South Copeland GDF Community Partnership Newsletter

Issue 10, September 2025

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Introduction from the new Chair, Andy Pratt

Welcome to the tenth newsletter from the South Copeland GDF Community Partnership. I'm pleased to take over in the role of Partnership Chair for the next 12 months following Ged McGrath's three-year term coming to an end in March. I'd like to thank Ged for his dedication and work on this important conversation so far.

A little about me – I live in Holmrook with my family, and I'm the Cumberland councillor for the Millom Without ward. I was previously a member of the South Copeland GDF Community Partnership (representing Cumbria Association of Local Councils), and I'm the current Chair of Mid Copeland GDF Community Partnership. I'm also the Chair of Governors at Kirkland Academy, and the Chair of Drigg and Carleton Village Hall, as well as a Trustee of Drigg Young Farmers' Club.

South Copeland GDF Community Partnership

Following a Review earlier this year, the South Copeland GDF Community Partnership is moving forward with renewed purpose, and our focus is on engaging with all sections of the community.

As Chair of both the South and Mid Copeland Partnerships, one of my main goals is to ensure the views, priorities and needs of each community are respected and considered separately.

I'll continue to support conversations about whether South Copeland is the right place for a Geological Disposal Facility (GDF) – exploring what it could mean for the area, answering questions, and listening to the concerns raised.

We're still in the early stages of the GDF programme – if a suitable site is found in Copeland by Nuclear Waste Services (NWS; a process which could take 10-15 years), a GDF could not go ahead until the Potential Host Community directly affected has had a say and taken a positive Test of Public Support.

The Community Partnership's role is to help ensure that the community has all the relevant information they need along the way.

Following a Review earlier this year, the South Copeland GDF Community Partnership is moving forward with renewed purpose, and our focus is on engaging with all sections of the community.

This is an important potential development for people in South Copeland to consider, and I look forward to working constructively with local people and partners to explore it further.

In the newsletter, you will find an article on designing for long-term safety of a GDF, an explainer on the management of excavated material, and an update on our shared Community Visioning activities.

As always, if you have any further questions or would like to get in touch with us – our contact details and social media details are at the end of the newsletter.

Andy Pratt
Chair, South Copeland GDF Community Partnership

This is an important potential development for people in South Copeland to consider, and I look forward to working constructively with local people and partners to explore it further.

Shaping a Community Vision for South Copeland

The Community Partnership has been asking local people to share what matters most to them, as we begin developing a shared Community Vision connected to the GDF programme.

Thank you to everyone who completed our two questionnaires and shared their thoughts in person.

This developing Community Vision is an early step in thinking about what could matter most to future generations if a GDF – a deep underground facility designed to safely and securely dispose of the UK's most hazardous radioactive waste – were to be located in this area.

If a GDF is ultimately hosted in South Copeland, the government will provide Significant Additional Investment for the community. This would be shaped by our Community Vision and could support projects such as upgrading transport links, improving health services, expanding skills training, and developing new leisure spaces.

What matters to you?

So far, we've delivered two household surveys, attended local events with display boards shaped by your feedback, and held focus groups.

408
people completed our first survey

149
people completed our second survey

5
local events attended to gain your views

4
small focus groups

You highlighted three themes:

1 Transport: *"We need better road and rail links."*

- Improve infrastructure to enable better access to local towns
- Improve public transport to jobs, health and leisure facilities
- Improve existing roads

2 Economy and employment: *"Opportunities to retain our youth in the area or attract them back."*

- Opportunities for small and medium enterprises
- Employment and skills for young people
- GDF should employ local people

3 Health and social care: *"Care and health services are too far away."*

- Better access to health facilities, e.g., GP, dentist, and mental health services
- Local access to specialist hospital treatment
- Services to support older people

This is just the beginning of an ongoing conversation about South Copeland's future. Your input will continue to shape the Community Vision as it evolves

What's next?

This is just the beginning of an ongoing conversation about South Copeland's future. Your input will continue to shape the Community Vision as it evolves, alongside existing local and regional development plans. This will help guide future decisions if a GDF is built here.

