

GCRE – Ensuring successful project delivery

Kelly Warburton: Chief Commercial Officer - GCRE

GLOBAL CENTRE OF RAIL EXCELLENCE

How is it happening?

Long Term Drivers

- Clear vision of the need
- UK global leadership in Rail
- Global and local players
- Rail IS an industry and an economic driver for now and the future.
- Economic need

Taking Action

- Devolved Administration – the Welsh Government – and UK Government working in partnership
- Committing up to £130m of public funds
- Clear industry interest to invest and build out GCRE

The journey from mining fossil fuels to developing sustainable transport and infrastructure, made by Rail.

What is GCRE?

A Demonstrator for New Technologies

GCRE will **accelerate innovation, reduce costs, improve passenger experience** and address challenges of **de-carbonisation** and adaptation to **climate change**.

A **unique** purpose built rail research, testing & innovation facility with no competing alternative in the UK

Funded by both the Welsh Government & the UK government via BEIS

An economic development project located in South Wales

A £250m project intended to be fully operational in 2025

Being constructed on a site bigger than Hyde Park, over 650 Hectares

Regenerating a former carbon industrial site and creating a national laboratory

Operating as Open Access

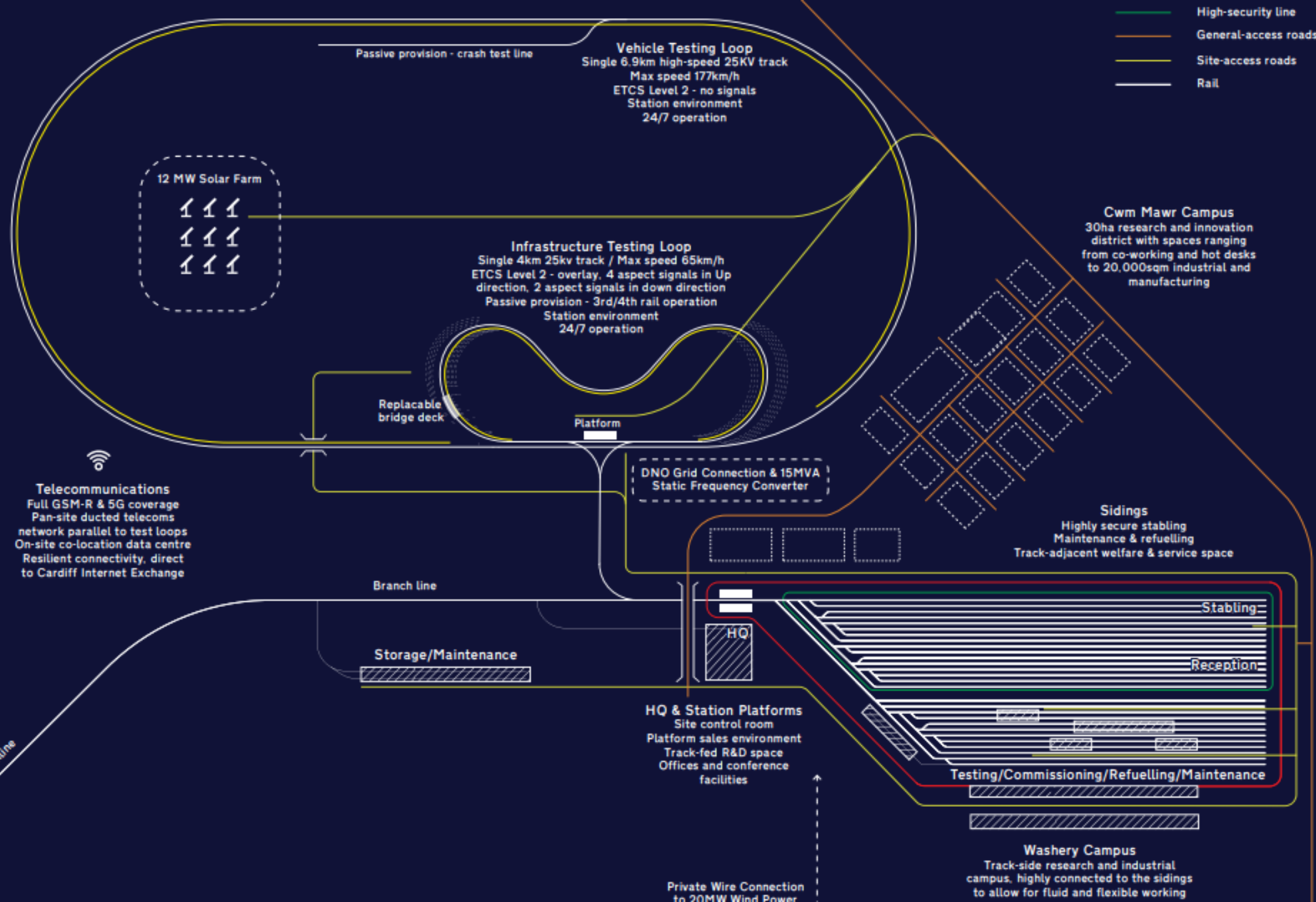
Will be the UK's 1st Net Zero Railway

Technologies can be tested, demonstrated and certified for safe use on the UK and international railway in a safe, offline, but realistic environment.

