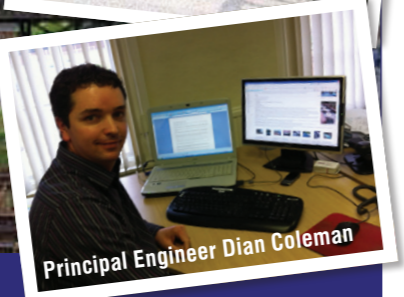




Somerset Gets The HBPW Treatment



Main, and top right photo: the existing Chip Lane Footbridge



Principal Engineer Dian Coleman

HBPW will soon have left its indelible mark on Taunton's new multi million pounds Northern Inner Distributor Road in Somerset, thanks to a major bridge design contract.

The firm has been tasked with designing the new Chip Lane footbridge and two road bridges – Firepool and Kingston Loop – as part of the scheme, which is being led by principal contractor, Carillion plc on behalf of Somerset County Council.

HBPW Principal Engineer, Dian Coleman, who is leading the design of the three structures, said: "Chip Lane Footbridge has a 40 metre span and is of steel Warren Truss construction. The bridge will cross both the existing railway and the new Northern Inner Distributor Road (NIDR).

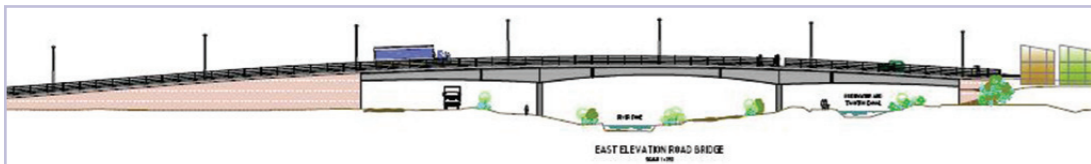
"It replaces an existing footbridge, however, unlike the old structure, this one will feature a combined footbridge and cycle way with improved disability access thanks to the provision of wider access, ramps and stairs.

"Firepool is a curved multi span plate girder bridge – making for a more complex design – and will cross both the River Tone and the Bridgwater & Taunton Canal.

"Kingston Loop bridge is a more modest structure," added Dian, "and is centred on a disused railway bridge which is very much part of the local landscape. Visually it will remain as it always has, with the original Victorian steel side girders left in place and refurbished as part of the scheme. However, a pre cast beam deck will be introduced between the existing girders to carry the new NIDR highway."

HBPW is exploring a value engineering opportunity of reusing the existing masonry abutments in place of the current scheme proposal which involves the construction of large new piled abutments.

Client: Somerset County Council
Contractor: Carillion plc



Above: East Elevation of the Firepool Road Bridge

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and, over the coming months, we will be keeping you informed about progress on several of them. Meanwhile take a look at the company blog (www.hbpw.co.uk), read about what we're doing, and don't be shy to feedback!

In this edition, you can also read about our value engineering project at Llandudno Railway Station, which saved the client a considerable sum thanks to century old drawings which enabled us to produce an innovative engineering solution.

Then there were the challenges presented by Cornwall's tin mining legacy.

HBPW's expertise in geotechnical engineering has also been playing a major part in a £27m road scheme, which will see the construction of two huge arches across the Red River Valley in Cornwall. Again, our innovative work has facilitated a quicker, safer foundation solution at this impressive scheme.

And pause for thought when you look at one of our more unusual 'completed' projects...a rather unusual bridge in Hull.

The unique comma shaped structure on the River Hull houses a restaurant whereby diners can enjoy their meals as the swing bridge 'restaurant' opens to allow vessels through. Bon appetite!

Enjoy the read!

PAUL WITHERS
MANAGING PARTNER
HBPW CONSULTING

Welcome



Paul Withers - Managing Partner

It's been a blistering summer, England retained the Ashes and the new Governor of the Bank of England has promised that he will keep interest rates low until the economy has recovered....how much better can it get?

I might be getting a little carried away, however, for the moment, it was good to hear Mark Carney's comments when he addressed the owners of small and medium sized businesses in HBPW's own 'back yard', Nottingham University.

"The knowledge that interest rates will stay low until the recovery is well established should give greater confidence to households to spend responsibly and businesses to invest wisely," Mr Carney told the East Midlands gathering. Hopefully those comments will be enough to keep our sector buoyant and on the road to recovery. For now we are pleased to be working on a number of prestigious projects

CONTINUED ON BACK PAGE

Value Engineering Victorian Style!