The Community Partnership will keep you informed and create plenty of opportunities for you to have your say.

Designing for long-term safety of the most hazardous radioactive waste

By Professor Lucy Bailey, Chief of Disposal Safety at Nuclear Waste Services

Professor Lucy Bailey is also a member of the Canadian Safety Assessment Review Group and chaired the Nuclear Energy Agency's Integration Group for the Safety Case from 2015 to 2022. She has offered her expertise to the International Atomic Energy Authority and provided independent peer reviews of a number of other countries' GDF safety cases.

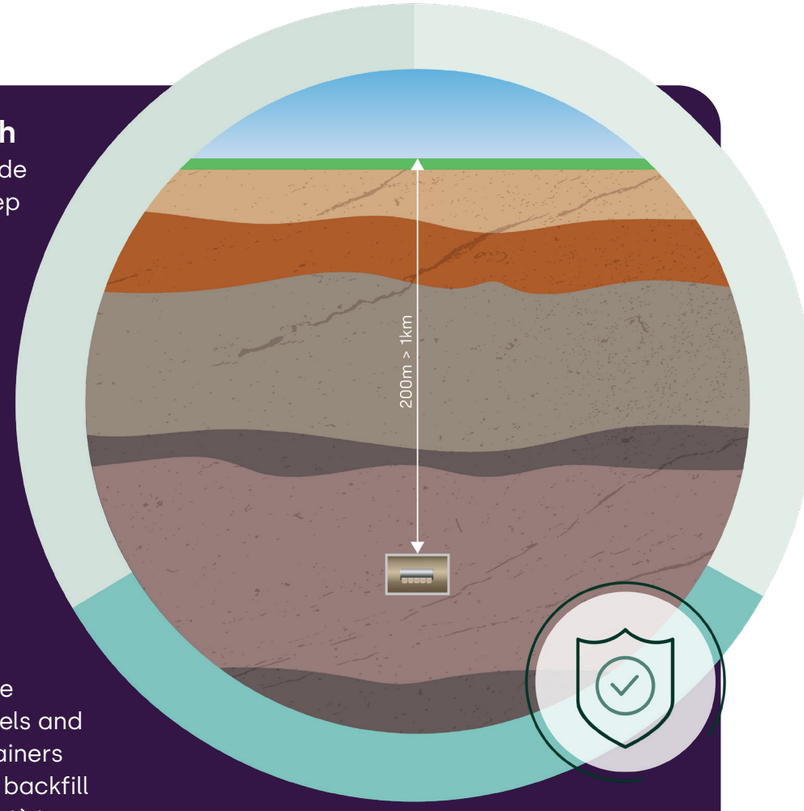
The purpose of a GDF is to make the most hazardous radioactive waste permanently safe, sooner, removing the burden on future generations. Without it, for thousands of years, our descendants would have to carry the risk and pay for the costly enduring surface storage.

GDFs use engineered barriers to work alongside the natural barrier of deep, stable rock hundreds of metres below the surface. This multi-barrier approach isolates and contains waste to prevent radiation from ever reaching the surface environment at levels that could do harm.

A GDF will be a passively safe facility, meaning that the facility will remain safe, for hundreds of thousands of years, without needing any human interaction, without the need for any inspections, any maintenance, or any repairs.

Multiple barrier approach

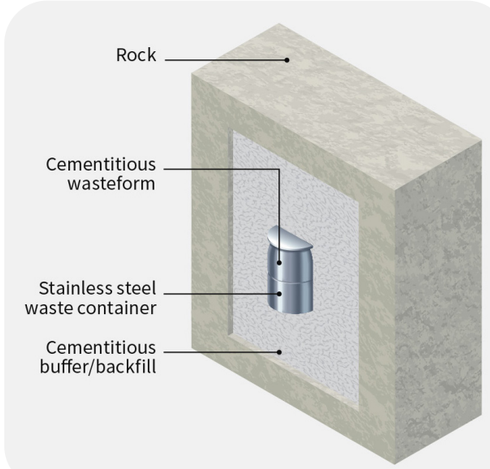
The geological barrier will provide the isolation, meaning it will keep the radioactivity away from people and the environment for very long timescales. Geological timeframes span millions of years and in the right geology, deep underground, we can be confident of a home for our wastes that will be stable for the long time needed.



