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**FFESTINIOG & WELSH HIGHLAND
RAILWAYS TRUST**



HOW'S IT ALL GOING ?

Your update on all the great progress
our railways are making

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Looking through the booking office main entrance at one of the beautifully restored vintage buses that joined the Extreme Steam Extravaganza special event held in June.
Chris Parry

Cover Photo On the long weekend of June 19th to 21st 2026 our Railways held an event like no other, the ‘Extreme Steam Extravaganza’. With the huge variety of traction, passenger coaches and infrastructure waggons available to us we went for the weird and the wonderful.

The idea was born in the wake of last year’s “200 Wheels on the Cob” celebration of 200 years of railways. After the success of that weekend the discussion moved to how we could follow it next year. It is only once every few years that there is a truly special event to celebrate: future milestones include Merddin Emrys’ 150th in 2029, and 200 years since the Festiniog’s Act of Parliament in 2032. Since 2026 lacked such a connection, the team decided to do something fun and very different and some of the key themes were:

Weird and Wonderful: Showcasing rare engine pairings, complex shunting movements, and vintage mixed formation runs.

Voter Roster: Ticket holders voted on the locomotive lineup for Sunday’s operations.

Additional Sights: Unique mixed freight and passenger runs and transport of classic road vehicles on railway well wagons.

The cover photo is a great depiction of this. Three vintage Hunslet locomotives pulling some ‘Tin Carr’ coaches from the 70/80’s, followed by a rake of tipper wagons and ably braked by the Curly Roofed Van vintage replica. Staff and customers alike had great fun operating, riding in and photographing combinations that had never been seen before.

Photo Credit: Chris Parry



With members, supporters and donors invited for the occasion NG15 Class locomotive No. 134, named Kalahari, officially hauled its first full-length passenger service train over the entire line between Caernarfon and Porthmadog on 22 May 2026.
Chris Parry

WELCOME:

Welcome to the 2026 edition of the Ffestiniog and Welsh Highland Railways’ ‘How’s it all Going?’. Much of the day-to-day news is available through our online channels and through our two supporting Societies’ quarterly journals and websites: in this publication we will review some of the Railways’ larger projects.

You, our very generous supporters, members and volunteers, fund these projects, and it is with you in mind that this booklet is produced. It is a thank you for your help, an update on projects we are all keen to see delivered, and a suggestion of opportunities for your continued support.

One of the projects that received a lot of focus in last year’s booklet was the remodelling of Dinas top yard. Thank you very much for the donations that came in for this: the Trust has raised over £375,000, allowing the project to continue on a sure footing. This year the Trust has changed its main focus of fundraising to the redevelopment of Blaenau Ffestiniog Station. This project is now at the stage of going out for tender and we expect the work to be undertaken this winter with the new station open when services start next year. To get to this stage would not have been possible without the strong support from the Ffestiniog Railway Society committing most of the funds. Earlier in the year the

Trust launched an appeal for additional funds which is the main fundraising aim of this booklet. We have an update on progress and hope you will consider further support for this important upgrade.

This booklet has been compiled over the summer of 2026, which has shaped up to be another exciting year. New services have been launched, with the rebranded Victorian train including a guided tour to Tan Y Bwlch, and the Sunsetter in August giving people the opportunity to enjoy a relaxing drink or two with stunning views of Eryri’s / Snowdonia’s scenery. This is one of the more noticeable ways we are always evolving the business. Behind the scenes the marketing team are working to keep our image fresh and make sure we reach as many potential passengers as possible: we also have an update on their good work.

Something that is seldom in the limelight, but which is fundamental to being able to run the locomotives, carriages and waggons we love is Infrastructure. We have a deep dive on the investments that the Railways has been making on vehicles that make this all possible. Whilst not having been the subject of many direct appeals to supporters, revenue from traffic is spent here, and significant donations from Ffestiniog Travel have been also been used to fund these vehicles. It is



Taliesin, returned to traffic last year, heads a Woodland Wanderer service through Boston Lodge Halt earlier this year. **Jordan Ali**

good to know that if you have holidayed with Ffestiniog Travel you are also supporting the Railways indirectly. There is an advert for their trips on the back cover, and we encourage you to consider their exciting offerings.

Over the winter Merddin underwent a significant 10-year overhaul. Getting this done in seven months was a huge achievement by the team at Boston Lodge so we caught up with them to understand what it took. The boiler on Merddin was built by Hunslets in the 1970s and is still serving us well. However, it is closer to the end of its life than the start and this is something for which we will look to your support in the future.

Volunteering has been going from strength to strength ever since it was a key focus of the NLHF project. This effort has accelerated since that project has finished and it is paying dividends. We look behind the scenes at how this is achieved and have an example of a mutually beneficial partnership we have built with Moulton College. This is one of several institutions we now have regular working visits organised with. Producing this booklet is always a fun challenge and

a huge thanks is due to many managers, staff and volunteers from around the railway who agree to be interviewed and review articles. This is on top of their busy work and personal lives, but they understand the value of telling our supporters the story. This year I'm particularly grateful to a couple of new contributors for the photos included. Pictures really help to tell a story and despite the huge variety posted online it can be hard to find the right top-quality shots for a booklet this size.

Your support is key to us and our investment for the future. There are challenges lying ahead as the Railways make only a small surplus each year, which is reinvested back into the Company. We're very proud of what we continue to achieve together, so thank you for everything you do to support our Railways. Because of you we continue to grow as one of the premier preserved railways in the UK. We hope that you enjoy this booklet: do feel free to share it with your family, friends and colleagues with a view to growing our band of supporters.



Merddin, in Black livery carried this year, arriving at Minffordd with a down train, fireman ready to exchange the token. **Jordan Ali**

MERDDIN EMRYS – 10 YEAR OVERHAUL IN A WINTER:

A truly great achievement by the staff at Boston Lodge has seen Merddin complete an entire 10 year overhaul in only seven months over the past winter. Withdrawn in late Autumn 2025 after the annual photo charters, Merddin reappeared in black on May the 28th to haul the 10:40 Mountain spirit. Later in the year she was turned out in the resplendent maroon livery.

For those not close to locomotive maintenance cycles, every 10 years a locomotive has its most serious overhaul. This is because a boiler is generally given a 10 year fitness assessment by the inspector. Although it does then have a yearly review or health check, the 10 year assessment is the most thorough. The boiler is removed from the frames, and most of the locomotive is disassembled, a great chance for other maintenance tasks to be carried out.

Due to the scope of work undertaken at a 10 year overhaul it can often take quite a while to do. Although we have an impressive fleet for a preserved railway, we are not a mainline steam shed with sixty locomotives, so maintenance must be carefully planned to ensure resources and fleet availability. What is phenomenal about this particular overhaul is that Merddin was turned round in just seven months whereas normally this would have taken over a year! We caught up with the team at Boston Lodge who made this happen.

As the boiler is such a key focus on a 10 year overhaul, let's consider that first. Merddin's present boiler, her fourth, was built by Hunslets in their Leeds factory in 1970. This boiler was superheated unlike the previous three. It was initially built as a coal burner and was subsequently converted to oil in 1973. Hunslets built a pair of boilers and the other became the boiler for the Earl of Merioneth. Although it had some problems in its early life it has proved to be successful over the following decades. Knowing that it is by no means new the team at Boston Lodge were keen to get it out for a good inspection to see what work would need doing.

The first job once the boiler is removed from the frames is to take out the tubes, superheater flues and plugs, give it a good clean and a thorough visual inspection. There are then some tools available to us that the old Company would have loved. The boiler inspector has a clever sensor that allows him to test the thickness of the metal plates that make up the boiler. This is used in many locations and compared against previous tests to see if there has been any wastage. A specialist company is also brought in to perform some 'Non-Destructive Testing' (NDT) of the welds in the boiler.



In the popular maroon livery, Merddin arrives at Tan Y Grisïau. C Parry

This uses ultrasound to see if any cracks have developed and can check if any stays have cracked.

Fortunately, little of concern was found. The boiler is evidently showing signs of use over the past 50 years, as one would expect. Due to good care and proactive management of the boiler chemistry it has been signed off for a further 10 years. A replacement will be needed eventually, but this is not imminent. This will be an expensive item so we will be reaching out for your support when the time comes.

As the boiler was out of the frames the opportunity was taken to proactively replace some of the stays in the corners of the firebox, as these take the most strain. Otherwise it has been retubed, re-flued, tested and pronounced fit for another ten years.

Maintaining the Victorian look and feel of our locomotives is very important. However, we do look to move with the times and if there are areas we can modify the design to improve reliability and reduce maintenance cost, these are carefully considered. One such example incorporated on Merddin this time round is replacing the bearings with needle roller bearings. Previously the bearings were painstakingly machined

from solid lumps of bronze. Now they can be replaced with off the shelf parts that cost a fraction and are easy to ‘pop in and out’.