3 Core services offered – Rolling stock testing, infrastructure testing, Storage & Maintenance

Ancillary services will include R&D Centre, Certification, Social & residential – a collective of academia & industry

Aiming to secure private investment, investor proposal to be issued during 2022



WHAT IS THE INFRASTRUCTURE ?

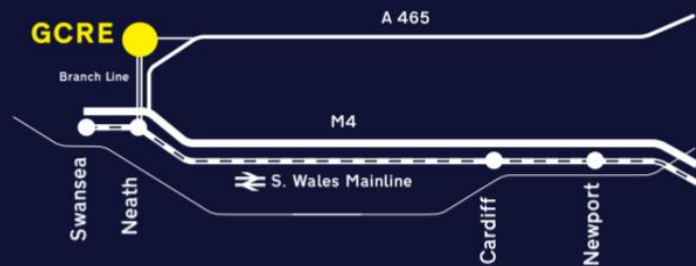
The facility will include two 25KV electrified test loops: a 6.9km high speed rolling stock track with a maximum speed of 177km/h and a 4km 65km/h test track.

Other facilities will include a dual-platform test environment, rolling stock storage and maintenance facilities, operations and control offices and connections to the nearby main line. There will also be secure testing environments, research, skills training and education spaces and visitor and conference facilities. The wider site includes plans for an innovation campus and will support a standing team of operational staff and researchers, with connections to a number of UK universities.

Testing facilities will be commissioned on a time basis around particular rail development projects; these projects will attract internationally-based engineers and researchers who will take up residency on the site for the period of testing. Because of this, the project will provide a hotel as well as other visitor infrastructure.

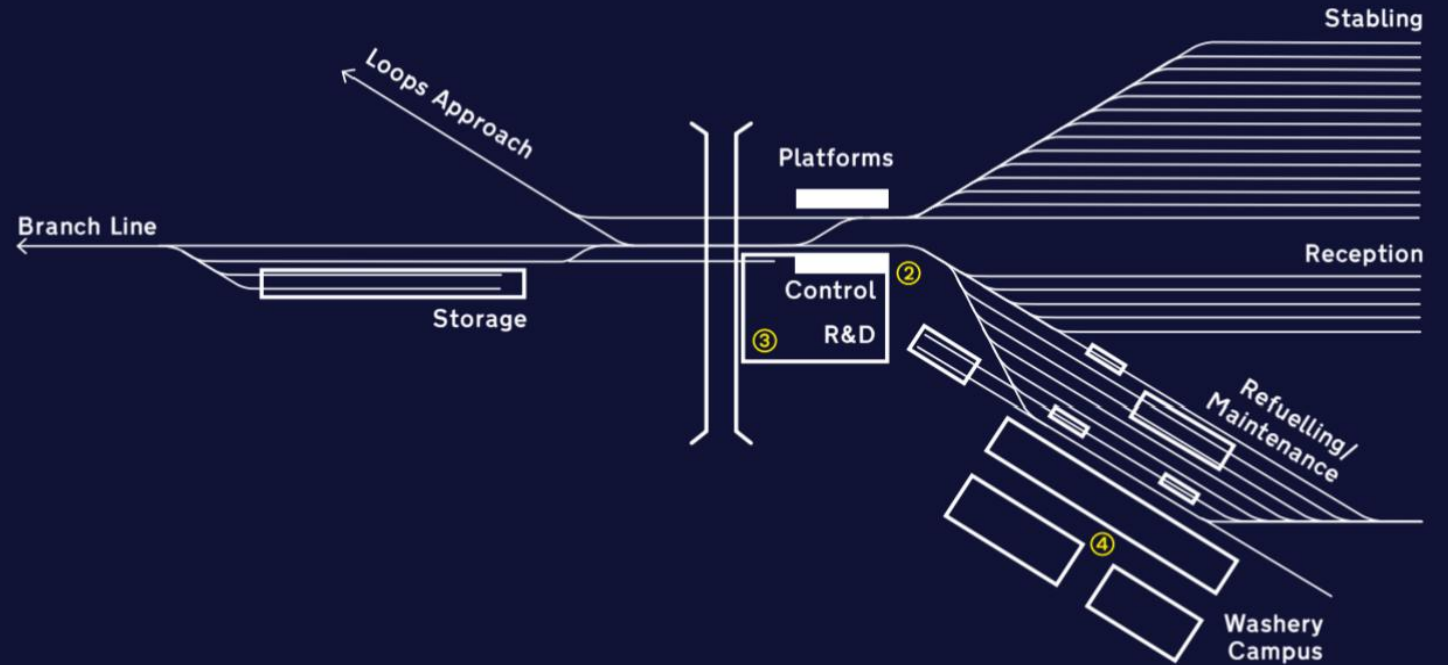
Responding to a lack of hotel infrastructure in the region, GCRE will also offer general tourist and visitor accommodation, offering access to the adjacent Brecon Beacons National Park.