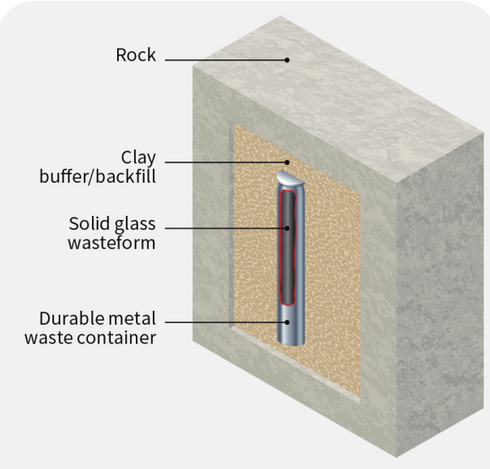
The waste itself is processed, conditioned and packaged in solid form and put in suitable containers. These containers are placed underground in the tunnels and vaults within the GDF. The containers are surrounded with a buffer or backfill material (such as clay or cement) to protect the containers. The tunnels and vaults, and all GDF accessways are then backfilled and sealed to secure the GDF. We refer to these as our "engineered barriers" and they will be specifically designed for both the wastes and the geological environment.

This provides us with a multiple barrier system to isolate and contain the waste. We are not relying on any single barrier and even if something unexpected affects one barrier, the others will still contain the radioactivity long enough for it to decay to levels that won't cause harm.

Intermediate Level Waste



High Level Waste



We have to identify any future scenarios that could impact the safety and security of a GDF. We look to cover everything from worst credible case scenarios to what-if scenarios.

Over timescales that long, there are many uncertainties. Working with Nuclear Waste Services (NWS) colleagues and international experts, it's my job to identify relevant uncertainties, assess how they could affect the safety of a GDF, and work out how to address them in our design. This work is how we build our Safety Case. A GDF can only go ahead if we make a strong Safety Case; it's how our independent regulators (including the Office for Nuclear Regulation and the Environment Agency) will determine whether our design is safe.

Implications for the very long-term future

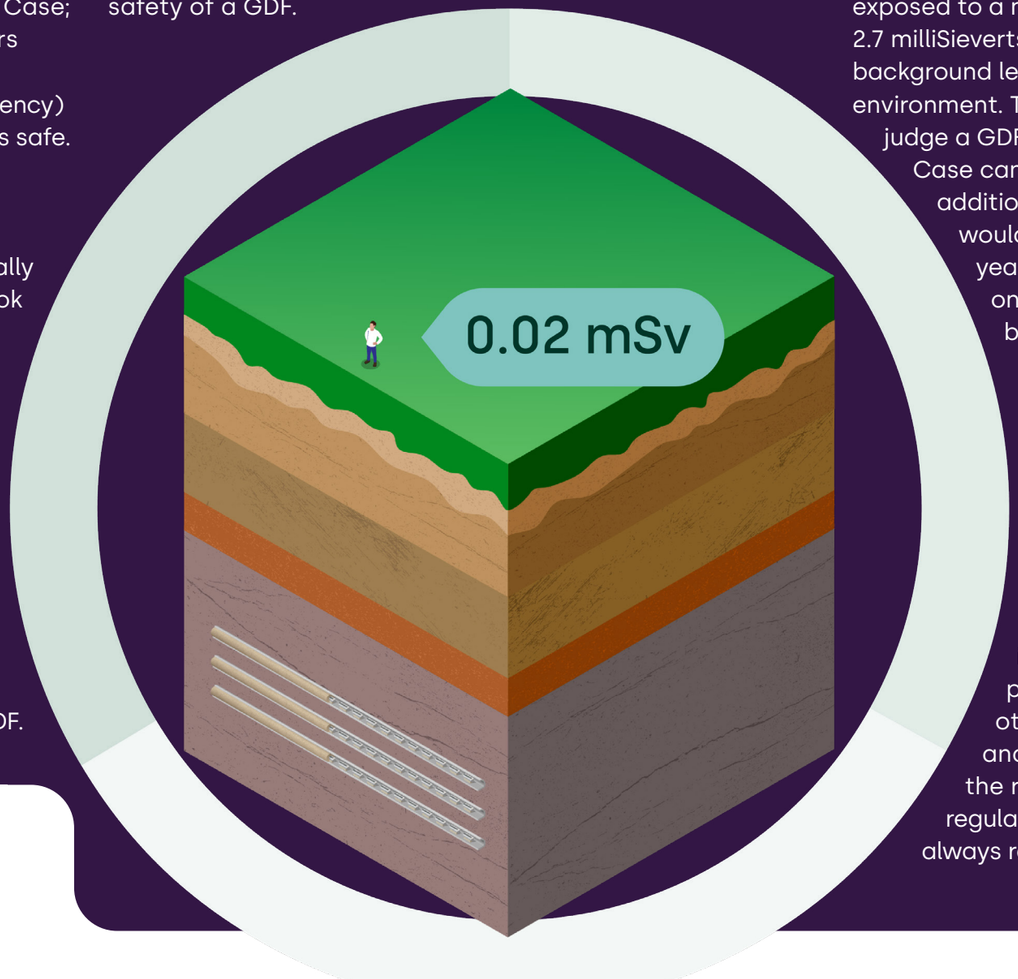
To understand what could potentially affect safety and when, we can look at the future evolution of a GDF as a series of different phases with different conditions.

