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Case Study **05** Scottish Water - Glencorse

Environmental concerns were central to the development of Scotland's largest and greenest water treatment works. Although some of the suggestions and changes requested through community engagement involved greater investment, this was considered to be money well spent - as it kept the build on track and under budget.



Bringing change to life

Business Benefits

- Minimising the negative impact of the site on local greenspace reduces the likelihood of costly planning problems.
- Onsite recycling of material and in situ manufacturing of pipes reduced transport costs.
- Creating an award winning, flagship project has helped to raise the profile of the company.

Wider Benefits

- Education programme created unique learning opportunities for more than 500 young people.
- A valuable environment for flora and fauna has been created.
- Community engagement and participation in the design process has enhanced local appreciation of the Works.

Awards

CEEQUAL Whole Project Award, 2010 & 2012, Outstanding Achievement, 2013
CIWEM World of Difference' Award, 2011
RoSPA Gold Award, 2012
Considerate Constructors Awards, Gold Award, 2009, 2010 & 2011

Context

Scottish Water is a government owned company responsible for providing water and wastewater services in Scotland. It was formed in 2002 through the merger of the regional water authorities.

Glencorse Water Treatment Works is the largest water supply project ever undertaken by the company. One of Scottish Water's aims for this flagship project was that it would not only have strong sustainable objectives but it would also be able to demonstrate how well these have been met.

Nearly half a million people in Edinburgh require safe, clean drinking water which must meet stringent water quality standards set out by the European Union and Scottish Government Regulations.

On the advice of the Drinking Water Quality Regulator, the Scottish Government directed Scottish Water to improve the quality of water supplied to Edinburgh and with existing Victorian treatment works considered unsuitable for modernisation, Scottish Water spent 18 months developing a sustainable, long-term solution for Edinburgh's water supply problems.

As part of this process, they carefully considered the "best fit" between environmental, engineering and economic factors. They developed a strategic plan to build a single, modern treatment works at Glencorse (to replace two existing works at Fairmilehead and Alnwickhill). A facility which would supply the quantity of water needed by Edinburgh's residents, businesses and visitors to meet 21st century water quality standards and support Edinburgh's continued growth - critical to the economic success of the city and Scotland.

The Works

The Glencorse site was chosen due to its location, availability of land, road infrastructure, elevation, and lack of planning restraints.

Construction on the £130 million project commenced soon after receiving full approval from Midlothian and City of Edinburgh Councils, as well as from the Scottish Government in 2008.

The build was delivered on schedule and under budget. It included more than 3,200 miles of reinforcing steel bar, over 15 kilometres of new pipelines and the largest grass roof in Scotland. It is able to treat 175,000,000 litres of water every day, enough to fill 2 million baths.

From the start of the project the development included a comprehensive suite of consultation and engagement activity. Key stakeholders, the local community and interest groups were all encouraged to participate. The interactions helped to inform and shape the evolution of the build. Although several of the changes requested incurred greater investment, this was considered to be money well spent.





Minimising the Visual Impact

The project team worked closely with local residents and Pentland Hills Regional Park to ensure that the new Works had minimal visual impact. This helped to limit exposure to planning objections, which on large scale projects can cause expensive delays and lead to adverse press coverage.

In response to concerns, thousands of tonnes of soil were used in landscaping to make the Glencorse Works all but invisible to passers-by. This included clever contouring of the site, effectively blending the facility seamlessly into the backdrop of the Pentland Hills.

A key component of this was the installation of Scotland's largest green roof on the treatment building and another green roof covering the clear water tank. These have been seeded with the same wild flower grass mix that can be found on the surrounding Pentland Hills.

Rain water harvested from the facility roofs is passed to bio-diverse wetlands that provide a rich habitat for indigenous plants, animals and insects.

"I am delighted that the facility at Glencorse will also be sustainable and environmentally friendly."

Robert Aldridge, Edinburgh City Councillor.