BRINGING PEOPLE & EQUIPMENT HERE

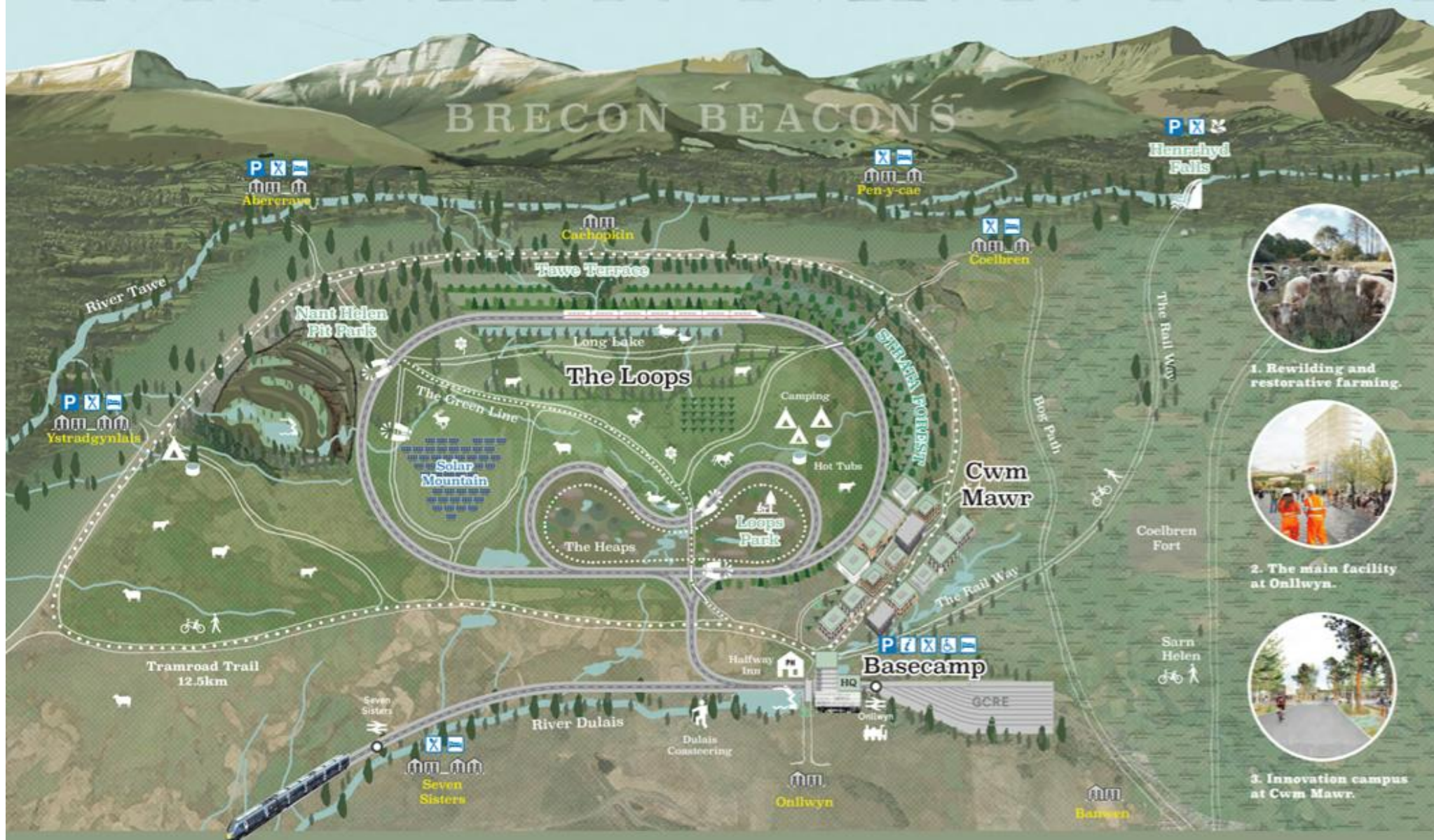


The site is well-served by road and has a dedicated rail connection for the delivery of rolling stock.