In the years immediately after the GDF is closed and sealed, the high heat generating waste in the vaults will be at its hottest. There will be some short-lived changes in this period as the facility and its environment settle. So, we need to take this into account with the design of our containers and the GDF.

After the short-lived changes of those early years, we expect about a thousand years of stable conditions. And in the very distant future, over hundreds of thousands of years, glaciation or tectonic activity could significantly change the landscape. Our multi-barrier approach takes all of these scenarios and changes into account, ensuring long-term safety.

Using data and case studies to evidence safety

Our work to support the development of a Safety Case for the GDF involves assessing all available data and commissioning the investigations needed to gain understanding of all processes relevant to the safety of a GDF.



A synthesis of all this information will be required to secure the necessary regulatory permissions to build a GDF and will be key in the development of a GDF design and safety case.

We also have to identify any future scenarios that could impact the safety and security of a GDF. We look to cover everything from worst credible case scenarios to what-if scenarios.

What's the right level of safety?

For a GDF, our independent regulators define safety in terms of the dose of radioactivity someone would experience on the surface, measured in milliSieverts.

Every day, every one of us in the UK is exposed to a natural dose of about 2.7 milliSieverts, just from the natural background levels of radiation in our environment. The regulators will only judge a GDF to be safe if our Safety Case can show them that the additional dose on the surface would be 0.02 milliSieverts a year or less. That's less than one percent of the natural background radiation level.