Another key area of focus this year was the injectors. These incredible devices for putting water in the boiler at pressure have some very fine engineering in their innards. Due to the harsh environment they operate in they wear over time. The opportunity was taken to have some new parts fabricated, carefully aligned and fitted. For cost efficiency a few sets were made for spares. It is comforting to know they are on the shelf for when they will be required.

Alongside this our other engines were not forgotten. Each one’s boiler has a cold inspection with an endoscope camera and a hot steam test. Safety valves are rebuilt each year to check the springs they rely on. Fresh sets of refractory bricks are fabricated and fitted. Valve gear is fettled as required. This year each locomotive also received a spark arrestor with a finer mesh that works with the fuel we have moved to for this season. All in all a huge round of applause to our hard-working team at Boston Lodge and Dinas keeping us on track!



Our updated booklet for the 2026 season, showing its simplified design allowing easier access to the key information.

SELLING THE RAILWAYS:

Our marketing team is busy all year-round promoting the many activities we offer. From major campaigns for special events to everyday activity designed to capture the interest of potential visitors, marketing plays an important role in keeping the railways front of mind. Over last winter, we made a significant update to our marketing collateral, introducing a new look and feel. We caught up with our Marketing Manager, Osian, to see how we are promoting ourselves and some of the changes being made to.

Re-Branding: A key priority over the last winter was the development of new brand guidelines, giving the Ffestiniog & Welsh Highland Railways a fresh, contemporary look and feel. The aim was not simply to update our printed materials, but to create a more consistent visual identity across all our promotional activity and customer touchpoints.

The new branding has been rolled out across leaflets, posters, flyers and other printed materials, as well as our website, social media, digital advertising and other online content. By bringing these different channels together with a consistent look and feel, we are creating a stronger and more recognisable identity, whether someone encounters us in a local hotel, picks up a leaflet, sees a poster, comes across an advert online or visits our website.

We believe the new approach provides prospective customers with a clearer and more contemporary introduction to the railways. The design has been simplified, with unnecessary text reduced and key messages brought to the forefront. This helps customers quickly understand what we offer and find the information they need, which is increasingly important when people are making decisions across a variety of different platforms and devices.

Leaflets, which for decades were the mainstay of our advertising, remain an important part of our marketing mix despite the shift towards digital media. We print around 120,000 each year and distribute them through local tourist information offices, hotels, B&Bs, caravan parks and other tourism businesses. The new design brings these traditional printed materials into line with our wider marketing, ensuring that customers receive the same clear and consistent brand experience whether they discover us through a leaflet, poster, social media, digital advertising or our website.

The re-brand therefore represents more than simply a change in appearance. It gives us a consistent foundation for how we present ourselves to our customers, providing the flexibility to use the same identity across traditional and digital marketing as the way people plan their holidays evolves.



Images used on social media for customers to scroll and click through to find out more information and hopefully book.

Paid Social Media Campaigns: Our paid social media campaigns are carried out primarily through Facebook and Instagram. This involves paying to place carefully targeted adverts in front of selected groups of people while they are using these platforms, rather than simply relying on people who already follow the railways to see our posts.

Recognising that people spend a significant amount of their time on social media, these platforms provide a valuable opportunity to put ourselves in front of potential visitors and keep our name in their minds. We can target adverts towards particular audiences, locations and interests, helping us reach the social newsfeeds of people who are more likely to be interested in experiences and events we offer.

The visual nature of social media also allows us to use strong photography and video to showcase what we offer and importantly to sell the experience rather than simply the product. This can be particularly effective in capturing people's imagination, encouraging them to consider a visit.

Google Pay Per Click (PPC) Campaigns: Our Google Pay Per Click (PPC) campaigns are designed to ensure the Railways appear prominently on the search engine when potential customers are actively searching online for attractions, experiences and rail journeys. In simple terms, these are the adverts that appear at the top of Google when someone searches for something relevant to what we offer and we pay a small amount when someone clicks on our advert. The campaigns are managed on our behalf by an external company and are continually monitored to maximise their effectiveness.

AI Proofing and our Website: Another important consideration is the rapidly changing way people are finding information when planning their holidays. Search is no longer simply about appearing on Google. Increasingly, people are turning to AI (Artificial Intelligence) to research destinations, build itineraries and make decisions about where to visit. These tools are increasingly acting like a digital travel agent, with users able to ask questions such as where they should stay, what they should do during a visit to North Wales and how they should structure their holiday, with the AI then recommending a selection of attractions and experiences. If you've not used it, try it and see!

This creates both an opportunity and a challenge for us. If a potential visitor asks an AI programme to plan a holiday in North Wales, we need to ensure that the Ffestiniog & Welsh Highland Railways is in the best possible position to be discovered, understood and recommended as part of that itinerary. This means having a website that is well structured, accurate, up to date and rich in useful information, allowing both

traditional search engines and emerging AI tools to understand clearly what we offer, where we operate, what experiences are available and why visitors should include us in their plans.



Example of one of our Digital screens at Beddgelert

Digital Screens: These have been installed initially at Beddgelert and Caernarfon and since they proved popular, further screens have been installed at Porthmadog Harbour Station and Tan y Bwlch.

These provide an opportunity to communicate important information to customers while they are physically at the railway, as well as promote other services, events and experiences. They are particularly useful for providing timely operational and service information without relying solely on printed materials.

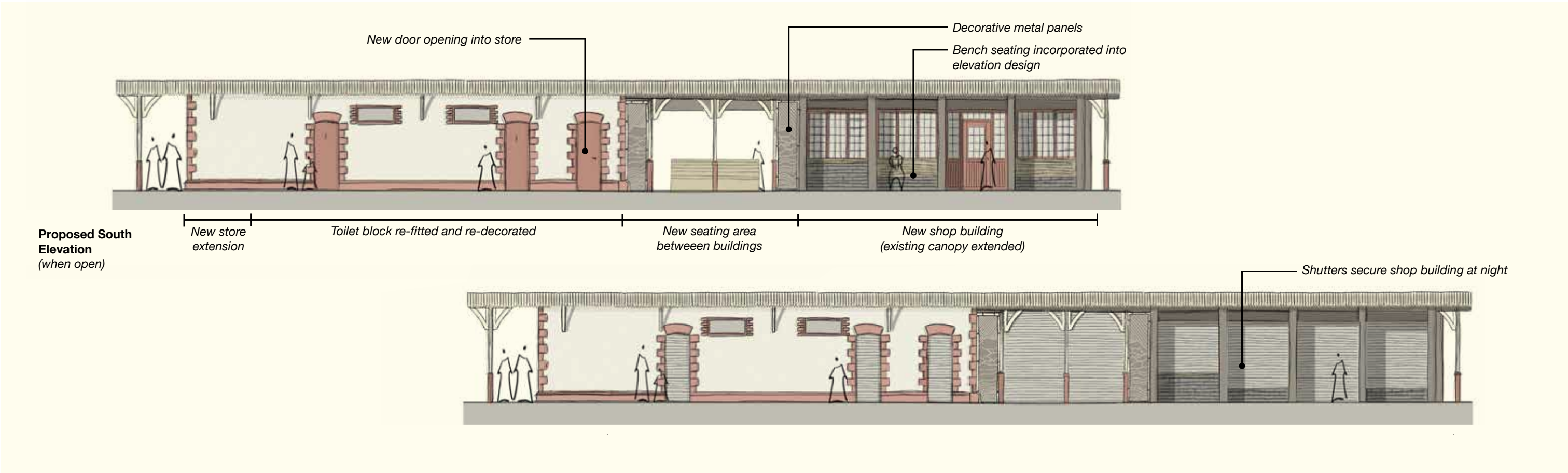
Developing the Team: During the last year there were a couple of retirements of long-serving colleagues, and we thank them for their support and commitment over many years. To support the continued evolution of the team, and the increasing reliance on digital media within the market, we have recruited a Digital

Marketing Officer. This has brought additional expertise and a fresh perspective in areas such as digital content, online advertising, website development, data analysis and the changing digital landscape.

Events: Although we continue to attend and support a number of events throughout the year, we are taking a more selective approach to event attendance than we have done in the past. The NEC Caravan, Camping and Motorhome Show is a good example of an event that continues to provide value. Taking place in late February each year, we attend under the banner of 'Great Little Trains of Wales' and are able to promote the Railways directly to an audience that closely aligns with our target demographic. Around 90,000 holidaymakers and leisure travellers attend the show, many of whom are actively planning holidays and short breaks. It provides an opportunity to raise awareness of the Railways as a must-visit North Wales attraction, engage directly with potential customers and showcase the experience we offer at a time when people are making their holiday plans.

Looking ahead, we are also planning to attend the British Tourism & Travel Show 2027 in March. We have identified this as a valuable opportunity to develop our presence within the group travel market and to network directly with group travel and tour operators. Group travel represents an attractive opportunity for the Railways, providing for larger volumes of visitors and a solid source of income through group bookings.

