



The Coal
Authority

Metal (Non-Coal) Mine Programme



Peter Stanley : Geoscience

▶ Setting

▶ Ambition & Direction

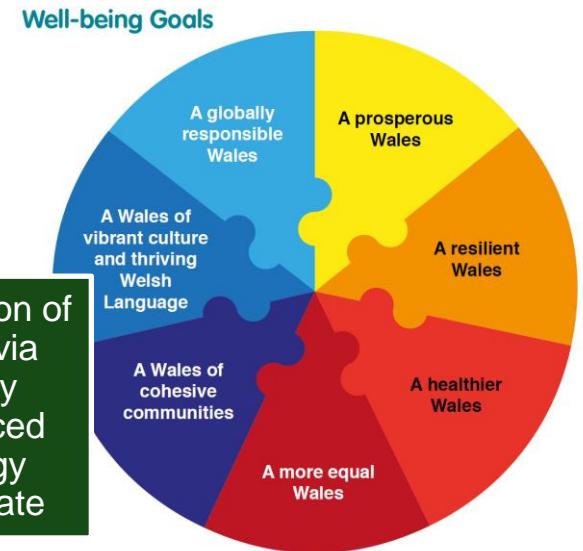
Measure River system benefits & targets?

Halve the length of rivers polluted by MM
Tenfold programme increase
MMWTS from 3 to 40

