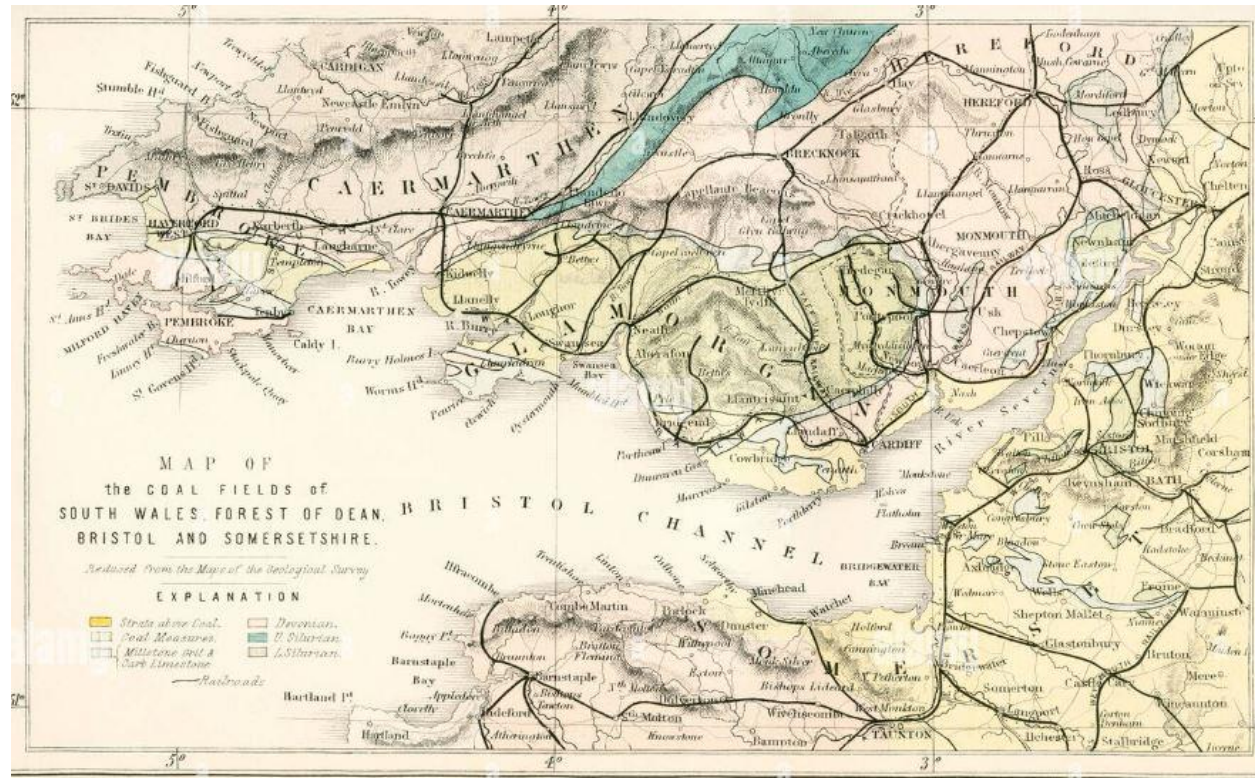




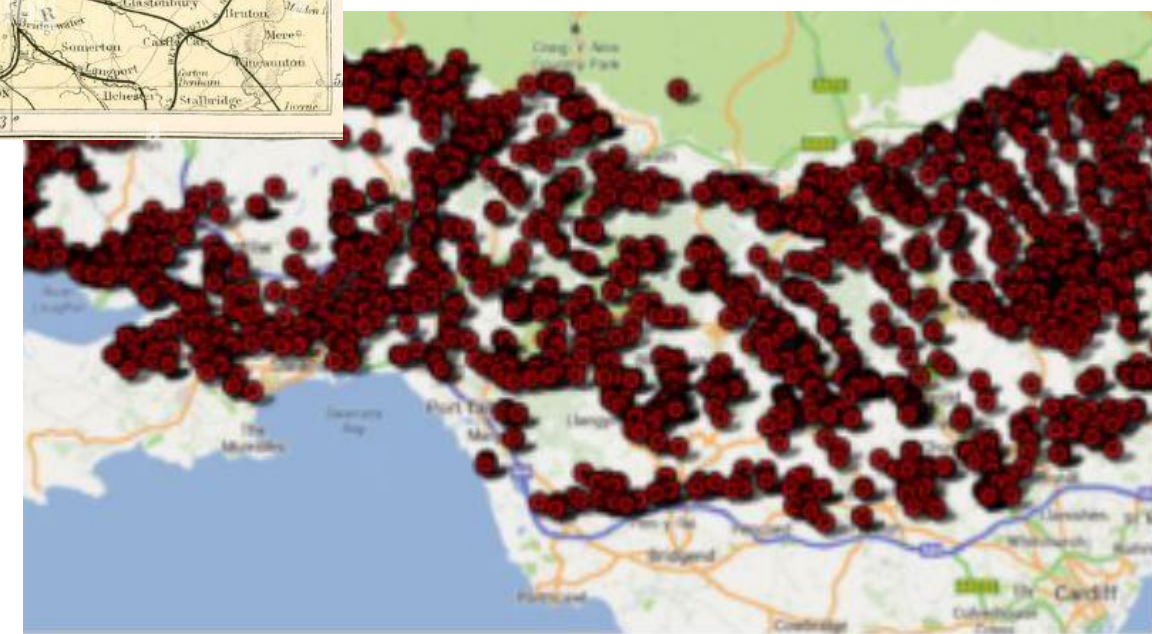
Sustainable Power Station Closure and Reclamation