Summary: We are always reviewing our marketing activity for the value it adds and looking to evolve as the market does. Whilst marketing may not be as visible as putting a new locomotive into traffic, it is a key part of our success. It helps ensure our trains are busy, attracts visitors to the Railways and generates the revenue required to keep the wheels turning. Therefore our multi skilled Marketing team is crucial for the ongoing success of the company and we are very grateful for their efforts, which complement the ambassadorial role all our members, supporters and volunteers play.



Proposed elevation views of the Blaenau Station renovation. Chambers Architecture Conservation

BLAENAU FFESTINIOG STATION – A NEW ERA:

The present Blaenau Ffestiniog station was built on the site of the GWR Exchange station of 1883 which was known as Blaenau Ffestiniog Central. It is fair to say that since opening in 1982 the site has never quite had the attention that a terminus station deserves. Now, with your help, it is time for a new era for Blaenau Ffestiniog Station. We are close to bringing it up to the high standards the Railways aspires to in the 21st Century. This will compliment Porthmadog and Caernarfon stations and bring the facilities to a standard expected by our visitors.

The full background to the piecemeal development at Blaenau Ffestiniog station was covered in the 2024 edition of HIAG. We won't repeat that here, but it is sufficient to say that the facilities currently on offer do not meet the requirements of a key interchange station between the Ffestiniog Railway, the Transport for Wales Conwy Valley line and the trunk road network.

Phase One of the project was to renew the platform edge, surfacing and drainage at platform level as this was all starting to degrade. This phase was completed over the winter shutdown and was finished in March 2024.

Phase Two of the works covered an upgrade to the existing canopy covering as well as the guttering. This phase was completed in April 2025. These works were part of essential maintenance at this location and, although they pump primed further development, they were not intended to achieve the step change required on their own.

Major projects on the Railways are supported by project steering groups made up from relevant department's members of staff, representatives of funding bodies, professional volunteer advisors and where appropriate paid consultants. The Blaenau Ffestiniog project steering group started meeting in June 2024 and was supported by the architect's practice, Chambers Conservation. The project steering group has continued to meet at approximately four monthly intervals and has been able to review drawings and take decisions as the project has developed.

The main operating hub of Blaenau Ffestiniog Station at present is currently contained in a container that has been in position since 2012. This had previously found a temporary use at Pont Croesor station on the Welsh Highland Railway. The main aspect of this project is

to construct a new building, centred on the existing platform, that will replace and upgrade the facilities. This will give passengers starting their journey at Blaenau Ffestiniog a great first impression of their visit to our Railways. The existing canopy will be extended to cover the new building in the same elegant style as the present one. Many of the rooms in the existing building will also be re-purposed to improve toilet provision and storage facilities. There will be a new seating area, a permanent booking office and a shop with take away refreshment facilities.

A great deal of consultation has taken place with staff who work at this location, the buildings department who have to maintain the station as well as with members of the commercial and customer experience teams. This should result in a facility with improved security, better facilities and a significant improvement in customer experience. The relocation of the existing container will also enable platform two of the station to be brought back into everyday use when required by the train service, this is under consideration in the planning stage of the 2027 season.

The tender documents were published at the beginning of August for a return by early September. All being well, we anticipate that work will start immediately at the end of the current operating season with completion planned before the commencement of the 2027 season.

The Ffestiniog Railway Society has already funded the first couple of phases of the project. Their substantial commitment to Phase 3 is what has allowed the onboarding of Chambers architects and us to get to the tender stage. The project will now be jointly funded by the Society and the Trust who have now made this their flagship appeal. This was launched in April and the fundraising pamphlet is available online here. Please consider helping us raise the rest.

www.festrail.co.uk/appeal/publications.html



Young Volunteers on one of the highlights of the week, the works train. Setting off from Porthmadog in a rather dramatic setting and the rounding Tank Curve with the sun out. Your author first attended in 1993 and 33 years later is still loving it.

VOLUNTEERING:

Volunteering on our Railways is going from strength to strength. It was a core focus of the NLHF project and since that has wrapped up the momentum has only continued to build. We’ve had a look behind the scenes at how this is being managed, and at a great example of one of the many partnerships we have built, who provide working groups we manage that add a huge amount of value.

To help drive volunteering forward the Company Board appointed a volunteering Director to oversee this work. This has been taken on by Jo Charles, who is also the Cymdeithas Rheilffordd Eryri’s representative on the Company Board. The management has also appointed a Head of Volunteering which is kindly funded by our three supporting charities. This role is formally supported by our HR Manager, helping to bring paid staff and volunteers closer together.

A Volunteering Steering Group now meets monthly to review progress. It has initiated some formal metrics to capture volunteer input, and it is very satisfying to report that in the first few months of 2026 we recorded



9,975 volunteer hours, reflecting much of the winter program and the start of running trains, this was up 10% on the same period of 2025, showing how the focus is paying off.

Attracting new volunteers: This is another key area of focus, and since October 2025 we have started tracking this to get a better picture of who our new volunteers are and where they come from. The process from our side involves talking to the interested party, understanding their interests and also the skills that they can bring and are interested in learning. It is clearly important to match people’s interests with the right departments and groups.

There is also an element of being realistic about what the Company expects. For example operational roles such as loco crew and guards are not for people who can only commit a few hours every other Thursday. Conversely, we can help people understand that there are many roles which can be performed remotely. Society Boards and design work are good examples where our committed volunteers put in many hours



A Moulton College Student, safely secured up a tree ready to start work, evidently having a great time! Nigel Smith

from home. In the first six months of the year, we had over 70 enquiries with a little over half of these resulting in new volunteers around the Railways.

Moulton College – an example of a mutually beneficial Partnership: Over the winter we hosted 87 group working parties just in the Infrastructure department. We have looked to build many partnerships with different organisations that are beneficial to both sides. Moulton College is one of these, alongside groups such as Imperial College, Young Rail Professionals, and the Royal Navy.

Nigel Smith, a long-standing volunteer with our Railways and Deputy Chairman of the Ffestiniog Railway Society, has been our main connection with Moulton College where he used to be an Arboriculture Curriculum Team Leader.

The relationship with the College started in 1995, when Nigel brought a group of Horticulture students to construct the Tan Y Bwlch garden, later becoming the well-loved Memorial Garden.

Moulton College is a specialist, industry-led technical and vocational college. It is recognised as a market leader in supporting people to access skills, and progress into the world of work. It focuses on land-based areas such as agriculture, countryside management, construction, and stone masonry to name a few. The recent week-long visit was from the college’s Arboriculture Department. A 14-strong group brought tutors, chainsaws, climbing equipment and expertise, spending the week on a complex lineside clearance job on the Welsh Highland. This hands-on experience is useful for the students’ development of the practical skills required but also gives them an understanding of the constraints of operating in an unforgiving environment.

It is useful for us as the College brings with it all the tools and equipment required: we just add in the countryside that needs taming and trains as required. They also manage their risk assessments, essential in a training environment.

In a pleasing part of the story the current Arboriculture Curriculum Team Leader from the College first encountered our Railways on a similar visit as one of Nigel’s students a couple of decades ago. These sorts of connections are really valuable for us to build over the long-term.

There is a firm intention on all sides to repeat this working party and to involve other departments. This is a fantastic opportunity for us and is a very good example of what we strive for: high-quality volunteering at the core of the Railways’ needs that has a direct impact on revenue/costs. It is worth noting that paying a contractor to do the work achieved during their visit would have cost many thousands. Thoughts now to turn to their Countryside Management students and, if they’re up for a challenge, how much fencing they can renew in one week next year!



The Moulton College team before enjoying a well-deserved meal at Spooners after a hard day’s work. Nigel Smith



138, sporting the green livery carried during its first 10 years of operation on WHR metals, taking water at Waunfawr John Peduzzi

138 – RETURN TO TRAFFIC:

In 1997, making a bold statement about the shape of things to come, NG/G16 No.138 arrived at Dinas and was immediately put to work hauling WHR trains. As we look forward to celebrating 30 years of WHR Garratt traction next year, we are pleased to report that No.138 is making good progress towards returning to traffic.

On the last Friday of August this year, a newly overhauled boiler was placed into the cradle frame and the whole ensemble was moved to the running shed for the next stage of the overhaul process.

The last time No.138 saw service was on 27 December 2019, a few days before its planned withdrawal, when it was limping badly with several mechanical faults. The locomotive had served the railway well through two 10 year boiler ticket cycles but was in need of major attention. A plan for replacement boilers was already in hand for both Nos.138 and 143. With boiler work normally taking a long time, the boiler released from No.143 some years ago, when it was replaced by that from No.140, had been earmarked for a return to No.143, whilst No.138 was to receive the boiler removed from No.129 at the Puffing Billy Railway in Australia. This latter boiler had

been donated cost-free, but we had to arrange to collect it. Thankfully Mike Schumann, one of the WHR’s biggest supporters, kindly arranged for this to happen. Each of the boilers earmarked for Nos.138 and 143 were sent to external contractors with the objective of completing the necessary repair work ahead of time, allowing us to perform a quick exchange during an overhaul, and ensuring that the locomotives did not spend too much time out of traffic.