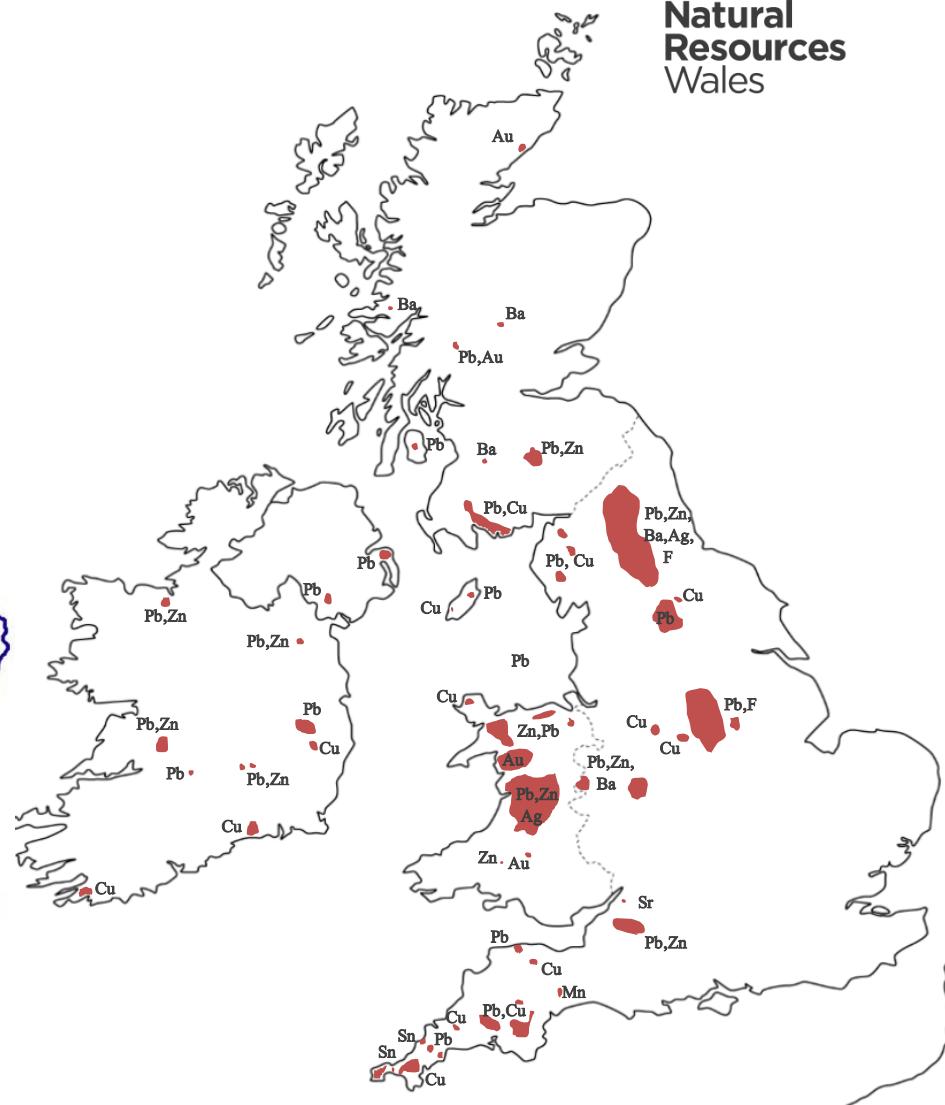
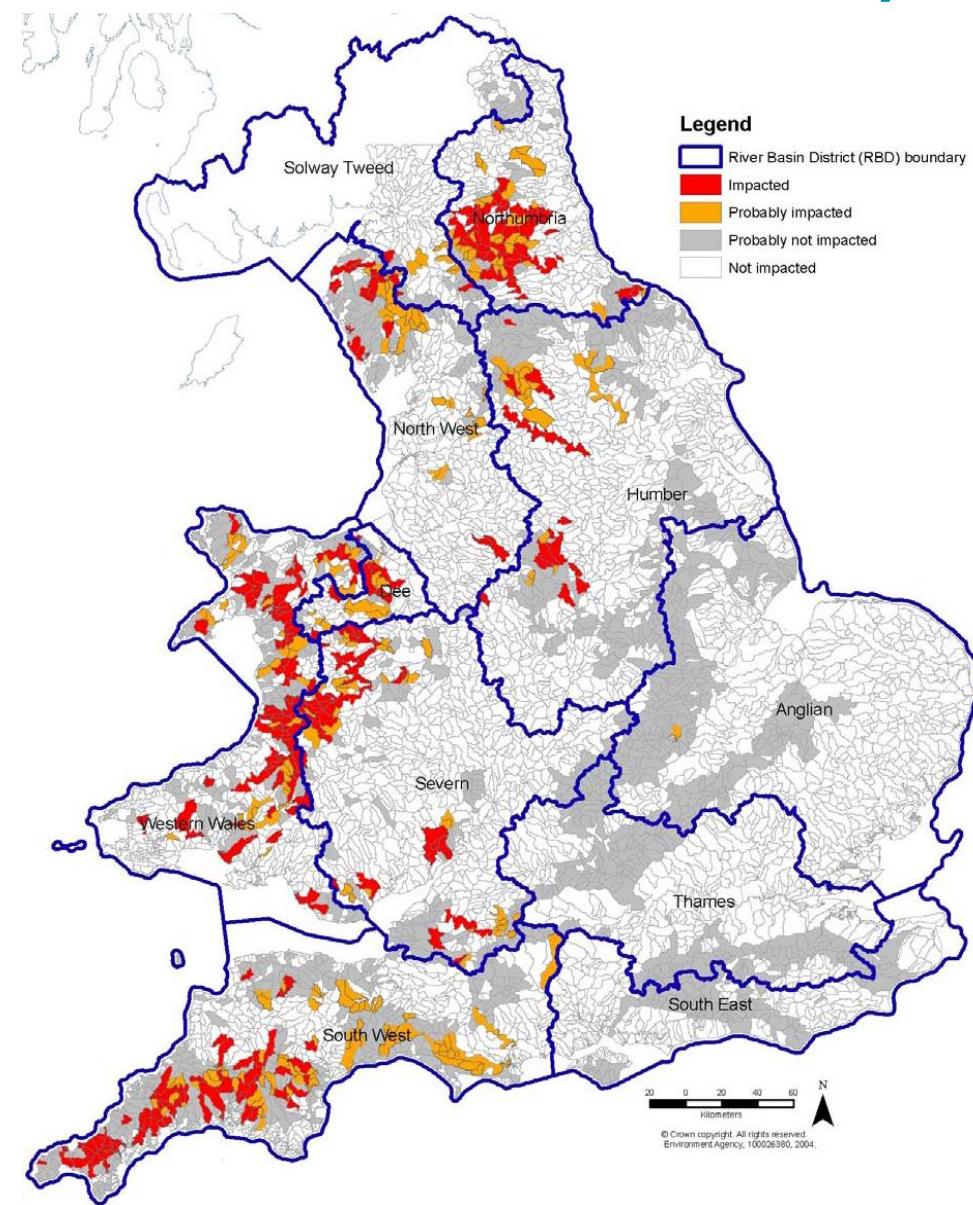
▶ Programme Progress

Reduce consumption of non-renewables via improved energy efficiency, enhanced renewable energy generation & update

Ensure sustainable mineral extraction, maximise recycled aggregates & promote efficient use