Artist's impression of the new Llandudno rail station



The wall propped up with a temporary steel frame

Victorian engineering drawings, more than a century old, played a key part in helping HBPW to develop an innovative value engineering solution at Llandudno Railway Station.

The station has been re-developed as part of a £5.1m restoration and improvement scheme.

And, as part of the re development, HBPW was asked to undertake a design to strengthen a free standing party wall located next to an adjacent café. The wall was left propped with a temporary steel frame following demolition of former station buildings.

"A permanent design had been formulated involving the construction of a large steelwork frame, however, as a result of analysing the original



Victorian engineering drawings for the station walls - along with a detailed study of the local ground conditions - an alternative wall strengthening design was formulated which used the existing foundations," said HBPW Managing Partner, Paul Withers.

Working alongside geoenvironmental engineer, Jay Fox, the revised engineering approach took considerable cost out of materials and construction costs.

"By looking at the original foundation drawings, available soils information and undertaking a targeted ground investigation, we were able to demonstrate that the soils below the foundations were strong enough to support the additional loading of a new, thickened wall on the same foundations, negating the need for the large steelwork frame," added Jay.

Paul said that the HBPW approach also meant it was possible to complete construction work piecemeal using manual methods, as

opposed to an alternative approach which might have required expensive lifting equipment.

"The original design incorporating steelwork into masonry would have given the structure a limited life, however, by using the HBPW approach of concrete and masonry, it will, hopefully, be there for centuries to come," added Paul.

Nathan Godley, Design Manager with the Buckingham Group added: "BGCL were very pleased with the design solution presented by HBPW and that it offered savings in construction costs against the original provided solution."

Client: Network Rail
Contractor: Buckingham Group Contracting Limited

Come Dine With Us!

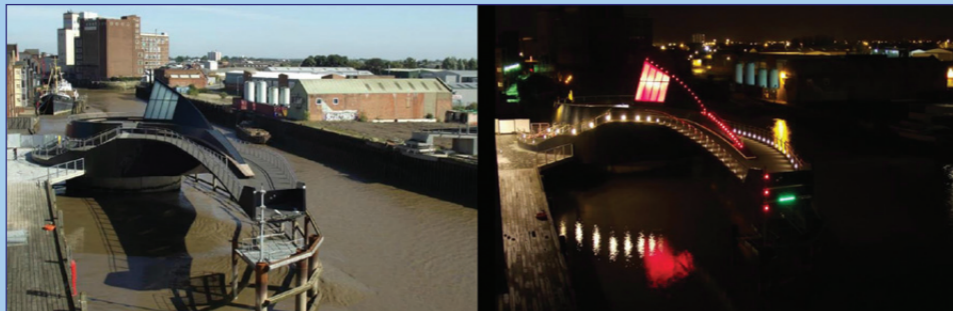
One of Britain's more unusual restaurants is in full swing – quite literally – thanks to the endeavours of HBPW's engineering team.

A unique bridge structure on the River Hull now houses a restaurant whereby diners can enjoy their meals, as the swing bridge 'restaurant' opens to allow vessels through.

HBPW and A. Torn Construction worked closely on the design and build project to provide foundations to the hub of the footbridge and separate protection structures to fend off errant river traffic. This involved driving piles deep into the riverbed, along with a complicated reinforced pile cap, all detailed to achieve the tight deflection limits specified in the design of the bridge superstructure.

HBPW also designed extensive reinforced concrete walls to support landscaping works on both river banks.

Close to Hull's sea life tourist attraction, The Deep, the structure, which looks like a giant comma with the leg of the comma going over the river, is now one of the city's more unusual landmarks.