Unfortunately we had reckoned without the arrival of Covid which changed many priorities, not least of them our plans for Nos.138 and 143.

After the pandemic waned, we needed to return a Garratt to traffic as quickly as possible, and both Nos.138 and 143 were by then out of ticket. It was decided that our best bet was to make a ‘Bitsa’ by using the best component parts available at that point in time. No.138’s power units, freshly overhauled, were combined with No.143’s cradle frame and the completed Puffing Billy boiler. The cab and tanks from 143 were also used along with its fittings and chimney. The result assumed No.143’s identity.

This left a collection of parts for No.138 that were not in

quite such a good state. However, for some time now, thanks to support received via the Trust, work has been quietly taking place on refurbishing them for No.138. The power units earmarked for this locomotive had previously seen around five years’ service under No.143 and could not be described as in good mechanical shape. The front unit has since been overhauled ready for service and the hind unit is currently receiving attention. Work should be complete early in 2027.

The boiler has, by contrast, been through quite a saga. Removed from No.143 after ten years’ service it was felt to be in fair to good condition and capable of being repaired by our own staff. However, with a heavy workload in-house at the time it was decided that this boiler should go to Israel Newton’s boiler works at Cromford for repair. Unfortunately, the subsequent strip down revealed it to be in a very poor state – so much so that there would be very little left of the original by the time the repairs were complete. A start was made on it, with the work being phased and completed as and when we could afford it.

The first job to be tackled was building a new flanged and welded inner firebox, and some other work was completed before Covid got in the way, but the majority of it happened after the pandemic was over as a result of support from the Trust. As an indication of the scope of the repairs, it is easier to list the items saved rather than those that had to be replaced. The rear boiler ring and dome, the top third of the outer firebox wrapper, part of the throat plate and the foundation ring have lived to steam again and finally, earlier this year, the boiler passed a hydraulic test and a new smokebox was added. It now sits happily in No.138’s cradle frame at Dinas.

What comes next, reliant as ever on funding and hands-on support from volunteers, is the long march to re-erecting the locomotive. The front water tank was replaced not too long ago and is in good condition. The cab dates to 1996 and is also fine. The existing rear bunker was very much life expired but fortunately a new one has already been made and currently awaits painting and fitting. The locomotive will have a new chimney to the original design like the one fitted to No.87 as opposed to the narrower type later fitted by South African Railways. (Yes, chimneys do wear out and this will be at least the third one for No.138). No.138 is expected to be available for the 2028 season but much depends on the support it receives over the next two years as the allotted funding will be exhausted by the end of this year. There are also other engineering challenges that we will face.

As to the evergreen topic of a colour scheme, No.138 first ran on the WHR in varying shades of light green. It

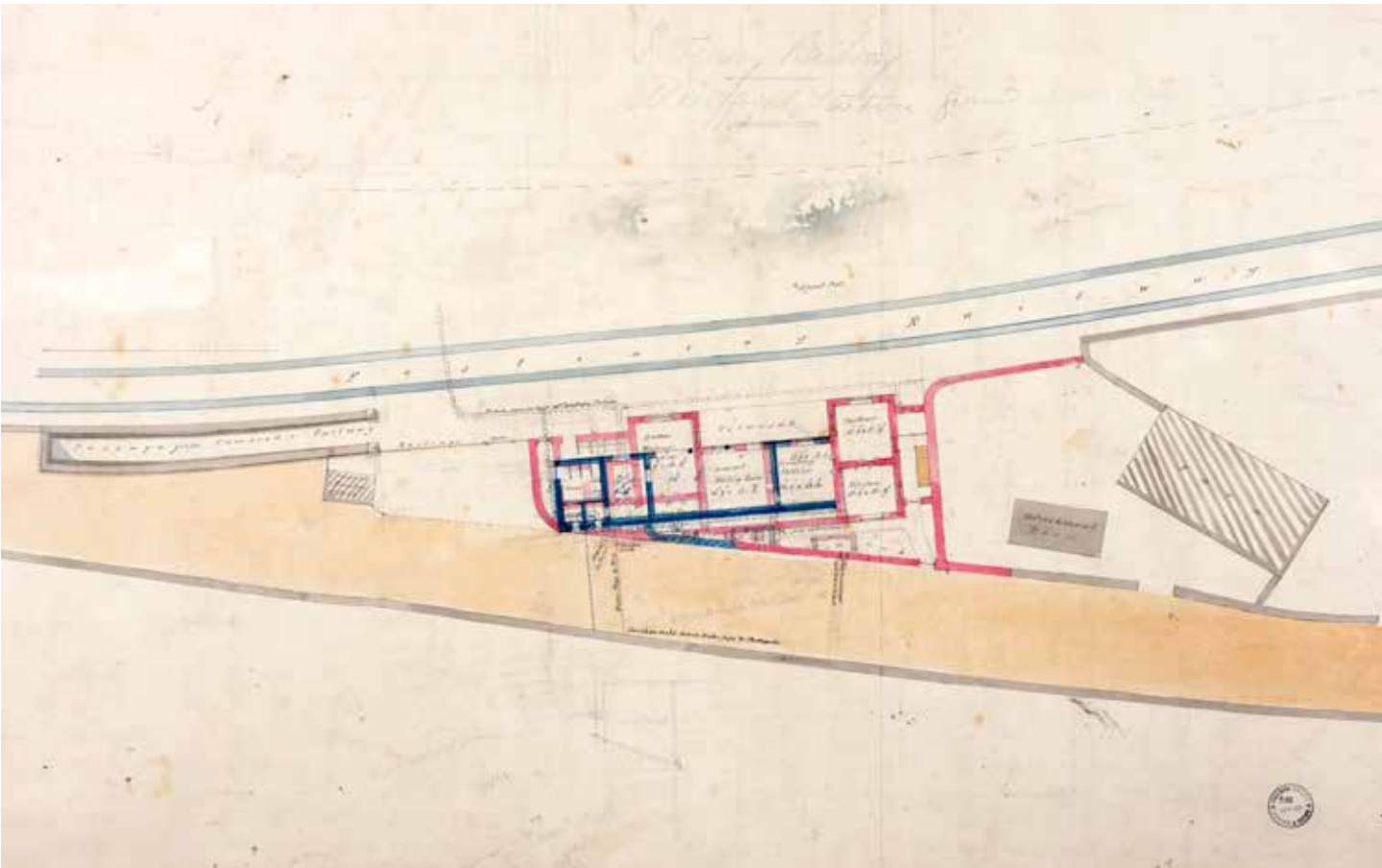
then carried a much more attractive livery of something close to Midland red. There is a debate ongoing as to whether it should stay in red or we should ring the changes with apple green and white lining. Of course, as always, further generous support could influence that decision – ‘he who pays the painter chooses the colour’, to mangle a well-known saying. Whatever the colour we hope that you will be able to enjoy being hauled by No.138 once more in the very near future.



Unlike the other NG/G16’s, No.138 has a regulator handle which was made in South Africa to its then driver’s preference. This meant an extended handle accessible from the swivel seat outside the cab! It has a certain rustic appeal and is much favoured by one of the regular WHR drivers. Indeed No.138 was found in the shed one evening without the handle in place, the aforementioned driver having taken it home, to adjust it slightly using a gas set to get the angle just right, before painting and returning it the next morning. There is, it seems, a determination that this, and a few other parts reminding us of No.138’s time in Africa, be retained.



138’s boiler, now returned from rebuild and mated with its frames



A great example of the sort of gem that can be found in the archive – a planned proposal for Minffordd station building. **FR Archives**

ARCHIVES:

Managing our archives is a very important part of preserving our story for future generations. The company has an Archivist to help manage this as well as the newly set up Heritage Advisory Committee. Archives are split between ‘Old Company’ for pre 1946 and ‘New Company’ for post preservation. Here we have a look at how these are preserved and accessed, and how we’re looking to improve this.

Old Company Archives: Our pre-restoration archives for the Ffestiniog & Welsh Highland Railways are kept at Caernarfon Records Office of Gwynedd Archives. The catalogue of our collection is available online on both our Heritage Group websites, and in paper form at the Records Office.

It includes everything from 1820’s drawings of possible railway schemes to staff numbers and correspondence, as well as original watercolour drawings of locomotives and carriages – some real and some never built. They are well looked after in Caernarfon and can be accessed every Wednesday, Thursday and Friday, for free. Visitors only need to sign in on entry and fill in a temporary reader’s ticket application form. There are always at

least two knowledgeable staff to help you. Requesting items is via a written request form (bring a pencil!). All our items are prefixed by the identifier “XD97/”. Items may not be photographed, but they do a very good photocopy service onsite at 30p per sheet.