Lowering Costs and Cutting CO₂

The use of recycled materials on-site exceeded 25%, this was mainly from spoil displaced during the initial excavation works, used later in the landscaping works. This helped to reduce construction traffic, making local roads safer and reducing CO₂.

Pipes were manufactured in situ using the world's first mobile pipe production plant. This resulted in a massive

"The facility is proof that such large-scale projects can be sustainable, non-obtrusive and built with the consent and consideration of the neighbouring community in mind."

**Geoff Aitkenhead, Asset Management Director,
Scottish Water.**

75% reduction in lorry journeys and a reduction of 1,530 tonnes of CO₂ emissions.

Another sustainable cost cutter is that hydraulic energy in one of the raw-water supplies to the Glencorse Works has been harnessed with inclusion of a 250kw hydro turbine, generating approximately 80% of the energy required to power the site.

A Green Legacy

As part of the wider community engagement activity, a Glencorse education programme received an enthusiastic response from local schools and Universities and created unique learning opportunities for more than 500 young people.

Students and school children were taught how the Works were carefully designed to have minimal impact on the landscape and how environmental measures included in the build, avoided damage to sites of archaeological interest and the habitats of protected species such as badgers and otters.

The pipelines and site layout was also designed to minimise tree-felling and damage to hedgerows by taking the pipeline through existing gaps or areas of sparse vegetation. Local children planted 60 oak trees which, over time, will further screen the Works from its surroundings.

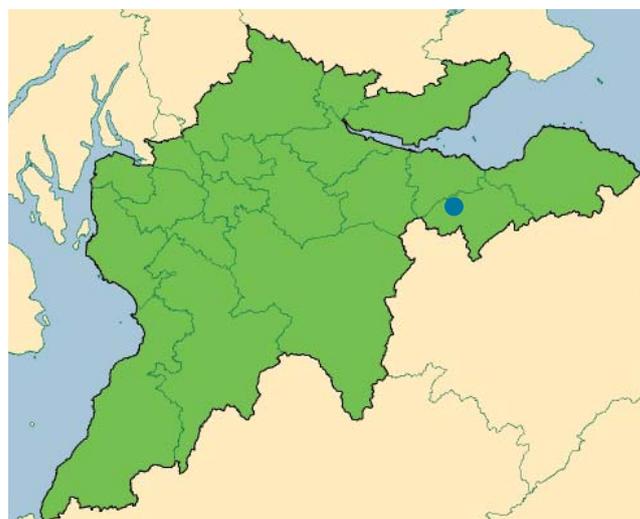
These activities have left a living legacy for hundreds of young people, inspiring some of them towards careers in construction, engineering and environmental management.



Costs and Value

- Glencorse is an exemplar project with commitment to early community consultation helping to increase confidence in the build and reduce the likelihood of delays through the planning process.
- By demonstrating a pro-active approach to dealing with environmental concerns the local heritage value of the area has been retained.
- Pipes manufactured in situ and onsite recycling of building material resulted in 1 million fewer miles of lorry journeys vastly reducing transport costs.
- This also meant that noise pollution, congestion and CO₂ emissions were minimised.

The map shows Glencorse in relation to the CSGN area



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The CSGN will change the face of Central Scotland by restoring and improving the rural and urban landscape of the area.

What is the CSGN?

The CSGN is one of the 14 national developments in the National Planning Framework 2. It is the biggest greenspace project in Europe and will help to make Central Scotland a more attractive and distinctive place to live, to visit and to do business. The CSGN has wide political and partner support and an all encompassing remit, far beyond just a 'green' initiative, with economic development central on the agenda.

What are these Case Studies for?

These case studies demonstrate that green network and green infrastructure approaches can save money and create better solutions for businesses. They are intended to inspire other businesses to take similar approaches and to inform interested parties, such as planning authorities, in order to encourage a supportive environment for such initiatives.

Getting in Touch

To discuss this case study please contact:
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For further information on the CSGN and other case studies please visit: www.centralscotlandgreennetwork.org

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