored and scrutinised by the local Environmental Health Officers and forms a major part of our ISO 14001 accreditation.

Aggregates:

The bulk of all concrete, 70-80%, is in the form of stone chippings and sand, which are referred to as aggregates. The aggregates used by Fahey's concrete are all purchased locally and like the cement is mostly transported by the Fahey's Concrete fleet of tipper lorries or by local haulage companies and again where possible the trucks are utilised as efficiently as possible by careful planning of each days deliveries.

Most of the aggregates now used are by products of the china clay industry, for each tonne of china clay produced, many tonnes of what may be classed by the china clay producers as waste are produced. The landscape of mid Cornwall is dominated by waste tips, which contain millions of tonnes, or stone, which could be crushed to produce chippings, and sand which could be extracted for use in concrete. Traditionally some sand has always been produced, but there is a lot more which could be done and Fahey's Concrete are actively trying to reduce the waste tips by persuading the producers to extract more sand.



Directors: K.J. Fahey, S.M. Fahey & N Fahey

V.A.T. No. 643 5121 63

FAHEY'S CONCRETE LTD.

PENINCE, PAR, CORNWALL. PL24 2SX

Telephone: St Austell (01726) 850086

Fax: St Austell (01726) 852244

Page 3 of 4.

Since the introduction of the so called "Quarry Tax" by the Government, more stone discarded by the china clay industry is being crushed to produce chippings, but again there is still a huge amount of suitable stone being buried in waste tips.

All of the aggregate used by Fahey's Concrete in normal concrete production now comes from this source.

Water:

Some 7-10% of fresh concrete is water, which is taken from the South West Water mains supply and every effort is made to ensure wastage is kept to a minimum. The largest volume of water used by Fahey's Concrete is used at the end of each day to wash concrete residue out of the concrete delivery vehicles, again kept to a minimum, and the use of borehole water for this purpose is being considered.

The disposal of this "wash-out" water is a major environmental problem, but the regulating bodies have praised Fahey's Concrete for the method used. The water is discharged into a sump where most of the solids settle out and the dirty water and silt pass through a living reed bed, which purifies the water before it passes into some boggy ground. Eventually the water finds its way back into local natural watercourses, which are abundant in wildlife and apparently free from any pollution. The sump is occasionally emptied and this material can be used for hardcore and fill materials. Work is also in hand to build a water treatment plant at the Okehampton depot to use even more recovered water.

Water Reducing Admixture (WRA):

Water Reducing Admixtures are used in most concretes and although a concrete consists of considerably less than 1% the WRA plays an important part in the production of concrete by reducing the amount of water used which enables a reduction in the amount of cement used, this is due to the direct relationship between the strength of concrete and the Water/Cement ratio.

Economics & Local Impact:

As stated Fahey's Concrete is a completely local company and wherever possible use local suppliers and contribute considerably to the local economy. The introduction of larger and more fuel efficient vehicles including several 8.0m³ trucks, reduces the number of lorries required to deliver the quantities needed for many construction projects and every effort is made to plan delivery routes to avoid making an impact on local communities.



Directors: K.J. Fahey, S.M. Fahey & N Fahey

V.A.T. No. 643 5121 63

FAHEY'S CONCRETE LTD.

PENINCE, PAR, CORNWALL. PL24 2SX

Telephone: St Austell (01726) 850086

Fax: St Austell (01726) 852244

Page 4 of 4.

Credentials:

Being so close to the Eden project, meant that Fahey's Concrete Ltd. was in prime position to supply the concrete for the its' construction. However the whole ethos of the Eden Project from the outset was sustainability and Fahey's Concrete was closely scrutinised and audited by the construction and management team from the McAlpine Joint Venture and Eden and was successful in meeting their requirements. The vast majority of the concrete was eventually supplied by Fahey's Concrete Ltd. and the concrete used for the construction of the Biomes was recognised by an award from the Concrete Society.

In August 2010, Fahey's Concrete Ltd. achieved accreditation for its' Environmental Management System to BS EN ISO 14001:2004 the Environmental Management Standard.



Directors: K.J. Fahey, S.M. Fahey & N Fahey

V.A.T. No. 643 5121 63