Our photographic collection is physically held at Minffordd. Online access to over 6000 photographs from the 1860’s to the present day is through our iBase facility using this link or google “FR ibase”: www.ffwhresource.com/?WINID=1782903557562

New Company Archives: The archives of the Railways since 1954 have been kept in many disparate storage places over the years. This is now something firmly in focus to remedy, although they amount to over 30 cubic metres by volume! They include the stories behind the restoration of the FR and the reconstruction of the WHR. It is envisaged that the Ffestiniog Railway Society archives (which are currently stored in Minffordd Annex) will become part of this final “Modern” Archive. There is no public access to these items at present because of their inaccessibility and the lack of a complete catalogue. Even with the listings that are



Whilst safely undercover and with a reference as to contents, this picture shows why efforts are afoot to improve archive storage. **Chris Jones**

currently available on approximately two thirds of the total holdings it has proved difficult to find particular records when needed by the Company. One of the main storage sites at present is what is known as the ‘pattern loft’, above the workshop building in Minffordd Yard. There are a few more sites such as containers, but none are quite up to modern standards, and we are looking to improve this.

New Company Records Policy: The Company has created a Records and Information Policy which gives advice on retention, disposal and archiving considerations for the Company’s documentation. This will aid the Company to focus on records it needs to retain both for its own use and documents for future archiving. In the “Modern” archive there are items that are duplicated and items of limited relevance to the Railways, as well as items such as Titan ticket rolls which can be sampled and scanned rather than being kept completely.

The policy will assist the Archivist in decisions on what and how to retain, thus optimising the amount of paper that needs storing. The Heritage Advisory Committee will monitor the implementation of this policy. Future Company records are mostly online and the policy gives advice on how the process should work for digital records as well.

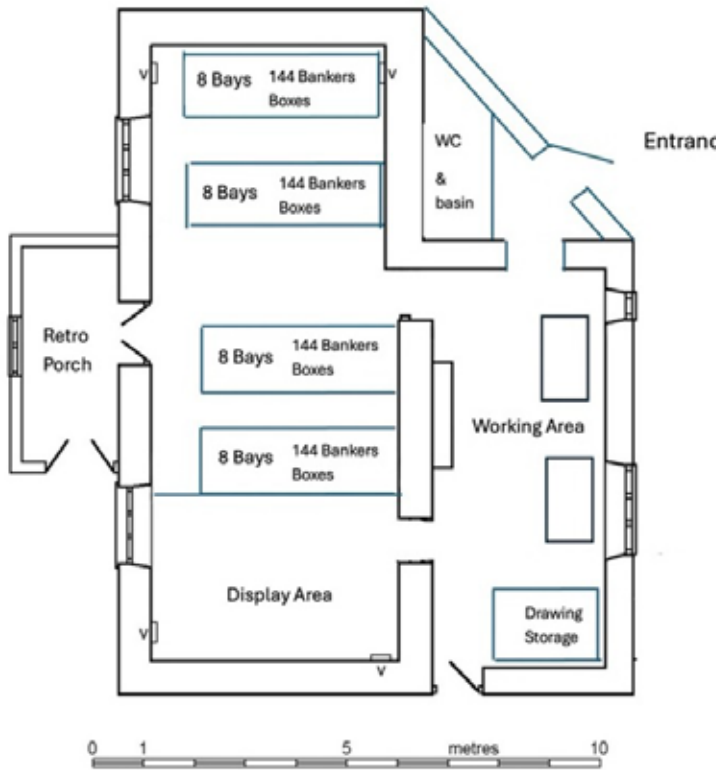
Work to progress cataloguing is ongoing, as are plans for appropriate storage for the archive.

Cataloguing and scanning of the reconstruction of the WHR records: Previously, Team S (Civil Engineering) have, with the Archivist’s help, catalogued and scanned records of both the FR and

WHR civil structures that will be useful records for the operating Railways to access in the future. Now a small team is going through the records of the WHR construction left at Dinas with the same intent. They are based at Boston Lodge, making good use of the room created above what used to be the oil store by the NLHF Boston Lodge Project.

Minffordd Women’s Institute Building: We reported in the last issue that the Trust had funded the purchase of this building. It could be renovated to be a substantial store of archive material. Since then, the Heritage Advisory Committee approved in concept a plan to use the WI Building for storing the Modern Archives.

The Buildings Steering Group have commissioned an initial review of the building. While no major defects have been found, the building is still based around a mid-19th century stone barn. A more detailed assessment was carried out in July 2026 by a volunteer who is also an Architect with extensive experience in repurposing old buildings, and we await the outcome of this. The internal size of the building may not be able to accommodate all of the New Company archive all at once. However, it offers the prospect of a substantial improvement in accommodation and cataloguing space alongside, the possibility of having a display and research area.



Possible layout of the WI Building converted to an archive.



Fresh form painting here we see the Lineside tool van 5004. Posed with Harlech castle and proudly showing off the modern livery of the Infrastructure department. The steps down to track level for ease of access are evident. **Glenn Williams**

INVESTING IN INFRASTRUCTURE:

Whilst it is easy to focus on the wonderful engines, carriages and heritage waggons that are the main focus of pictures and videos, the infrastructure behind them is key to our running trains. In this issue of HIAG we wanted to take a look behind the scenes at the investments being made in Infrastructure vehicles, the benefits they drive, and thoughts for the future.

The Railways have 40 miles of track to look after, more than any other heritage railway. Our permanent way and lineside teams work hard all year to maintain the infrastructure. They are also complemented by a growing volunteer presence as, although it is often physical work, being out and about in the North Wales scenery is a very rewarding experience. To help them be as effective as possible we have a number of special vehicles, sometimes odd-looking but always thoughtfully designed. These are all constructed to be of a loading gauge to fit on both Railways and either built, or upgraded, to be vacuum fitted so they can work on both Railways.

Lineside Tool Van 5004: This van emerged from Boston Lodge in 2023 and went into service in 2024. It combines

several features to facilitate lineside work. It was kindly funded by the Ffestiniog Railway Society who have also generously funded thousands of new sleepers and other pieces of trackwork over the years.

Firstly, it provides secure tool storage. This removes the need to tranship tools between waggons and storage at the beginning and end of the day, thus increasing productive time on site.

Secondly there is also a small workshop area with a workbench and vice. This enables small repair jobs to be done on site and also provides an area where chainsaw chains can be sharpened.

In line with the mess van the vehicle is slightly narrower than regular coaches to facilitate walking down the sides and is fitted with the low steps that help with access to ballast level. Perhaps the oddest-looking innovation is a raiseable platform at the Caernarfon end of the vehicle. This platform, fitted with railings, allows a person to safely work at height. This removes the need of having to worry about step ladder footings or erecting scaffolding out on the line.



A wonderful illustration of the Well Waggon in use with the chipper loaded and the team posing on the Deviation. Here it is paired with Criccieth Castle and retired observation carr 111 as a mess van, one that is in need of modernization. **David Firth**

The Well Waggon 62: The waggon itself was built in 2015 at Boston Lodge. It used recycled Polish plate frame bogies from a retired tank waggon and can take weights up to five tonnes.

There are several uses for this waggon. The key enabler to this is having a vehicle that can go anywhere but also be driven on and off easily. This waggon helps in these ways, is vac fitted and facilitates the following:

Moving plant to site – to understand the need for this we need to take a step back and understand how we currently progress track renewals. These involve removing the rails, fixings and sleepers before digging out the spent ballast and relaying. A train of DZ waggons (see next section) is used but a mini digger / excavator and dumpster is transported to site. These can be carefully driven down the line if needed but it is more efficient and better all round to use the Well Waggon. You do of course need a small area to offload but there are many crossings on the Railways so plenty of opportunity to drop a vehicle really close to site.

Lineside wood chipping – a wood chipper can be loaded and secured, and due to the low profile of the waggon it would be fixed at a height where it can be fed by

someone stood at ballast level. The chippings can either be fed into an empty waggon or fed back on top the lineside, whichever is more appropriate in the situation.

Mess Coach 1111: This is an older vehicle, first introduced into service in 1997 in the previous grey and yellow livery. It has had a refresh and been brought up to more modern spec.

One of the key design features of this coach is that it is narrower than regular coaching stock. Trading a bit of interior room allows easier access along the sides in many of the narrower parts of our lines. It also has a safety cable affixed to the outside to provide something to hold on to. Access to the vehicle is from steps that go down further than running boards on coaches as it is expected users will be stepping off on to ballast.

The vehicle is fitted out as one would expect a mess room to be. Seating is one by one to provide plenty of room for wearers of Hi Vis workwear and waterproofs. There is a toilet and washing station for crew comfort along with a generator to provide electrics for lights, microwave, warm water and of course heating, essential to provide respite in the winter months.

Due to the nature of Infrastructure work it is not always ideal to have the locomotive at the front of a train. 1111 was fitted out with this in mind and at either end has a brake point where the vacuum brake can be applied. A horn and red flashing lights on top at either end also facilitate safe manoeuvring to and from worksites.

DZ Waggon: We have a train of 6 DZ waggon that are used primarily for significant relaying projects. They can be coupled together and the ends laid down to create a continuous surface. This platform is then used to remove spent ballast from site and to bring fresh back to site. Although similar in overall design they are slightly different to B Waggon as the sides are half the height.