Ore bodies & Metal Mine Impacted Waterbodies

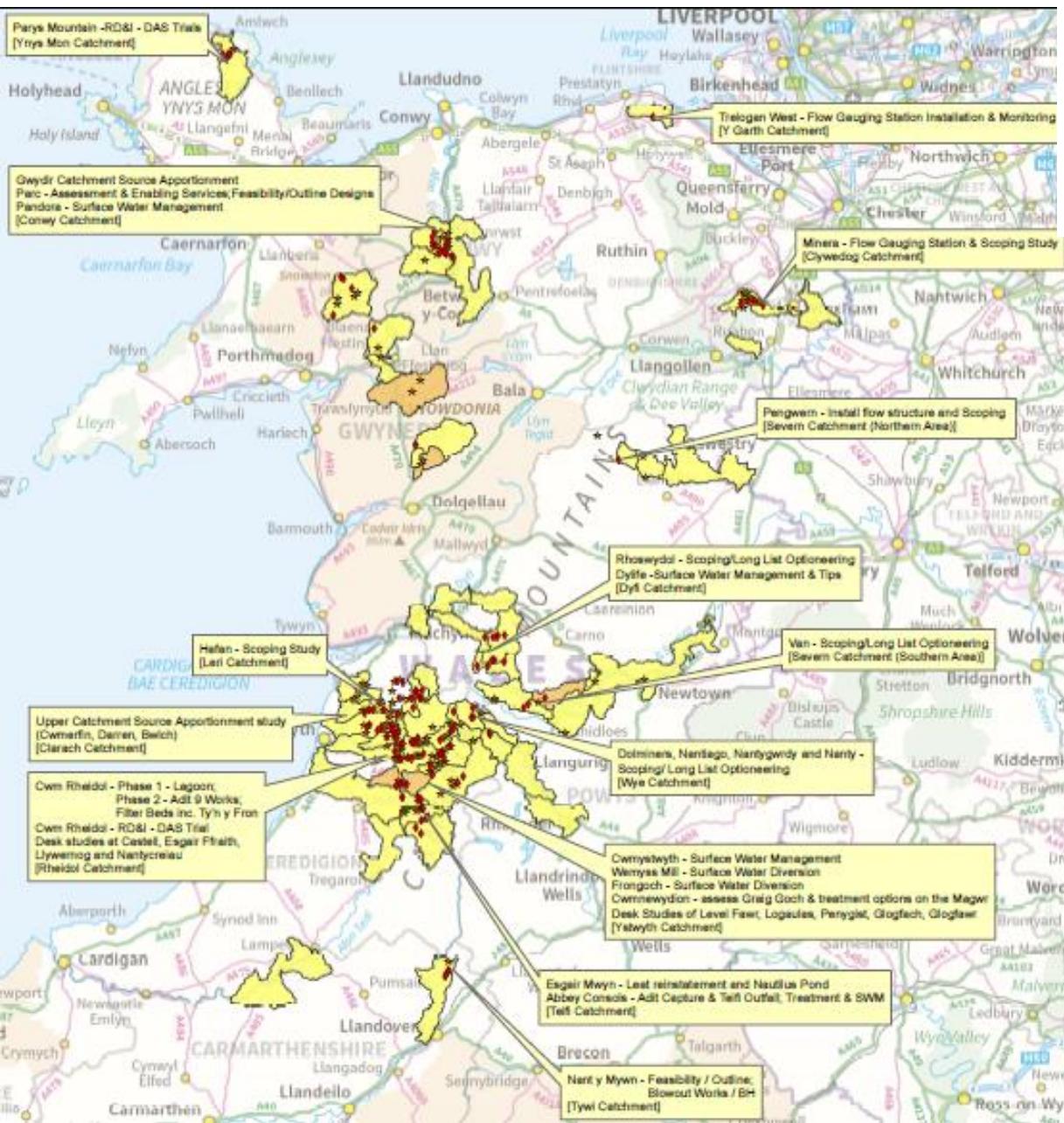




► Failing Waterbodies

Mines

$\Sigma \sim 1300$
129 red
140 amber
278 green



Legend

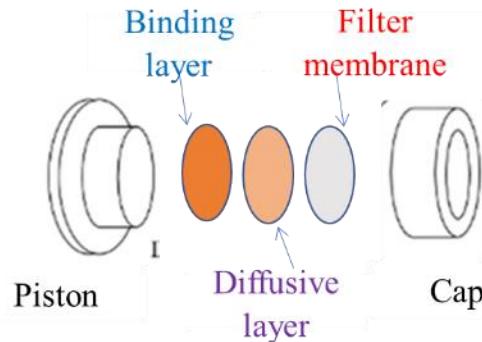
- ◆ Red Metal Mines [Higher Risk]
- ★ Amber Metal Mines [Medium Risk]
- Moderate Catchments
- Poor Catchments