Daymion Jenkins, Director, UK Head of Ground and Water

The Transition from Coal to Sustainable Power Generation



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CCR Plans for Green Energy Plant About the site



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STEP Fusion at EDF
West Burton

Wind Turbine Assembly
At Fawley

The Transition from Coal to Sustainable Power Generation

- All coal fire powered stations closing due to tightening air pollution rules under the EU Industrial Emissions Directive (IED), and coal now supplies less than 5% of the electricity generated in the UK, down from 90% compared to five years ago
- Major regeneration sites across all parts of the UK, being redeveloped for commercial and residential uses. A significant opportunity for our sector to contribute to decarbonisation through the energy transition cycle. Equally applicable to a range of former heavy industry sites
- Reuse and recycle critical to ensure sustainable development at sites of this scale and a unique opportunities to contribute to the sustainability agenda. Need to ensure regulatory regime supports sustainable materials reuse, and ensure the highest quality control standards to ensure circular economy momentum is maintained
- Flood risk modelling including climate change provision is necessitating land raising for most sites to mitigate climate change flood risk models, this materials recovery is critical to support sustainable mitigate strategies, as ironically works can have a significant carbon footprint

Former Power Station Regeneration

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Discussion Points

- As an industry we need to challenge ourselves, typically heavily focused on the quantitative sciences/technology, and critical to step back and assess wider sustainability perspective of regeneration where we can have a major impact
- Risk assessment can often be very conservative, resulting in over remediation; in part due to liability perceptions
- Often demolition and earthworks overlooked when it comes to redevelopment sustainability planning. A significant component of the carbon footprint and contaminant mass is in the decommissioning stage
- Currently tension between intent and implementation of circular economy guidance and legislation. DoWCoP seems to sit uncomfortably with some regulators and conflict between materials reuse and recovery and Inland Revenue approach.
- There are both macro and micro level sustainability considerations on projects of these scales, and often the later more important to local communities critical