The train is stationed at the end of the relaying site where a ramp is built for a vehicle to gain access to the platform the waggon have created. In the initial removal from site the dumpster (delivered with the aforementioned Well Waggon) is loaded on to the train. The excavator then digs out the track bed and empties its bucket into the dumpster. This can then head to the end of the DZ train and empty its load. The two machines work in tandem whilst a site is cleared and when full the train can be taken away and emptied.

To relay the site the train arrives full of fresh ballast. The excavator and the dumpster swap places with the excavator filling the dumpster from the train which is then deposited onsite.

These DZ waggon, former South African Railways, were used for transporting volunteers and ballast during the rebuilding of the Welsh Highland and have proved useful ever since. They have had good service lives, but the time has come for a refresh. This year we



PW train with a DZ and followed by a ballast hopper on relaying work at Cwm Cloch on the WHR. **David Firth**

are making two new waggon for this train, using the bogies and a few parts from the two coming out of traffic. They will be numbers 5006 and 5007, building on the 50XX series that is reserved for vehicles funded by volunteers. The work on these two waggon, will cost around £25,000 each: thanks are due to the Ffestiniog Railway Society and the Cymdeithas Rheilffordd Eryri for agreeing to fund one each..

Vehicles close to entering service:

Mess Coach 1001: Purchased for use as a mess van in 2002 for the rebuilding of the Welsh Highland this vehicle has already been of sterling service. Whilst it does not fit the Ffestiniog’s loading gauge our need for such vehicles means it has a welcome place in the fleet.

It has been at Boston Lodge for the past couple of years having a heavy chassis overhaul. It will also undergo an interior refit to bring it up to standard and be turned out in Infrastructure green before taking its part back in the fleet. The rebuild has been heavily sponsored by Cymdeithas Rheilffordd Eryri.

PWay Tool Van: Building on the success of the Lineside Tool Van, one for the PWay team was a sensible next step. This was built along similar lines with a central tool storage body equipped with small workshop area in the middle. This is designed to be wired for lights and sockets utilising the generator in Van 1111. It also has the slightly narrower-than-regular coach body and low steps for access from track level.

The ends of this vehicle are designed to be similar to the DZ waggon and the sides and ends can be dropped. This facilitates loading materials such as sleepers or pallets to be taken to and from site: great for spot relaying or similar jobs.



Combination Carr – Mess Coach 1001, at Dinas, having been stripped for its overhaul. **Kieth Holland**



The PWay tool van in Minffordd yard, this has just been painted by our young volunteers on Young Volunteers Training Week. With the fitting out of the tool cabin and workshop area and fitting of electrics this will be a great addition to our fleet. **Jack Blow**

This vehicle is also a great example of utilising wider volunteer resource to mitigate costs. The Young Volunteer Training Week took on painting the vehicle as a project. This year they are looking to fit out the interior so it can be released into service.

Thoughts to the future:

Mess Coach 2222: To compliment the success of mess coach 1111 we are investigating building another. These vehicles see a lot of use over the winter months when providing the right standard of accommodation for our staff and volunteers is important. A new fully fitted out mess coach, with all the amenities of 1111, would cost in the order of £200,000.

DZ Waggon: Further to the two that have had focus this year the rest of the train will need bringing up to standard. They have served us well so far and now is the time to invest. These upgrades cost around £25,000 apiece. There are four more to do over the next few years and donations would be welcomed.

A Flail Waggon: Given the evolution of our climate we see lots of rain and periods of heat and sunshine. The

result of this can be significant growth of vegetation along our lineside. The idea here is to have a vehicle with a ‘flail’ hedge cutter that can be extend either side of the track to keep vegetation under control.

There is a lot to think about here as the arm that reaches over the lineside will need an appropriate counterweight to ensure the vehicle does not overbalance: this is not an immediate item, as we need to get the design right. However similar vehicles have been built on other railways, and it would help further mechanise our lineside management capability.

Given the investment we have been making in the equipment and facilities, and the satisfaction that is gained from working outside in the beautiful scenery of North Wales, if you are interested in joining the Lineside or PWay teams as a volunteer please do get in touch below:

volunteering@ffwhr.com



Lilla, relaxing in the sidings at Tan Y Bwlch, in the Penhryn Quarry livery, back at Easter 2010.

Chris Parry

LILLA – LIFE ON THE FFESTINIOG:

We have come a long way over the years since 1954 and we often reflect on how continued success in delivering projects is key to maintaining your support for future projects. We do accept that not all projects proceed quite according to plan, but we can say that one of the hallmarks of the Railways' management team is a determination to see things through. We therefore think it might be interesting to record an overview reflecting on previous successes and tracing how things developed from them some years later. This time we are taking a look at one of our heritage locomotives, Lilla, which has been in our care now for over 30 years.

Lilla arrived on the FR during the Hunslet 100 celebrations in 1993. At the time she was owned by Barnard Latham, an early preservation pioneer who saved many industrial locomotives from going to the scrap yard. He rescued Lilla from the well-known Penrhyn Quarry 'scrap line' in the mid 1960s and took her to his suburban home in Surrey where she sat on his driveway for some time whilst he returned her to working order. She then operated at a number of

locations, including spending some time at Knebworth.

At the conclusion of the Hunslet 100 event, Bernard was asked where Lilla was to be sent to next and he replied that there was no immediately available base for her so could she stay a while longer at Boston Lodge. David Black, who was then playing a leading role in the management of Boston Lodge, supported Bernard, along with a small team of volunteers, in looking after Lilla in Wales.

As time passed, and Bernard faced the challenge of advancing years, he concluded that he needed to sell one or two of his locomotives. Having made such a great effort to save them he naturally wanted to be sure they would be going to good homes and the FR team asked Bernard if they might buy Lilla. Happily, a mutually satisfactory arrangement was arrived at and we know that the agreed sale price was half that of another offer simply because Bernard thought that David and the FR team could be trusted to appreciate and care for Lilla.



Lilla, proudly sporting an original Dinorwic lamp, approaching Tan Y Bwlch at the Extreme Steam Extravaganza weekend. Chris Parry

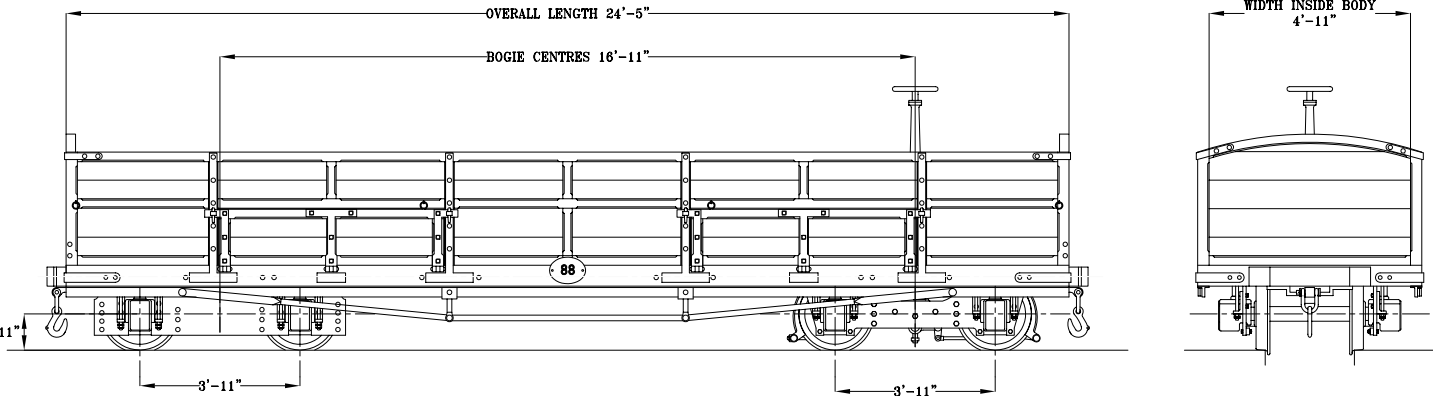
Then came the challenge of raising the money to support this endeavour. It is incredible to think now that the required funding was raised in just 48 hours. Ten team members each agreed to donate 10% of the price to the FR Trust and on the strength of these promises the Trust granted the FR Company the funds to purchase Lilla. However, the story of the successful acquisition of Lilla didn't stop there. Purchasing her was only the first step.

It's probably fair to say that Bernard's efforts had returned Lilla to working order but had stopped well short of a major overhaul. In many ways this was fortunate as it has resulted in much of the original character being retained, including more than a few of the battle scars resulting from a life spent in the harsh environment of a slate quarry. However, it soon became obvious that some intervention would be needed with the original 1891 boiler. In the event, the Lilla group raised over £50,000 to cover the cost of designing and building a new boiler at Boston Lodge, a good example of persistent effort by a volunteer team paying off. Fitting the new boiler then highlighted all too clearly weaknesses in the mechanical parts of the locomotive. Searching old quarry records revealed no evidence of a full major overhaul having been carried out at any time, so these weaknesses were unsurprising. As a result a further fund raising exercise took place to cover the cost of a full mechanical overhaul, which added a further £60,000 to the total cost of maintaining the locomotive.