SMARTEXpertise



Diffusive Gradients in Thin Films



[Daniel's paper on these sensors is here](#)

[Julia's paper on Circular Economy Potential is here](#)





Gwydir Mines



Gorsafoedd Mesur Llif Flow Guaging Stations





Wemyss & Graiggoch

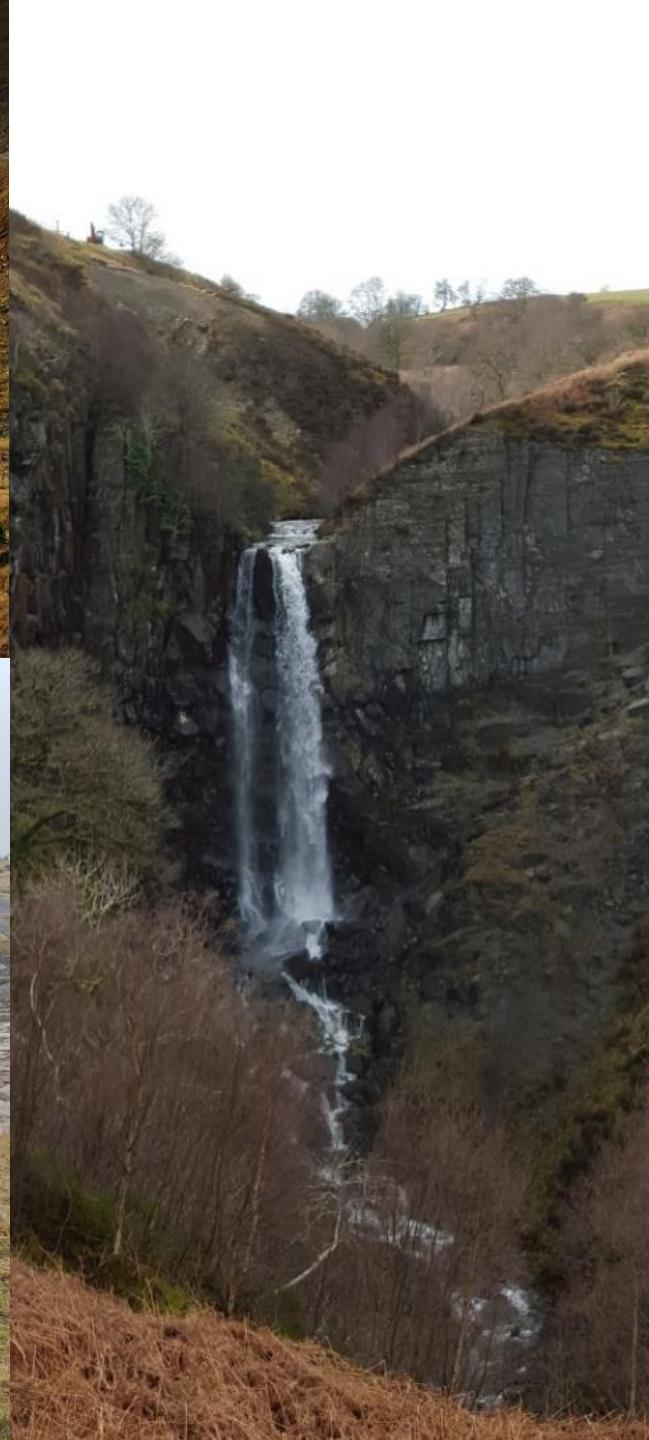