THE TEST ENVIRONMENT



- ① **Test Loops**
State-of-the-art facility control centre and offices with views over the sidings and towards the test loops. Rail-fed R&D space as well as integrated hotel with hospitality and conferencing space.
- ② **Polyglot station environment**
Integrated into HQ. Station platforms can be used for exhibiting and displaying new station infrastructure and furniture and are the gateway to the test loops
- ③ **GCRE Headquarters**
State-of-the-art facility control centre and offices with views over the sidings and towards the test loops. Rail-fed R&D space as well as integrated hotel with hospitality and conferencing space.
- ④ **Washery Campus**
Track-side research and industrial campus, highly connected to the sidings to allow for fluid and flexible working between distinct technical environments.
- ⑤ **Cwm Mawr Campus**
30ha research and innovation district with spaces ranging from co-working and hot desks to 20,000sqm industrial and manufacturing



1. Rewilding and restorative farming.



2. The main facility at Onllwyn.



3. Innovation campus at Cwm Mawr.

SEE

Come to GCRE to a fascinating and unusual landscape - with a wide range of sights, activities and places to eat and stay. GCRE is a basecamp for the Brecon Beacons as well as a host of local towns and villages that are all interconnected through a restored post-carbon landscape.

STAY

Trains zooming through our dramatic test loops at over 170kmh, an open-cast pit transformed into temperate rainforest, groundbreaking restoration and rewilding and water falling through wetlands and cascades.

EXPERIENCE

Stay in our dedicated hotel and serviced accommodation, where you will be able to look out over a working train-testing facility towards the Brecon Beacons and our own restored Loops Landscape.

Eat locally grown food in our cafes and restaurants before swimming in our wetlands and streams. Walk to Henrhyd Falls and the Brecon Beacons along a series of restored and renewed trails.

GCRE

Global Centre of Rail Excellence
Canolfan Fyd-Eang Rhagorweth Rheilffordd

Core Services: Mainline realistic train & Interface Testing

Rolling Stock Testing

- Loop constructed to be TSI compliant
- Part of loop to be HS2 compliant
- ETCS level 2
- Fully GSM-R & 5G coverage
- Station & Platforms included
- 6.9km – Speed 110mph, 125 in review
- Wide trace to accommodate 2 tracks

Infrastructure Testing

- Train will run around the loop as a constant - enabling mileage accumulation
- High tonnage testing & wheel passes, 20MGT, 60,000 axles
- TPWS & axle counters installed
- Multiple testing potential
- 4km – 40mph, 16hours per day operation, 5 days per week

Storage & Maintenance

- Initial 14 Rows of Sidings + more in P2
- Warm & Cold Storage
- 2 Maintenance Sheds, fully pitted
- Connected to branch line
- Renting out of sidings, space & track access
- Available June 2023