The bridge structure and restaurant by day, and by night



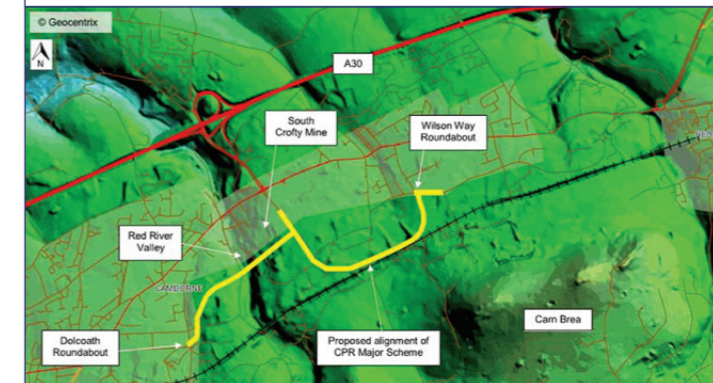
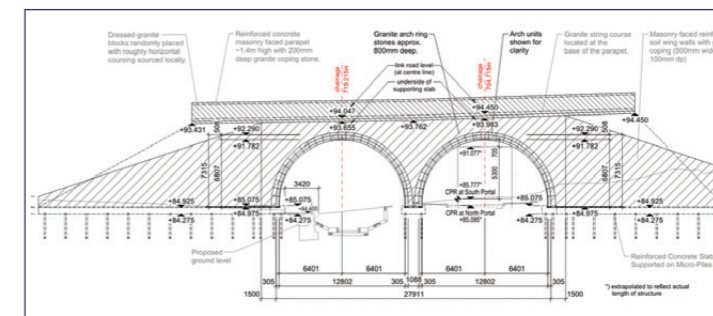
This, and middle photos: The River Hull swing bridge restaurant

HBPW Innovation For Cornwall Tin Mines

HBPW's expertise in geotechnical engineering has been playing a major part in a £27m road scheme, which will see the construction of two huge arches across the Red River Valley in Cornwall.

The Camborne to Pool to Redruth project (CPR), which has already been under development for more than eight years, is being built by Carillion Civil Engineering on behalf of Cornwall Council. And, as part of the project, two 12 metre span pre-cast concrete arches will be built across the Red River and adjacent Chapel Road close to South Crofty Mine.

Geoenvironmental Engineer, Jay Fox, said: "The geological setting of the bridge is complicated in that it is located, partially, on the Great Crossing, a heavily mineralised fault zone. Consequently the area has been extensively mined over the decades, leaving scheme developers with the added



Above: Red River Bridge & the CPR Route

headache of a complicated tin mining legacy."

The primary complications involved constructing foundations over fractured rock

and around underground adits and shafts which governed where, and how, the bridge could be constructed. Jay's job was to look at everything below ground level.

"The original bridge design planned to excavate down to rock below the river. However, there was much uncertainty on the ground conditions and this would have resulted in expensive and logistical problems with ground water control and disposal of contaminated soils. Mining waste in the area includes toxic metals such as arsenic and acidic ground water which can burn skin and erode metal.

"However, following extensive research and discussions, HBPW eventually advised on an alternative micropile foundations solution, which avoids the underground adits and shafts, and has been key in enabling a quicker, safer foundation solution."

Work on the bridge foundations are scheduled to start later this month and continue into the autumn.

Client: Cornwall Council
Contractor: Carillion

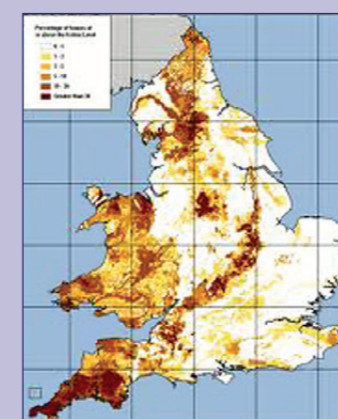
The Silent Killer HBPW Radon Warning

More employers need to become aware of their legal requirement to inspect work areas for the 'silent killer', Radon Gas.

That is the stark warning from HBPW's geoenvironmental engineer, Jay Fox, who maintains that many UK companies are still failing in their legal duty.

"Radon is a naturally occurring radioactive gas with no smell, taste or colour and is responsible for over 2000 lung cancer deaths a year in the UK," said Jay. "That's the third largest cause of lung cancer after smoking and asbestos related diseases. However, awareness of the health risks from Radon is far less widely understood.

"Risk assessment and mitigation with regards to radon is, however, already a legal requirement for employers, social landlords and property developers, and is becoming more robustly regulated. Homeowners, buying or selling



Radon in the UK

property in radon affected areas may also need to deal with radon issues during conveyancing."

Under the Health and Safety at Work Act 1974, all employers are responsible for ensuring the health and safety of employees and others who access their workplace. The Management of Health and Safety at Work Regulations 1999 also requires the assessment of health and safety risks, which include Radon, under the following circumstances:

1. All workplaces located in Radon affected areas; and
2. All occupied (for more than 52 hours a year) below ground workplaces in the UK.

"The reality is that many

employers don't fully understand the risks and many are not fulfilling their legal obligations. This needs to change before there are yet more unnecessary cases of lung cancer."



Jay can advise on all aspects of risk assessment and can be contacted on: j.fox@hbpwconsulting.co.uk