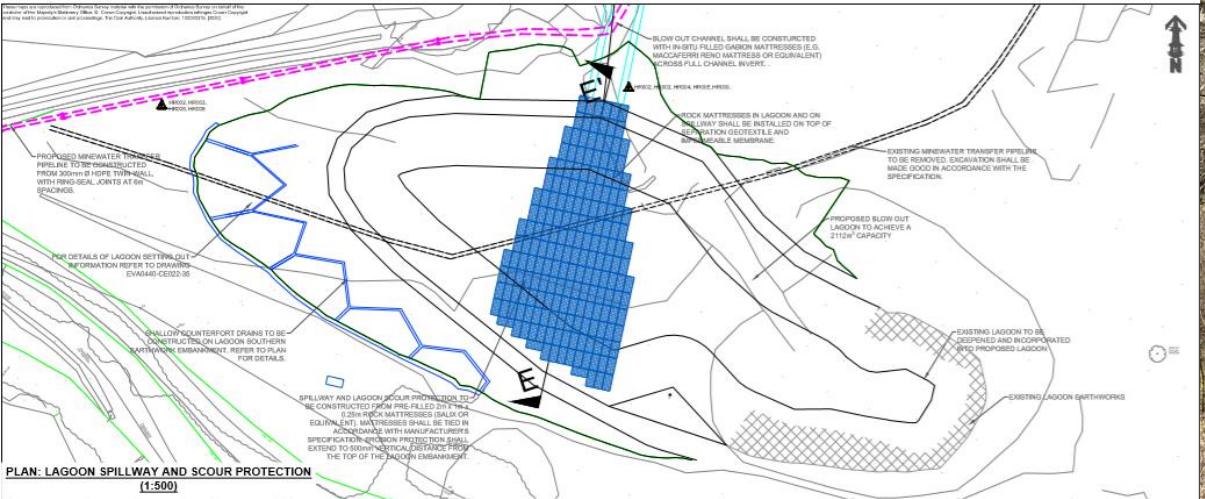


Cwmystwyth



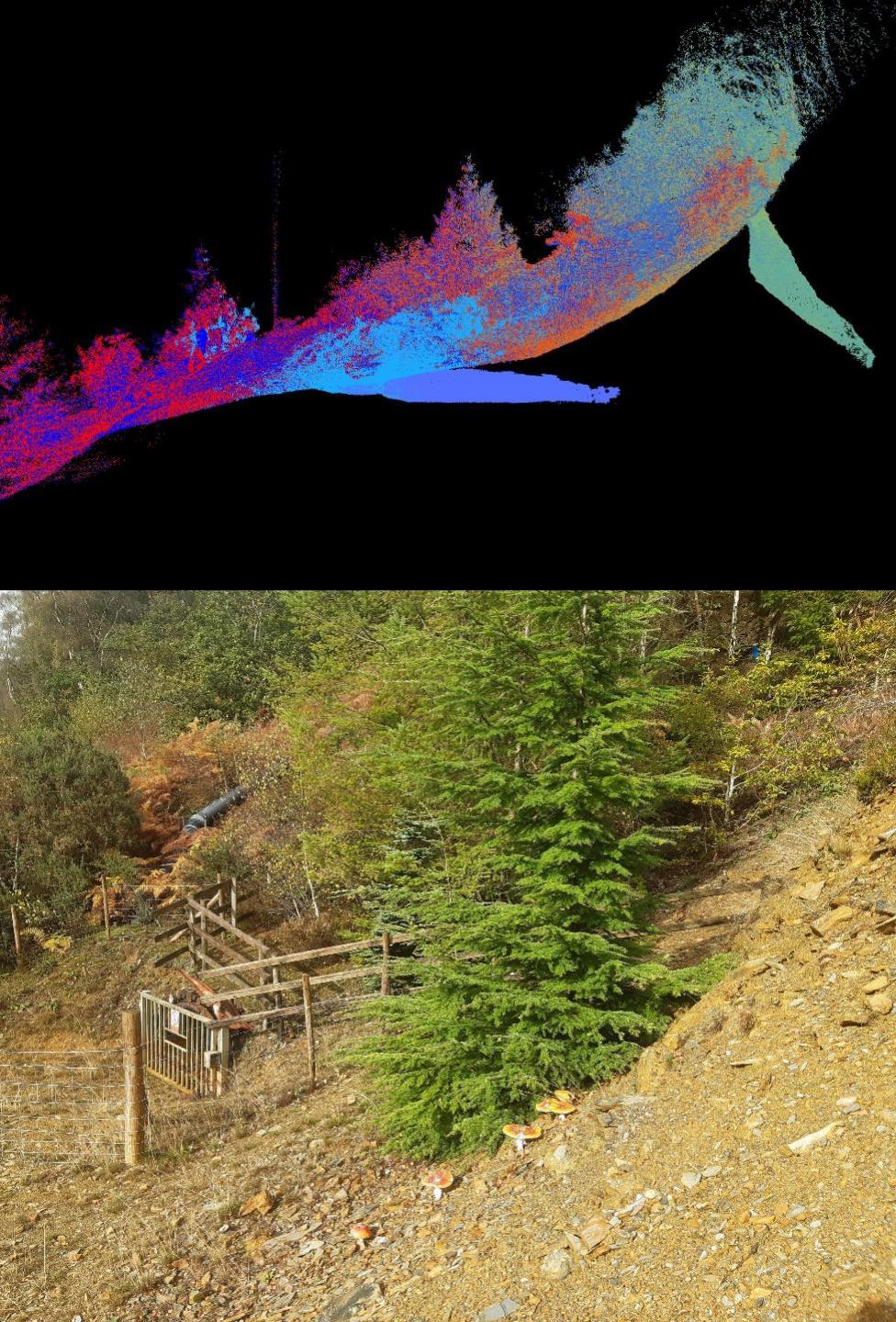
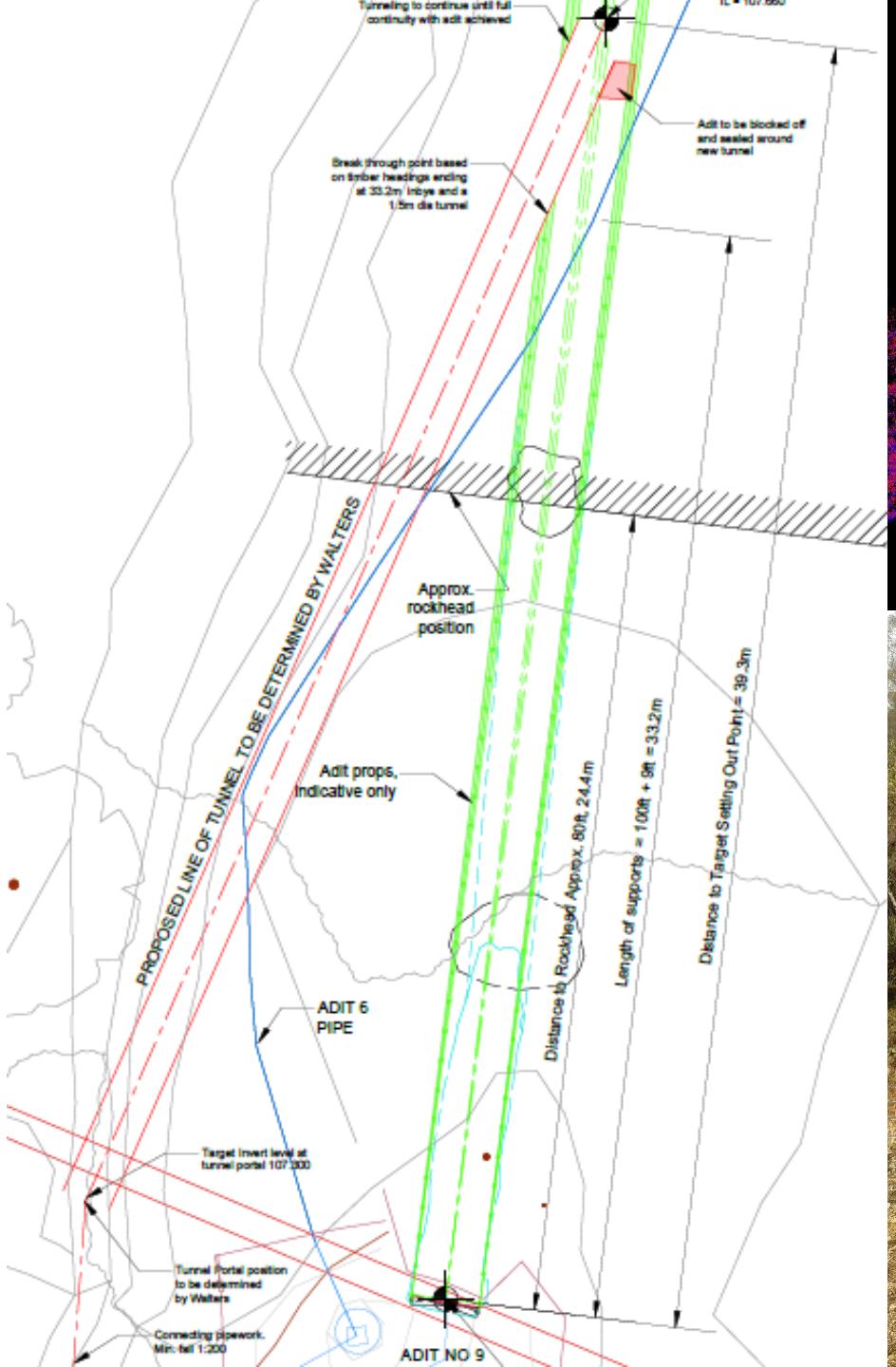
Dylife





