

# ENGINEERING SOLUTIONS

## “Navigation back on the Forty Foot”



The Black Sluice Lock at Boston, Lincolnshire was officially opened on 20<sup>th</sup> March 2009. The project forms phase 1 of the Fenlands Waterways Link which will eventually link the Cathedral Cities of Lincoln and Ely.

The 6m wide x 22m long lock comprises an outer pair of hydraulically powered Sector Gates and an inner pair of hydraulically powered Mitre Gates. KGAL were appointed by Halcrow on behalf of the Environment Agency to design and detail the lock gates and associated stoplogs and walkways as well as modifying the existing sluice gate to act as an emergency gate for the lock.

The electrical control system for the lock was also designed by KGAL. During installation KGAL engineers provided technical assistance to the gate manufacturers to ensure installation met the tight schedule required to meet the planned opening date.



The main contractor for the lock construction was Jackson Civil Engineering with specialist sub-contractors providing the gates and control systems.

The old wooden mitre gates were removed from the site, cleaned and modified to incorporate a carved mural.

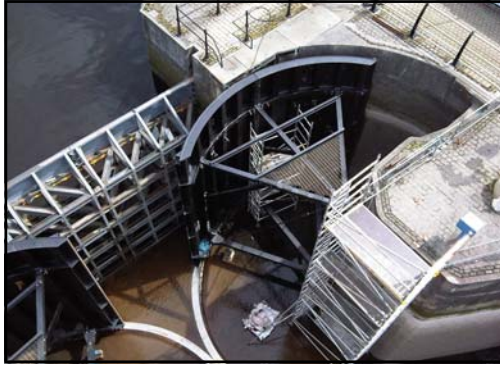
## Pont-Y-Werin Bridge

KGAL have been retained by Cardiff City Council through Dean & Dyball to undertake the Mechanical and Electrical system designs for a 45 tonne, 31m x 4.5 span hydraulically driven single-span foot/cycle Bascule bridge on the River Ely in Cardiff.

The bridge will link Cardiff Bay and Penarth across the River Ely as part of the 10.5km Cardiff Bay Peripheral Walkway.



## Swansea Marina Refurbishment



City and County of Swansea have appointed KGAL as specialist advisors to work with their Engineering Projects Team during the refurbishment of the outer lock gates at Swansea Marina.

Main Contractor Dean & Dyball together with Tema Engineering were awarded the contract to remove the gates and carry out the refurbishment off site.

KGAL Associate, Malcolm Hewling was appointed Project Manager and attended the critical stages of the contract works including removal and reinstallation of the gates.

The lock originally constructed in 1982 was one of the first examples of converting a derelict commercial dock into a modern marina for private pleasure craft, sparking the regeneration of the adjacent area. The Gates were originally provided by Newton Chambers Engineering with much of the design being done by a certain Mr Malcolm Hewling. Just a much younger one!!!

## Boating through Byker!!

The Ouseburn Tidal Weir and Navigational Lock are part of the Newcastle City Council regeneration of the Lower Ouseburn Valley.

KGAL were appointed by ENTEC on behalf of the council to design and detail two 5m x 5m vertical lift wheel gates, support structure, lifting gear and electric controls.

The support structure was an especially challenging elliptical tubular arch that supported the lifting gear on a platform between the arch members.

The arch concept was visualised by the artist Dan Archer.

The gate and operational system were manufactured and installed by AMCO of Barnsley.



## Improved Protection for Hull

The Hull Tidal Surge Barrier is drawing much local attention, as the Environment Agency undertake the first phase of a £5 million refurbishment programme between April and July of this year.

KGAL Director, Dave Griffiths, has taken up residency in Hull as ECC Supervisor for the duration of the works which include, complete refurbishment and painting of the gate, cable trenches and ducts, and modifications to the gate latching system.

Further work will continue through the year whilst the barrier is maintained in a fully operational condition, with provision of new control cabling in advance of the main works planned for Summer 2010, when a complete new hoisting and control system will be installed.



### News In Brief

- KGAL retained by Halcrow on behalf of the EA to act as project managers for the manufacture, installation and commissioning of new mitre gates at Cley-Next-The-Sea.
- KGAL retained by Black & Veatch to provide M&E Services for the upgrading of a pumping station at Donna Nook North East Lincolnshire.
- KGAL would like to welcome Simon Dennis who has recently joined the Bournemouth office as CAD Technician.