Tracks going down on Borders Railway

Rail installation begins at north end of route

The Borders Railway project is now entering the final phases of construction with the installation of rail now underway. The rail installation was officially launched on Thursday 9 October at Shawfair station. Network Rail chief executive, Mark Carne, was joined by Keith Brown MSP, Minister for Transport and Veterans, to see the rail installation machine pass through the first of seven new stations as it makes its way down the 30 mile length of the line.

The Borders Railway team has shifted away from earthworks and bridge works to getting the line prepared for rail installation. Ballast has been laid and compacted to ensure that the ground under the tracks is stable. Sleepers are now being laid down along the whole route in advance of the rail installation machine.

When the rail is in place the project team will then install signalling and communications equipment, and complete the seven new stations.

Once the rail has been installed, residents will begin to see engineering trains operating on the line prior to driver training which will commence in June 2015. The line will then open to passengers in September 2015.

KEITH BROWN, MSP, Minister for Transport and Veterans said:

“This project isn’t just about building a railway – it’s about restoring links for communities that will result in employment, study and social opportunities. The installation of the tracks sees that long-held aspiration for the Scottish Borders and Midlothian becoming a tangible reality.”

Borders promised rails for Christmas

The track laying schedule looks set to deliver rails all the way to Tweedbank just in time for Christmas, with rails being installed at a rate of up to 1.3km a day.

Hugh Wark, Network Rail project director said: “We will always need to keep one eye on the weather forecast, but all going well, we’re scheduled to complete rail installation by Christmas, which will be good news for those living near the route waiting patiently for the completion of the major engineering works, and good news for those campaigners who have waited so long to see this project delivered.”

Track laying progress can be followed on Twitter using #tracklaying
How to build a railway

The laying of track is a key milestone. It marks the point in the project when peak construction comes to an end and the railway corridor begins to take shape. Here is an insight into what is involved.

Drainage
Prior to track laying it is important to install drainage that will prevent the railway from becoming waterlogged. This takes the form of drainage pipes and carrier drains, as well as in some areas, attenuation ponds (a pond designed to slow the passage of water from surface run-off to the ground / drainage system).

Preparation of formation
The ground on which the track is to be laid is first prepared and compacted to the required stiffness to ensure there are no soft spots and, where appropriate, treated to prevent the upward movement of clay-like material into the ballast (as this would eventually cause a deterioration in the ballast with a consequent effect on track quality).

Once the formation is prepared, a layer of ballast is spread to the required depth and is then levelled to a high degree of accuracy.

Sleeper spreading
Concrete sleepers are used to hold the rails in place. These are spaced out very accurately using a machine designed specifically for the purpose, ensuring that they are correctly aligned prior to the offloading of rails. Approximately 97,000 sleepers will be used on the Borders Railway.

Slab-track
Traditional ballast track will be used along all other parts of the new Borders Railway route, but concrete slab track will be used in Bowshank Tunnel as a result of the height of the old structure.

Offloading of rail
The rail will be transported by train from the manufacturer on specially designed wagons. Each train will carry twenty-four 108m long rail sections. These will then be offloaded from the end of the train in pairs, and placed directly in the sleeper housings. As each pair of rails is offloaded, the rails will be secured to the sleepers to allow the train to proceed a further rail length to repeat the process.

At a later stage, the rail is welded up to give “continuous welded rail” and is stressed to prevent the rail from buckling in high temperatures.

Points
The Borders Railway will have 7 new sets of points, at the ends of the passing loops, and at Tweedbank station. Most of these will be very large, to allow a fairly high speed for train running. The points will be transported from the manufacturer in sections, and reassembled on site prior to the long rails being installed.

Top ballast
Once the rail is in place a train conveying more ballast, using wagons known as Autoballasters, each carrying 64 tonnes of ballast, will travel along the line. A train of 30 Autoballaster wagons, weighing about 2,900 tonnes, will discharge the ballast through hoppers along the track in about two hours. The ballast discharge is controlled remotely while the train is driven at slow speed, to ensure even distribution of the ballast. The top ballast holds the sleepers firmly in place, and a ballast “shoulder” on the outside of the sleepers, maintains the track geometry.