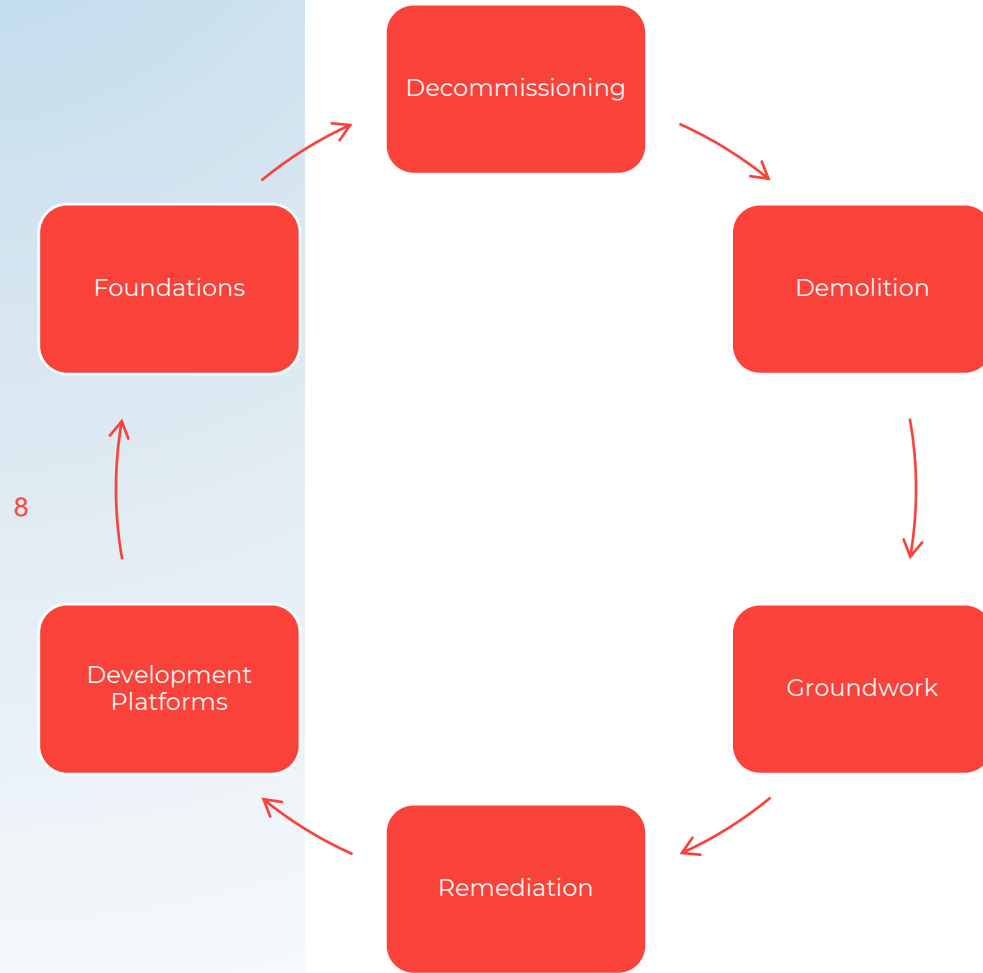


Client Sustainability Remit

Minimise waste and maximise recycling
Minimise energy consumption
Align with Net Zero Carbon approaches
Improve biodiversity
Support the local community



Typical Elements of a Power Station Regeneration Project



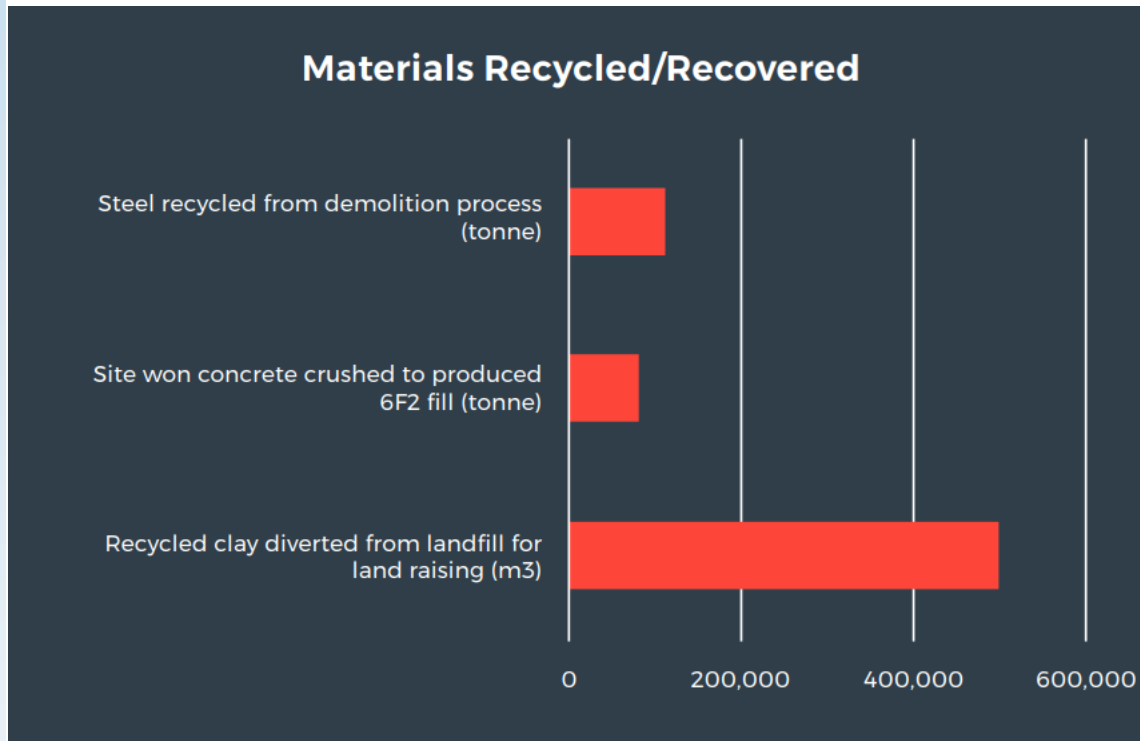
Controlled Demolition

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Macro Sustainability Metrics

Materials Recycled/Recovered



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Over 900,000 tonnes of clay material recovered from basement excavations and beneficially used for flood risk land raising under MMP over 3 year period. Extensive QA/QC and monitoring throughout