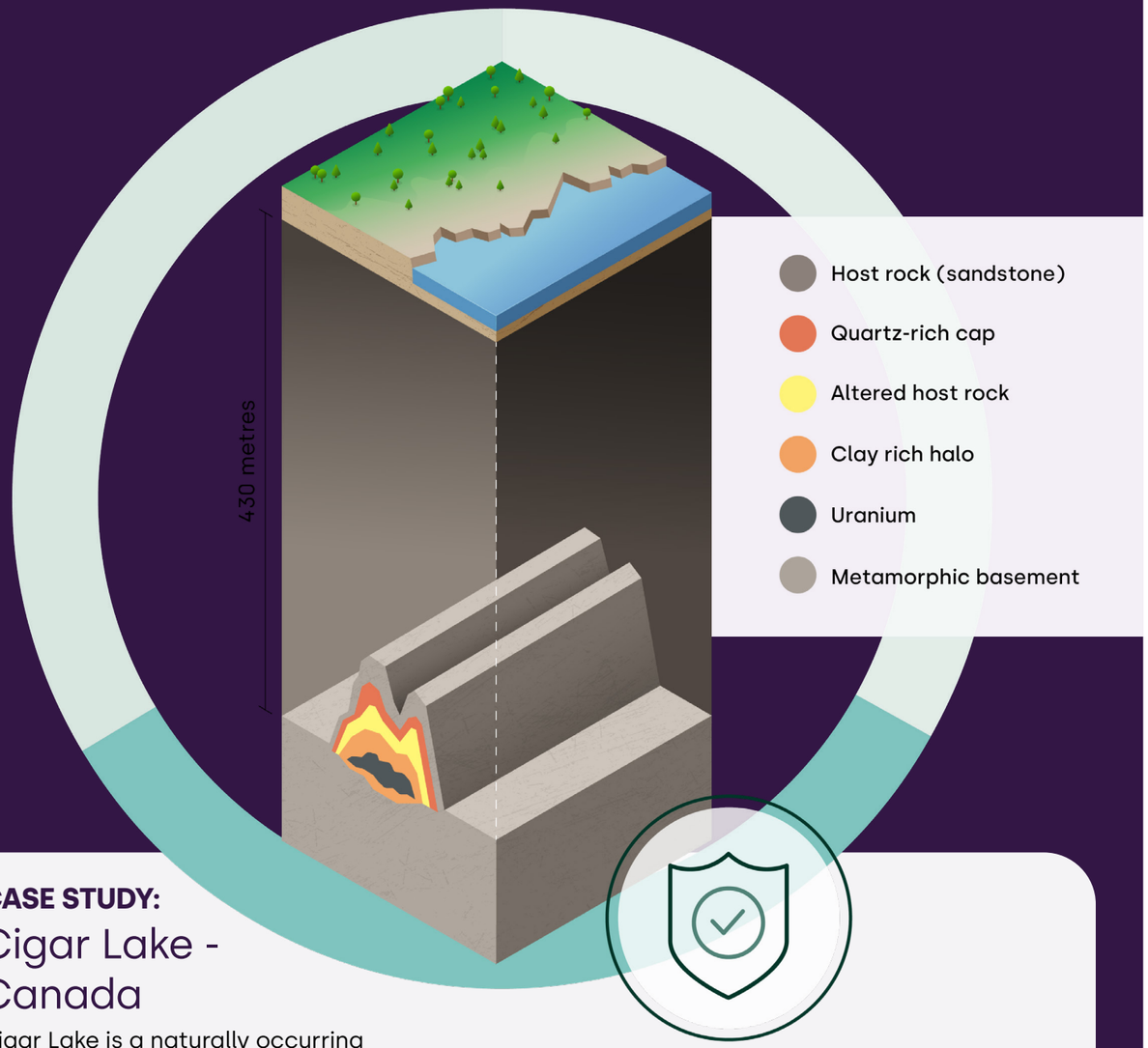
At the end of the day, if we can't show that a GDF will be this safe or safer, it won't happen. This means being confident in the safety ourselves, convincing our peer reviewers, including international peers, our community and other external stakeholders and ultimately satisfying the rigorous scrutiny of our regulators that a GDF is, and will always remain, safe.

Long-term scenario planning

In any worst credible case scenario, we take an event or uncertainty and ask, what is the worst possible moment that this could occur or the worst way in which something could happen? For example, what if people inadvertently drilled into the GDF as soon as the site was no longer being managed, when the level of radioactivity inside was still high? Preventing this scenario is one reason we're planning to build the GDF so deep underground.

And a what-if scenario is something that we really don't expect to happen, but that we consider anyway, as a way to challenge the robustness of our design. For example, we don't think any of our waste canisters would ever totally fail – but our Safety Case shows that if one did, and radioactive material escaped from its container, the other engineered barriers and the surrounding geology would still prevent that material from endangering anyone on the surface, maintaining the right level of safety.

In 1999, the Nuclear Energy Agency created an international database of all the Features, Events and Processes (FEPs) that had been identified and considered by radioactive waste disposal scientists across the world. Since then, the database has been updated many times, but no significant new FEPs have been identified – so we're confident we're considering all the right things.