Again, team members worked hard both with repair work on Lilla and the fundraising.

The hard truth with steam locomotives is that, if you want to keep them running, then some parts will come to the end of their service lives and have to be replaced. With Lilla we have done our best to keep these replacement parts as true to the original design as is possible. Nevertheless, in some areas we have managed to make improvements – a good example being the chimney which had worn thin in quarry days and been subjected to some rather rough looking repairs. It was replaced with a newly-cast chimney to the original Hunslet design. The smokebox, springs and cab valves have also been replaced over time, as has an injector. Lilla exists today in pretty good shape and is available for use as and when required.

There is something further to add. When Lilla came to us she stayed because there was no alternative base, or covered storage, available elsewhere. Nowadays she can generally be found in the Small Locomotives Shed at Boston Lodge that has been funded by our supporters through the Trust, Ffestiniog Railway Society and grants from the National Lottery Heritage Fund. Lilla is therefore just one example of an important piece of local railway history that has been saved for everyone to enjoy and will remain available for appreciation by future generations.



PERMANENT WAY BALLAST TRUCK
INTRODUCED : 1874 BOSTON LODGE
TO CARRY : 12 tons

Output from the CAD design so far undertaken in the project to recreate one of the Old Company Bogie Ballast Trucks. This design will appear on some attractive t-shirts to help raise funds, so keep your eyes open at special events. **Sam Palmer**

BOGIE BALLAST TRUCK – A NEW GENERATION LEARNING OLD SKILLS:

FFWHR supporters or those who have been on one of the works tours will be familiar with the award-winning programme of refurbishment at Boston Lodge enabled through a National Lottery Heritage Fund project. A perhaps less well-known but vitally important project objective is the ongoing development of the skills base of Boston Lodge volunteers. This skills development has already had a significant impact – not least for the FR’s historic fleet of goods waggons.

As an example, the recent completion of the replica Carriage Truck could only have happened as it did with the benefit of skills acquired by volunteers through the NLHF project. The next exciting development in the historic goods waggon fleet – a replica Bogie Ballast Truck - will continue the programme of NLHF volunteer skills development. In particular the focus for this is on pattern making.

The Bogie Ballast Truck project (as shown in the CAD design above), was approved by the Company in Mid 2025. The project is being supported by the Ffestiniog Railway Heritage Group.

Prior to seeking approval and funding, the group leading it needed to be confident that the replica could be designed and built as a volunteer project - a difficult task as the truck is larger and more complex than anything undertaken to date. An additional complication is that no original drawings are known to exist! The finished

truck needs to be an authentic looking replica but fit for purpose on a 21st Century heritage railway.

The decision was made to incorporate several hidden innovations such as a steel frame (high-quality oak in the lengths required is no longer available) and roller bearings. A key part of the process was deciding how to manufacture the components using a mix of new and old techniques. Here we have a look at progress over the first year since the project was launched. A new set of drawings has been developed using the few known pictures to inform design decisions. This process has been challenging as not every part is clearly shown therefore quite a few details are still a bit of mystery!

This means that some of the design decisions are on a best endeavours basis. For example, a key feature not shown in surviving photographs is the buffer design. There is the option of sprung buffers (as fitted to other goods vehicles) which practically would work well. However, one interesting solution proposed is the buffer ‘bulge plate’ as fitted initially to the Curly Roof Vans. These bogie vehicles were built at roughly the same time hence the buffers may well have been similar on the Bogie Ballast Truck.

Inevitably, numerous items we need to make for the replica truck will need to be castings, the first of which are the wheels. The photos show them to be the same 18” disc with three oval holes as used on numerous



iBase image 3203 showing the buffer arrangement on Curly Roof Vans in the 1870’s. **FR Archives**

FR waggons. Luckily this is a pattern we have in stock, made by expert volunteer pattern maker Bob Smith. Bob had a long career in pattern making and has helped with numerous projects, not least that of the Kerr Stuart diesel 4415.

However, of the many patterns we require to bring the Truck to life, the wheel pattern is the only one currently available! Under Bob’s expert guidance, we plan to continue the NLHF legacy and train the volunteer build team to build what’s needed.

Although this makes the build more complicated it is a great opportunity for the relatively young team to start to learn the old skill of pattern making. The days of a 7-year pattern-making apprenticeship are long gone and experienced pattern-makers are now very



Wheel Pattern ready for casting. **Rob Collins**

thin on the ground. 3D printing may possibly be the future (or even present!) for pattern-making but having volunteers with pattern-making skills will help keep the tradition alive whilst future-proofing waggon build and refurbishment at the FR.

Attention has initially focussed on the axlebox as the first of the new patterns we need to design and build. It has been a fascinating process poring over the old photos of the Bogie Ballast Truck, Curly Roof Van and Taliesin – all of which shared the same type of axlebox (Beuther’s Patent). A visit to the pattern loft at Minffordd has unearthed an original pattern which, while not suitable for use with roller bearings, has given a fantastic amount of detail that will be carried forward to the new pattern.



CAD view of the Axle box pattern to be made. **Sam Palmer**

If you are an experienced woodworker and would like to get involved and develop your skills then please get in touch. Similarly, if you are excited by the prospect of seeing the Bogie Ballast Truck come to fruition then we would be delighted to hear from you. In the first year since the project was launched, we have already raised £15k (which we think gives us about a quarter of the total required). There are many significant items in the pipeline, for example, we can only obtain green oak so we plan to purchase this as soon as possible so that it will be sufficiently dry by the time we need it. If you would like to sponsor an item then we would be delighted to hear from you.

www.frheritage.org.uk/ballast-waggon-appeal/





A picture from shortly after the install of the Solar Array at Boston Lodge Solar Array. Chris Parry

SOLAR POWER, INVESTING IN GREEN ENERGY

Key: kWh = ‘kilo watt hour’ is the standard unit measure of electrical energy. MWh or ‘Mega Watt hour’ is 1000 kWh. Power (kW) is the rate of generation or use of electricity in a circuit.

We may be a heritage railway and burn coal or readily available substitutes, but we have always been a forward-looking organisation and like to embrace new technology. Solar power provides green energy, is a great area where we can make investments to cut our overall CO2 emissions whilst also reducing our bills. We are looking to do more in this space and wondering if you would be keen to help?

Back in 2022, shortly after the new carriage shed at Boston Lodge was completed, a generous donor provided £50,000 to sponsor a solar array. We have just passed a tipping point, not quite five years later, where we have saved over £50,000 in electricity costs since the system went live!

Why was Boston Lodge chosen for our first array? It’s a great question and there are several factors to consider when looking to install a solar array. The primary question is one of where and when the energy generated is going to be used. The most efficient type of installation is one

where the power generated is used immediately and locally. The impact here is two-fold, replacing the need to buy the required energy from the grid whilst also avoiding any need for storage. Storage adds cost and complexity to the system design.

Those of you who have investigated or have acquired a home PV system will appreciate that when these first became available, maybe 20 years ago, there were very good rates at which one could sell surplus power back to the grid. This was part of the incentive for early adopters. Now the rates at which power is sold back to the grid are significantly lower, at most one might receive 50% but maybe as low as 25% of the purchase price. This provides a business case for modern home PV systems to be provided with a battery so that power generated during the day can be used at night, either in the house or to recharge one’s EV.

However, it still stands that the most efficient installation is one where the power generated is used instantly. This

leads us to look at where on our Railways we use the most power. Our biggest user during the day is Boston Lodge with all the equipment that is used to build and maintain our locomotives and carriages so this is where the focus started.

The new carriage shed roof was a prime candidate at the Boston Lodge site. It is not listed, does not have any shadow from trees or other obstructions and has a large south facing roof. It was also easy to get to the roof with scaffolding making the installation simple and cheaper.

The array as fitted consists of just over 110 panels that are rated at 455 watts each. This gives the system a total generating capacity of 51kW. It is impossible to achieve the full potential on any system due to the changing angle of the sun throughout the day and seasons. Roofs are also rarely perfectly aligned on a southerly axis. An example of peak performance was a beautiful sunny cloudless day in May this year where a peak generation was 40kW and throughout the day 360 kWh were collected and used. This compares to a cloudy, wet January day where barely 2kWh was generated. Interestingly the panels do become less efficient when hot. This can be noticed between morning and late afternoon with a drop in generation of around 5 to 10%.

To give an indication of the size of the system relative to the demand, about 99% of all energy generated at Boston Lodge is used locally. Only 1% is sent back to the grid and this tends to be at weekends when the works staff are not in. The impact has been substantial and on average each full year of operation has generated

45MWh of electricity. Presently that is around £15,000 in cost, hence the saving of over £50,000 since 2022.