Summary of Key Remediation Elements

- Extensive ground investigation and DQRA to minimise active disturbance
- Heavy fuel oils (largely in sumps and pipework) segregated and sent for use as secondary fuel (the vast majority of contaminant mass on site) and effective decommissioning management to minimise ground impacts. CEMP critical!
- Localised hydrocarbon impacted soils bioremediated on site
- Impacted groundwater treated on site and reused for stockpile management
- Asbestos management plan to retain diffuse impacted made ground on site
- Japanese knotweed excavated and contained in cells in landscape area

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Earthworks Elements



- Detailed geotechnical surveys to minimise break out of deep structures (up to 15 m deep basements) and allow development across structure boundaries
- ALL materials generated from piling, foundations, and SUDS retained on site
- Site won PFA considered for grouting of inlet/outlet structures
- Controlled Modulus Columns used as no waste generated and minimises connection between geological units

Micro Sustainability Efforts - Biodiversity and Landscape

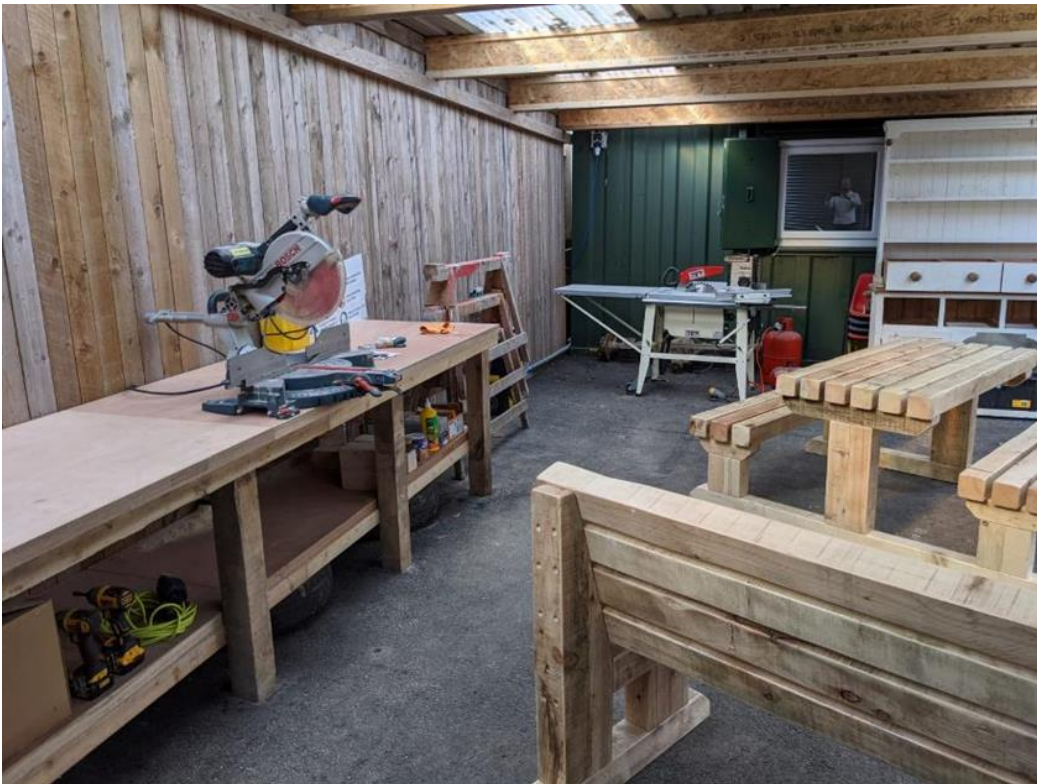
- Eel habitat improvements in on-site lagoons
- Supporting local wild bee populations, including the rare Shrill Carder bee and Brown Banded Carder bumblebee species by creation of on-site apiary
- Establishment of a colony of disease resistant elm trees



Micro Sustainability Efforts - Community

- Delivering a programme of technical training events with the Leigh University Technical College
- Supporting the establishment of a new animal rescue centre, Spirits Rest, including site clearance, landscaping, planting works
- Providing Roots Timber with wood from the demolition and construction phases, to support community projects

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Take Away

- As an industry we tend to focus on narrow sphere of contaminated land, but have the potential to influence the full regeneration life cycle, and should consider integrated approach through all elements of the project to minimise carbon footprint of regeneration
- The contaminated land sector is uniquely placed to direct the largest brownfield regeneration projects towards sustainable objectives
- This change in approach is also critical to attract young professionals into the sector, with significant competition from 'other environmental sectors
- There is a nervousness around effective materials recovery and reuse from regulators and we need to maintain high standards of quality control and stakeholder engagement through CLAIRE, EIC, etc to ensure we don't go backwards

With special thanks and acknowledgement to Robert Kay, WSP Project Manager