CASE STUDY:

Cigar Lake - Canada

Cigar Lake is a naturally occurring uranium deposit in Canada. Cigar Lake is approximately 1.3 billion years old; the uranium ore lies about 450 metres below the surface and is enveloped within a clay rock formation.

Clay and rock have contained the uranium such that there are no significant levels of radioactivity detected at the surface above the Cigar Lake uranium ore body. Natural systems like this provide scientists with a long-term evidence base for the stability and safety of geological disposal.

Natural systems, like Cigar Lake, cannot fully replicate all the features of a Geological Disposal Facility, but they do provide insight and information on the long-term processes that isolate and contain radioactivity. These case studies can provide important evidence for the long-term safety concepts for geological disposal – proving that the right geology can provide the solution to disposing of radioactive waste.

Your questions answered by NWS:

an overview of excavated material management for the Geological Disposal Facility

We've received a number of questions from the community about the construction process, the material excavated during development – commonly referred to as "spoil" – and what the local area could expect if a GDF were to be built here. To help shed light on these important topics, we've asked Nuclear Waste Services (NWS) to provide more detail. Iain Phimister, Senior Lead Engineering Manager, explains:

A GDF will be a significant piece of UK infrastructure with the majority of the facility built between 200 and 1000 metres underground.

Throughout construction, there will be a substantial amount of material to excavate. How we will manage the material depends on the type of rock we will be tunnelling through. Once the host geology and construction methodology are understood through the analysis of data from our site characterisation process, a detailed material management strategy will be developed.

Currently, we estimate that the total volume of excavated material is approximately 10 million cubic metres within the host rock. Additional excavated material will also be produced from the construction of the accessways running from the surface site to the host rock. Excavated material will be generated through the initial construction works and will continue throughout the ongoing construction and waste emplacement operations. This activity will continue for over a century.

Iain Phimister, Senior Lead Engineering Manager, NWS

A GDF will be a significant piece of UK infrastructure with the majority of the facility built between 200 and 1000 metres underground.

NWS has a sustainability strategy and as such we will apply the waste hierarchy (above) in managing excavated material. Where the generation of excavated material is necessary, our ambition is for sustainable reuse of that material to minimise its transport and disposal to landfill.

It is not possible to prevent excavated material generation for a GDF, but we will seek to minimise the amount of excavation needed through application of good design principles.

All opportunities for re-use of material at the GDF surface site will be considered when we have the information we require to make decisions. Any excavated material retained on site will need to be suitable for use and be available in the quantity required at the time it is needed. Such uses could include landscaping or visual screening mounds, flood defences or environmental enhancement projects.

Excavated material may also be suitable as a backfill material either as an engineered barrier in the disposal areas, or as a mass backfill of other underground tunnels. The radioactive waste and construction materials will occupy a significant portion of the excavated space within the GDF, meaning the amount of backfill material needed is less than the excavated material volume, and so only a portion of it could be reused as backfill.

We envisage construction of new disposal areas and backfilling disposal areas already filled with radioactive waste to be in parallel throughout the life of the GDF, so some freshly excavated material could be used promptly as backfill. All material re-use will be carried out under internationally recognised frameworks for material re-use such as the Definition of Waste Code of Practice.

For excavated material that cannot be retained and reused onsite, we will consider options for re-use or recycling offsite as either:

- An engineering material, for instance in road/infrastructure construction
- A bulk fill material to protect valuable land from flooding/coastal erosion or for habitat creation as demonstrated by other major infrastructure projects

It is important to recognise that the generation of excavated material will be spread over the construction and operational life of a GDF. Recognising that some material may need to be removed from site, our illustrative design includes export facilities for excavated materials, including rail when connections are available. Our current estimate is that during peak construction, the demand on the rail network, if excavated material is promptly removed from the GDF site, is twelve trains of excavated material leaving the GDF site each day.

Our current Site Evaluation work will further develop our understanding of excavated material in terms of volumes, logistics, and material management options.