Ystumtuen Complex







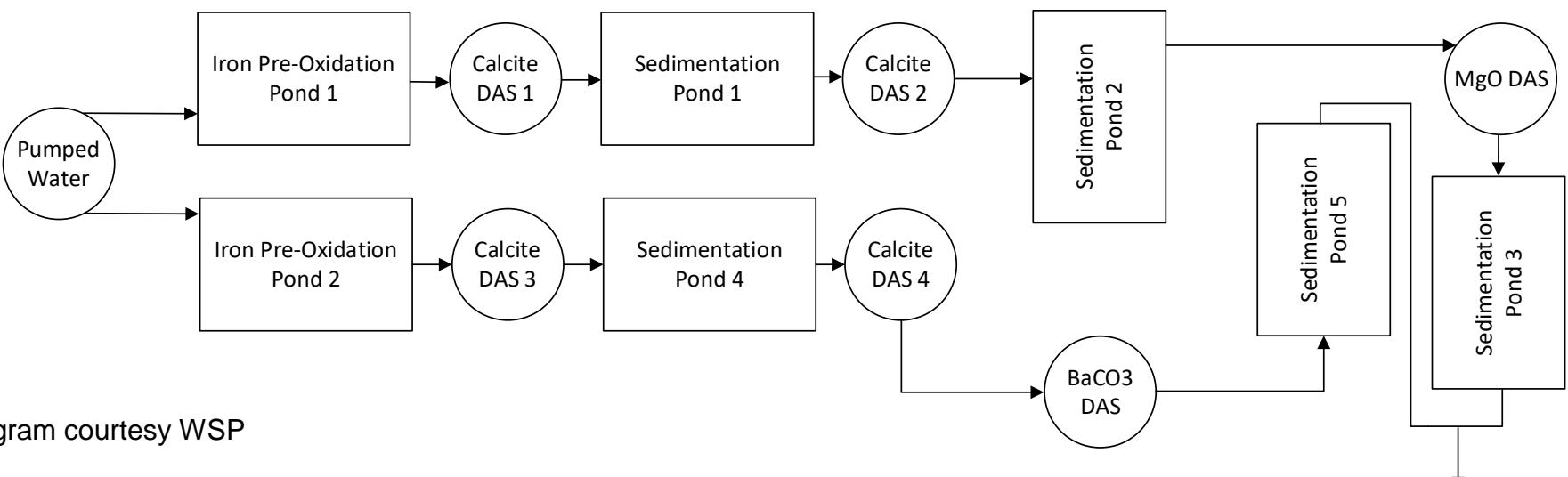
Habitat & Heritage





Swbstrad Alcaliaidd Gwasgaredig

Dispersed Alkaline Substrate

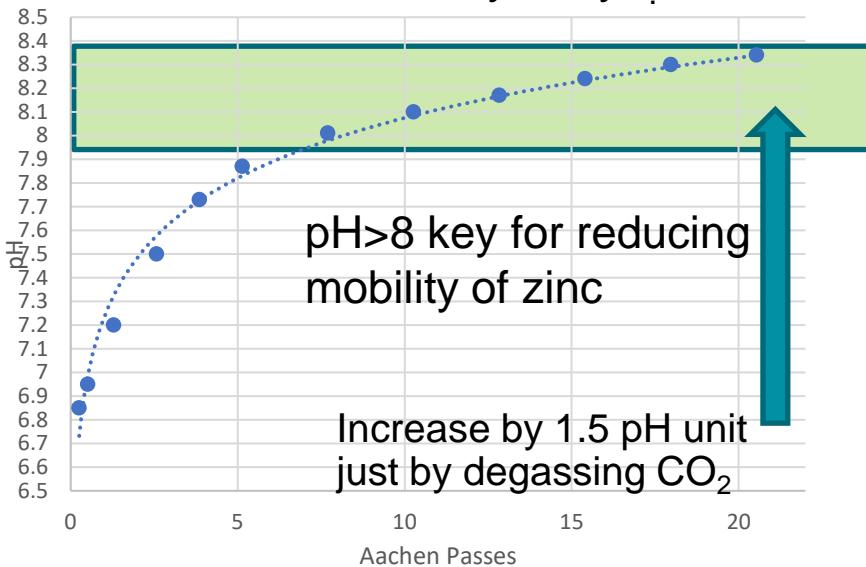


Triniaeth Actif Cynaliadwy

Sustainable Active Treatment



Degassing dissolved CO₂ from circum neutral mine water from Nant y Mwyn.