Fully electrified at 25kV AC

Fully instrumented with onsite Data centre

Gradient of link 1 in 50, rising to 1 in 37 providing more testing opportunities

Seeking to incorporate innovation in construction & operations

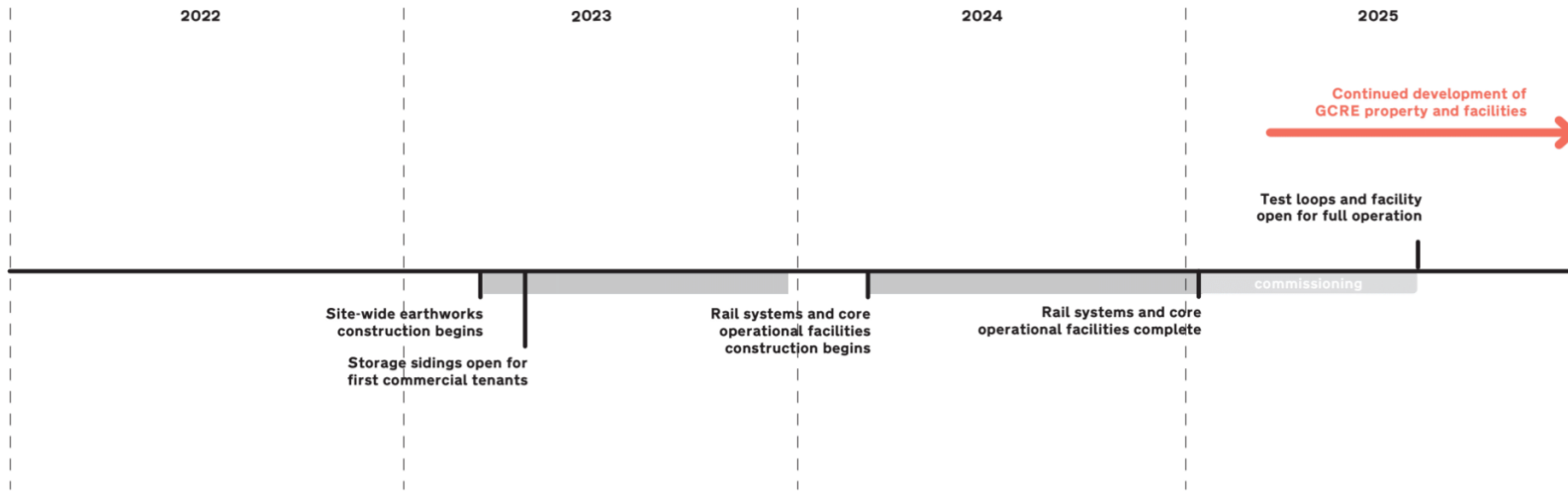
Research Innovation Commercialisation

Academia

- UKKRIN is a partner organisation and will be an Anchor Tenant
- Embedding university research projects adding rigour and academic credibility
- Onsite certification and validation
- Space for entrepreneurs and SMEs

Supply Chain

- Ability to test products in situ
- Be a facility user
- Donate Products as benefit in kind
- Sell products for construction stage
- Investor in GCRE through equity raise



Land Purchase Oct 22

Earthworks – From Q4 22

Sidings Design, Build & Operation

Sidings Available from June 2023

Site Construction – From 2023

Operational 2025

A PROJECT OVER TIME



- Creating an impact/rich mix at each significant stage
- Quick wins and patient investment
- A key distinction between early phase and final stage proposals
- Early phases must not hold back the potential of the later phases
- Understanding the programmes of construction and occupation as the site of future experimentation and opportunity

POST-CARBON LANDSCAPE



- Achieving a biodiversity net gain over the existing planning consents
- Producing an adaptive plan that recognises the restoration expertise within GCRE
- Strive for an exemplary restoration of this extractive landscape, one that creates novel landscapes that are rooted to this place but are not twee or pastiche

RECONNECTING LOCAL COMMUNITIES



- Strong social purpose and championing economic development
- Engaging with the social history of the place
- Reinvigorating local movement networks - enmeshing GCRE in its locale
- Globally significant / locally rooted
- Future Generations Act, Welsh Language

Next Steps

Potential Opportunities

Earthworks

Bulk earthworks
Primary Drainage
Landscaping/Planting

Phase 1A sidings

Permanent Way
Shore supplies

Fencing

Stockproof
Security
Acoustic

Commercial Buildings

HQ
Hotel

Passive Railway Systems

Permanent Way
OLE
Civils
Trough/Ducting

Bulk Purchase Materials

Various lots

Railway buildings

Depot Buildings and
infrastructure

Demountable buildings

Data Centre
Welfare facilities

Active Railway Systems

Telecoms
Signalling
Scada
Power
Control Room fitout
Minor Civils

Onllwyn Road Bridge

Replacement

Energy System

Static Frequency
Converter
Solar Farm
Private Wire & grid
HV distribution

There are plenty of opportunities for you to tell us about your capabilities, including Meet the Buyer events and a platform on our website. If you'd like to reach out via email, here are some useful contacts:

GENERAL ENQUIRIES

enquiries@gcre.wales

USEFUL CONTACTS

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Professor Andy Doherty,

Chief Technical Officer

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Potential Opportunities

Where will they be published/managed?

- Sell2Wales (<https://www.sell2wales.gov.wales/>)
- eTenderWales (<https://etenderwales.bravosolution.co.uk/home.html>)



Meet the Buyer Event

- Date: 2 November 2022
- Location: City Hall, Cardiff
- Time: 13:30 onwards
- There will be an opportunity to meet us on a 1 to 1 basis
- Further details and registration for the event can be found on the PIN on Sell2Wales



The Department for Business, Energy & Industrial Strategy will launch an opportunity to access up to £7.4 million for innovation in railway infrastructure

Global Centre of Rail Excellence (GCRE): Innovation in Railway Construction Competition Briefing

3 November 2022

11:00-16:00

Cardiff City Hall

Cardiff, CF10 3ND