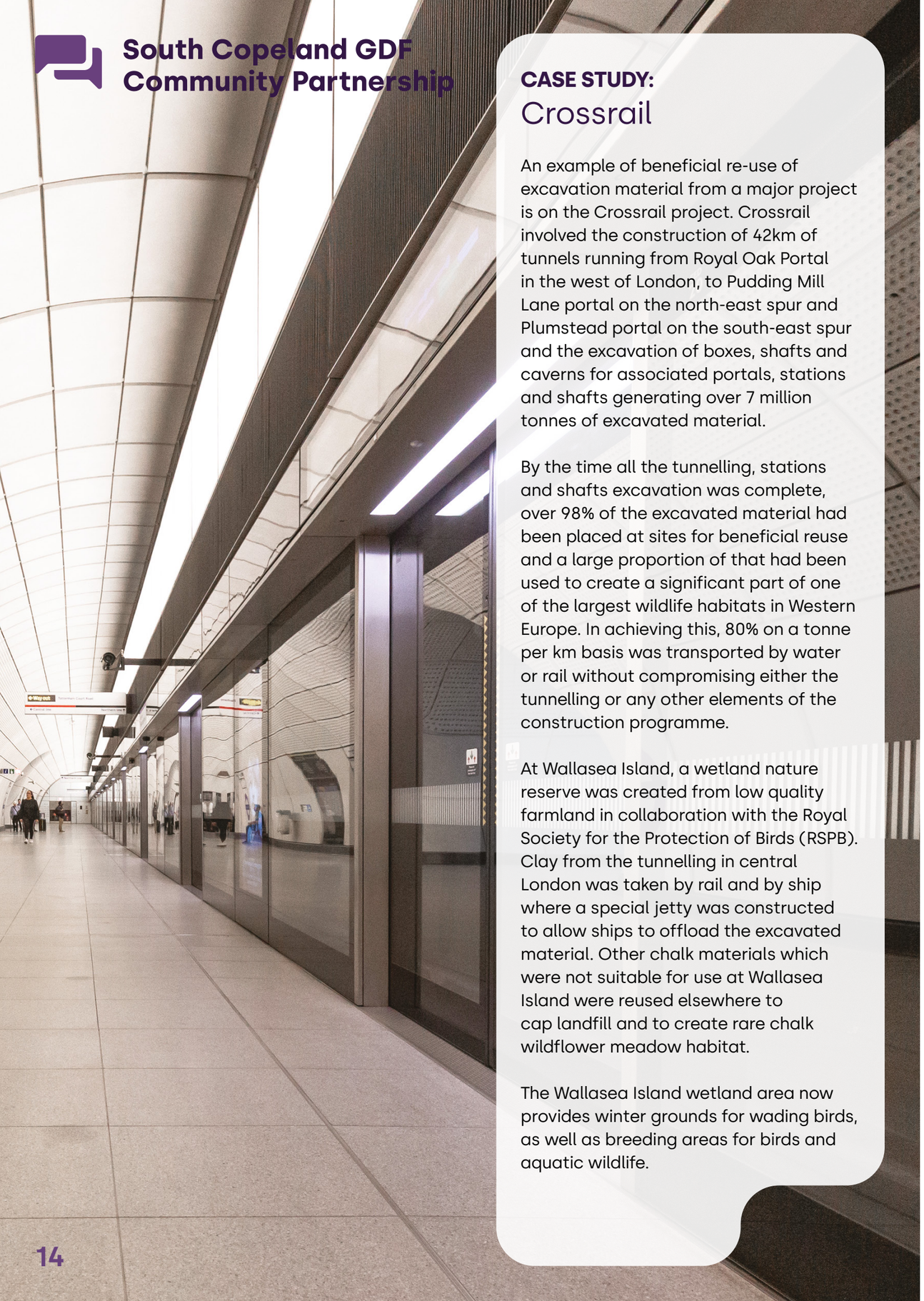
Site Characterisation works undertaken using boreholes will further help us understand more about the rock and improve our understanding of the quantity and type of excavated material that may be generated and its reuse opportunities.

A significant UK-based case study of how excavation material may be used in a manner which could benefit wildlife and the natural environment is provided below.