To help understand the importance of this impact it is worth taking a step back and look at how electricity prices have moved over the past decade. Back in 2015 the price was around 15p per kWh. The long-term trend has been increasing but due to the energy crisis that occurred after the start of the Ukraine war this spiked to over 30p. This has now reduced a little to mid-twenties. Domestic users were protected by the Government with a price cap but not companies.

So where next? Using the logic of the most efficient installations are those replacing a significant portion of power bought from the grid during the day, Harbour Station is the next candidate.

We have a proposal from Nightingale Energy (Bolton) who fitted the array at Boston Lodge. They have suggested a design including 72 panels with a total generating capacity of 32kW. This would generate around 25MWh a year, saving around £8,000 a year in electricity bills. Similar to Boston Lodge about 99% of this would be used locally so exports to the grid would be minimal, the system is likely to cost around £35,000 including installation.

There is a great opportunity to help sponsor this system and make a direct, positive and environmentally-friendly impact on our Railways. If you would like to help do please get in touch at: Julian.Scarisbrick@ffrwhr.com



A suggested PV system at Harbour Station. Nightingale Energy



Left: Jack in the firebox using the pneumatic tube expander.
Middle: David painting one of the domes. All the bodywork is cleaned up and had a base layer of black, ready for reassembly
Right: Tanks sections ready for their ends, filler caps in position. The cylinder assembly also ready to go back on the frames
Photos courtesy of **Team Mountaineer**

MOUNTAINEER:

The progress of Mountaineer’s rebuild is a testament to the volunteer team that has taken it on. Firstly they have owned their fundraising and with your help raised over £100,000 so far. Secondly they have collected a diverse range of volunteers who have learnt many new skills. Thirdly a strong relationship with the Boston Lodge staff has been built who have enjoyed working with them due to their energy and commitment. The end is now in sight and we have caught up with Patrick, project lead, to see what still needs to be done.

A major step forward this year has been progress on the boiler. Out of the frames, its tubes removed, a program of work to repair was agreed with the boiler inspector. This was pleasingly fairly minimal and Boston Lodge’s coded welder had the jobs done in no time. Fitting the new set of tubes, a job the team took on, was a steep learning curve. It is fiddly to get them all lined up and hard graft using the tube expander to get them to fit snugly. However, we are now ready for the hydraulic test.

This summer then saw a psychological turning point, the bit where there was nothing left to strip from the locomotive and the point at which bits start to go back together. This was marked by the frames being sent for grit blasting before receiving fresh coats of protective paint.

The first job in the reconstruction can then be tackled. This is the wheels and axleboxes which need to be machined and fitted. After that the boiler can be dropped in and test fitted. This will be a good opportunity to assess the new design for an ashpan as part of the locomotives conversion back to being a coal burner. In parallel one of the volunteers has been putting their engineering degree to good use by designing the replacement water tanks. The steel for these has arrived and they have been taking shape in the erecting shop. These are the same design as the originals and, although they will be welded, they will also be riveted to keep the distinctive appearance of the originals.

We are over halfway through the project but that is not to underestimate the work remaining. When pushed Patrick said we may see a fire in it in late 2027, however he was confident that we should see Mountaineer pulling trains later in 2028. The fundraising, whilst impressive, is not quite there yet. If you would like to support the project further, please visit the team’s website alco1265.org.uk.



Carraige 2090 at Porthmadog in September sun. With a standard outline these coaches make an impressive rake. **C Palmer**

CARRIAGE 2090:

This carriage was built by Winson Engineering in Daventry and delivered to the Welsh Highland all the way back in 1997 to form part of the first train service. It has had a busy service life for almost 30 years as part of the Welsh Highland’s core fleet, then more recently on services such as the Harbourmaster or Snowdonia Star. Coaches receive regular attention to keep the standard high, but all railway vehicles deteriorate over time and it has been decided it is ready for a mid-life full body rebuild.

This vehicle has been modified during its working life. Initially it was built with 28 seats in the regular 4+2 large and small bay configuration common across our carriage fleet. It also had 4 seats that could be tied up to make room for a wheelchair.

In the early part of 2004, before the season started, it spent a few weeks at Boston Lodge where 6 seats were removed to make a space for a trolley that is used as part of the onboard service for passengers. In 2008 it spent a few more weeks at Boston Lodge having more attention when it was reconfigured as a service vehicle to match 2010. This provided a toilet along with buffet facilities, and it was fitted with a guard’s van area with the appropriate space, storage and facilities.

We are very proud of the standard of our carriages and this rebuild will be thorough. A complete new exterior

skin will be made from high-quality water-resistant marine ply. Tricoya is an exterior grade MDF that will be used for all the mouldings on the body. Hopper windows will be fitted, in line with many of the more recent “super barn” carriages, as these have proved to be much more water-resistant than previous window designs. In the vestibules plastic flooring is now fitted as standard as it is much more durable than the rot-prone ply used previously. New seats and tables will be made for the passenger accommodation with lighting upgraded to the boat style brass fittings used in other vehicles, and it will be outshopped in our regular maroon and cream livery.

This project is kindly being sponsored by the Cymdeithas Rheilffordd Eryri. If you would be keen to support please use this QR code or visit: whrsoc.org.uk





The Spirit of the F&WHR: Garratt 87 pulling in to Rhyd Ddu, looking purposeful, with a train to Porthmadog. Chris Parry

HOW YOU CAN HELP:

The Railways are supported by many people in many different ways. We are grateful for everything people do for us. Here we look at ways in which you can get involved.

Be An Ambassador! As you’ve received this publication you’re likely a keen supporter and visit us when you can. We encourage you to spread the word of the exciting things we do to friends, family and co-workers encouraging them to come for a ride. Sharing this booklet, as an example, is a way to spread the word.

Donate to our Projects: Much of the work we do requires targeted funding and there are always a number of fundraising initiatives live at any one time. To the right we have summarised details of some of our key projects and how to get involved.

Blaenau Ffestiniog Station - A New Era

Charity: Ff&WHR Trust
Aim: At the time of writing quotes are awaited from suppliers, but expected to need £500k
How to Help: See enclosed donation form, scan quick links 1 or email appeals@ffwhr.com



Carriage 2090

Charity: Cymdeithas Rheilffordd Eryri
Aim: £100k for a full mid life rebuild
Notes: After 30 years full body rebuild is being undertaken, fit for the next 30!
How to Help: Scan Quick Links 2, visit www.whrsoc.org.uk or email rwatson@crhe.uk



Mountaineer - The ALCo

Charity: Ffestiniog Railway Society
Aim: £130k, help us finish the job!
Notes: So far we have raised £100k with activity undertaken, managed by the FRS
How to Help: Scan quick links 3, or visit alco1265.org.uk or email secretary@ffestiniograilway.org.uk



Bogie Ballast Truck

Charity: Festiniog Railway Heritage Group
Aim: £50k to recreate this missing vehicle
Notes: The first year has seen us raise £15k and start procuring components, momentum is building!
How to Help: Scan quick links 4, or visit www.frheritage.org.uk/sales/



The Spirit of the F&WHR: Porthmadog Harbour Station, trains and passengers everywhere enjoying the sun. Chris Parry

Volunteering: As highlighted earlier, volunteering is at the heart of everything we achieve. It plays a vital role in delivering the many exciting projects and experiences across our Railways. There are opportunities to suit a wide range of interests and availability, from early morning track walks and platform duties to behind-the-scenes and remote roles.

Our supporting societies are always keen to welcome people with a variety of skills, including those interested in administrative and director positions. Whether you can offer practical experience, professional expertise, or simply enthusiasm and commitment, there is a place for you within our volunteer community. Email volunteer@ffwhr.com or visit: www.festrail.co.uk/volunteering.

Young Volunteers Training Week: There may be teenagers in your family who are looking for something practical to do in the summer holidays. Our annual ‘Kids Week’ has grown into a project-led event, aimed at developing young persons’ skills with a great social element too.

Large Project Sponsorship: We are incredibly fortunate to benefit from the generosity and vision of supporters who have helped bring significant projects to life. For example Garratt 130, the heritage rebuild of historic carriages 22 and 26, and the Boston Lodge Carriage Shed solar installation have all been the result of individual sponsorship. If there is a

particular project you would like to support, or an idea you would like to discuss, we would be delighted to hear from you. To start the conversation please visit: www.festrail.co.uk/appeal/contact.

Legacies: Many of the Railways’ most significant achievements have been made possible through the thoughtful support of those who have chosen to leave a legacy. These gifts have helped fund landmark projects including the completion of the Welsh Highland Railway, the redevelopment of Harbour Station, and the ongoing restoration of Tan Y Bwlch Station House. By remembering the Railways in your will, you can help preserve and develop this unique part of North Wales for future generations to enjoy. For more information, please select legacies on the following link www.festrail.co.uk/appeal.

We hope you have enjoyed reading this booklet and learning more about our ambition. Together, we look forward to an exciting future and all that we can achieve in the years ahead.

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