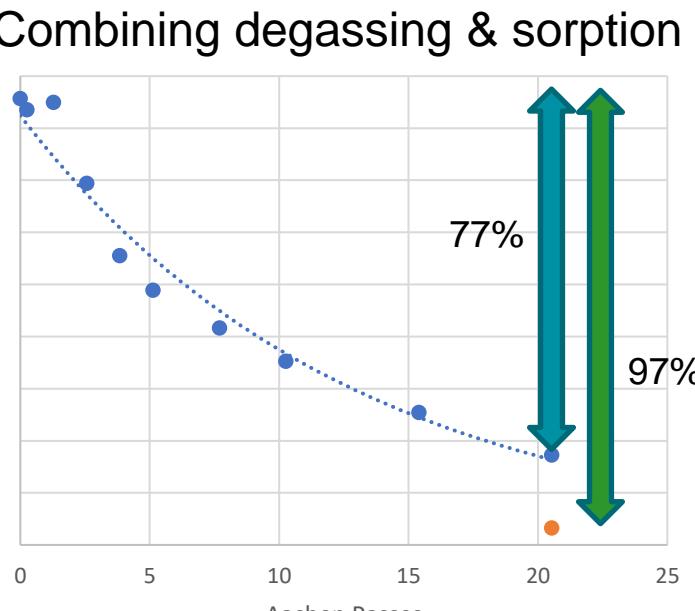
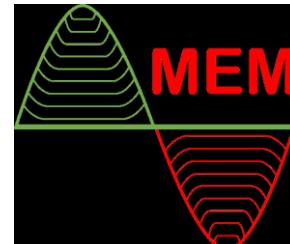
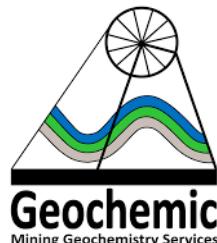


Results of degassing experiment using Aachen, change in pH with time



Cambrian
Environmental
Technologies
Ltd

Inspired by Nature; Delivered by Science.

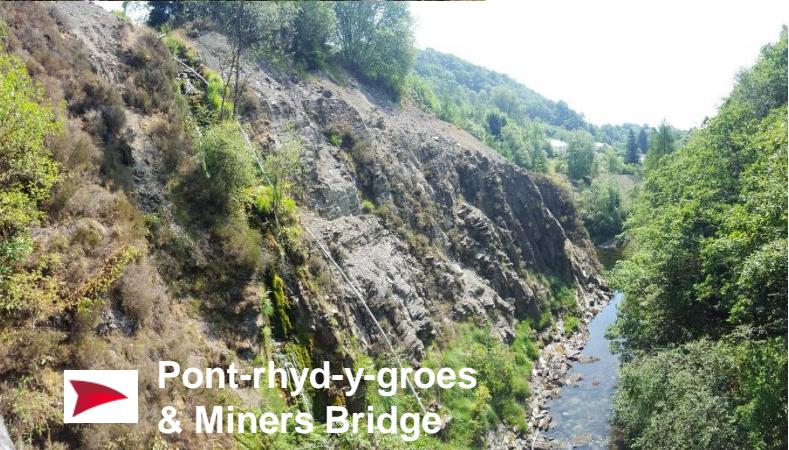


● Zn Conc. After FeOx (B4)

- 77% Zn removal just using air
- After sorption treatment 97% removal



MAELGWYN MINERAL SERVICES



Pont-rhyd-y-groes
& Miners Bridge

► Sense of Place

- i] Multiple Benefits
- ii] Public Goods

a] Well-being

b] Funding opportunities

c] Exemplar remediation for communities.



Pont-rhyd-y-groes, Gwydir, Parys Mtn & via visitor centres.



► #IMWA2023



Llywodraeth Cymru
Welsh Government



MINEXCHANGE
Y GYFNEWIDFA FWYNGLODDIAU



The Coal
Authority

CARDIFF
UNIVERSITY
PRIFYSGOL
CAERDYD

SBRI

Government challenges.
Ideas from business.
Innovative solutions.



yn llywio cydweithio ac orloesi
eXpertiseWales™
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