You asked: Would the Cumbrian Coast Line need a rail upgrade if a GDF was built in Copeland?

The Cumbrian Coast Line is a vital piece of infrastructure for the GDF project. Whether the GDF is sited in Copeland or elsewhere, the rail line will play a key role for the GDF, either in the export of radioactive waste from Sellafield and/or in supporting construction of the GDF and the import of radioactive wastes located elsewhere in the country.

NWS has said that they know capacity is a potential issue on the Cumbrian Coast Line and are working with Nuclear Transport Solutions (NTS) and Network Rail on a government-sponsored Outline Business Case to look at rail improvements as an enabler for major projects in the area. It has said they will continue to work with NTS and Network Rail to support efforts to safeguard the future of the line.



CASE STUDY:

Crossrail

An example of beneficial re-use of excavation material from a major project is on the Crossrail project. Crossrail involved the construction of 42km of tunnels running from Royal Oak Portal in the west of London, to Pudding Mill Lane portal on the north-east spur and Plumstead portal on the south-east spur and the excavation of boxes, shafts and caverns for associated portals, stations and shafts generating over 7 million tonnes of excavated material.

By the time all the tunnelling, stations and shafts excavation was complete, over 98% of the excavated material had been placed at sites for beneficial reuse and a large proportion of that had been used to create a significant part of one of the largest wildlife habitats in Western Europe. In achieving this, 80% on a tonne per km basis was transported by water or rail without compromising either the tunnelling or any other elements of the construction programme.

At Wallasea Island, a wetland nature reserve was created from low quality farmland in collaboration with the Royal Society for the Protection of Birds (RSPB). Clay from the tunnelling in central London was taken by rail and by ship where a special jetty was constructed to allow ships to offload the excavated material. Other chalk materials which were not suitable for use at Wallasea Island were reused elsewhere to cap landfill and to create rare chalk wildflower meadow habitat.

The Wallasea Island wetland area now provides winter grounds for wading birds, as well as breeding areas for birds and aquatic wildlife.

From the sky to the shore: Wintering Bird Surveys begin along Cumbria coastline

NWS is moving from Aerial Surveys to Wintering Bird Surveys on land to build a clearer picture of wildlife along the Copeland coast. Since October 2023, monthly Aerial Surveys have recorded birds and marine mammals across almost 1,900 square kilometres.

Data so far shows winter peaks for coastal birds like Dunlin, Oystercatcher, and Wigeon, while marine birds such as Guillemot, Razorbill, Herring Gull, and Kittiwake are most numerous in summer. Harbour porpoise have also been recorded.

From September 2025, Wintering Bird Surveys will replace aerial work, with trained observers recording bird numbers and behaviour from fixed points along 30km of coastline. The surveys will also monitor responses to disturbances, informing mitigation measures during future investigations.

These surveys support NWS' wider work to understand the environment in Copeland and inform permissions, such as a Development Consent Order and Environmental Permit. These are required for the next stage of the siting process - Site Characterisation - which will include deep borehole investigations to understand the geology.

For more information about NWS' Aerial and Wintering Bird Surveys, visit *www.nuclearwasteservices.uk/news*

Funding applications are open and we are ready to support you

The South Copeland GDF Community Partnership has up to £1 million in Community Investment Funding available per year to help bring positive change to the area.

So far, over £3 million has been invested locally.

CIF offers an opportunity to secure funding for projects, big or small, that:

- Create economic opportunities
- Enhance the natural or built environment
- Improve community wellbeing

If you have a project that could benefit the South Copeland communities within the Millom and Millom Without wards, we encourage you to contact us.

Whether you have a new idea or an existing project in mind, we're here to help.

For more information or to start your application, get in touch with us at: communityinvestment-southcopeland@nuclearwasteservices.uk

Millom Striders Running Club received £2,536 towards 'Run the Edge' 2024, a running event from Millom along the West Coast.

South Copeland GDF Community Partnership

Helpdesk

Managed by NWS

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gdfinfo-southcopeland@nuclearwasteservices.uk

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