Tamping
Once the top ballast is in place, the track is compacted using a high capacity tamping machine. This works along the track sleeper by sleeper, lifting the rail and sleeper and packing the ballast underneath using “forks”, to bring the rail to its design line and level, to ensure smooth running of the trains. This process is repeated two or three times.

Finishing
Finally, the ballast on the sleepers will be tidied up using Automated Finishing Machines (AFMs).
Stations update

Work on all seven of the new stations along the Borders Railway is well underway.

Eskbank and Shawfair stations were two of the first stations to be constructed and are now at an advanced stage. Footbridges at both stations are being installed.

The platform shells at both Newtongrange and Gorebridge stations are also now in place whilst works to install the platform at Stow station are on-going.

Work began at the Galashiels station site in July, and the team is onsite at Tweedbank, getting the groundwork ready for the station.

Once the station platforms are in place, work will then begin on the car parks and station furniture, such as lighting and CCTV cameras.

Galashiels works

As construction of the Borders Railway continues in Galashiels, the focus of work in the town shifted towards the construction of the new station at Ladhope Vale.

Since the summer a temporary one-way system has been implemented in the town centre to allow for the safe construction of the new station.

During this period of peak construction in Galashiels, Network Rail and BAM are working closely with the Scottish Borders Council to minimise its impact on residents and businesses. Scottish Borders Council used traffic modelling software to identify the least disruptive diversion, and has a dedicated page on its website to keep residents updated. It is expected that the works at the station will continue until December at which point the temporary one-way system will end.

Elsewhere in the town, Currie Road has reopened to traffic following the successful installation of the bridge deck. Meanwhile the construction of the Winston Road bridge continues; the structure is expected to be opened later in the autumn.

Spotlight on Newtongrange

Serving as the central base for the Borders Railway team, Newtongrange is one of the major population centres which the route will serve.

The north of the town hosts one of the most spectacular icons of the route - the Lothianbridge Viaduct, which was built 160 years ago.

Newtongrange station is located close to the National Mining Museum Scotland, one of the country’s most popular visitor attractions, which will be accessible directly from the station.

It will take approximately 20 minutes for the train to get from Newtongrange into Waverley Station, and approximately 35 minutes down to Tweedbank in the Scottish Borders. At the station there will be free parking spaces for 55 cars, along with 24 hour CCTV and customer assistance.

Work at Newtongrange is moving quickly. De-vegetation work is being undertaken, fencing is being installed, landscaping designs are being prepared and the track is being laid. The new station itself is also making progress with work to prepare the station platforms well underway.

Once the Borders Railway is complete, Newtongrange will benefit from a reliable and fast service to Edinburgh and the Scottish Borders which can be used to promote the area to visitors.
Supporting Youth football coaching

Former Hearts and Hibs professional football stars, Gary Locke, Mickey Weir and Keith Wright helped mark the renewal of the year-long partnership between the Borders Railway project and the Midlothian Football Forum.

The deal gives a major funding boost to the Forum, a joint initiative between Midlothian Council and the Scottish Football Association which supports football development through ten clubs across the county.

The additional funding will help enhance the development of young players through new coaches and training equipment, as well as encourage more young people to get involved.

Carol Deveney, Network Rail’s senior programme development manager said: “As construction activity for Borders Railway continues to make progress, this partnership underlines the project’s continued investment in the community. It will also help keep young people across the region active and away from construction sites during out-of-school times.”

On the website

The Borders Railway website has lots of information about work along the line.

The website also contains videos including a video about the 140 structures being transformed and built along the Borders Railway route.

Elsewhere there is time-lapse footage showing the installation of concrete slab-track at Bowshank Tunnel. In addition, new images from along the route are added on a regular basis.

The website also has more information about cutting edge engineering techniques and the legacy left by the Victorian railway pioneers being brought together to re-connect the Scottish Borders, Midlothian and Edinburgh.

Visit www.bordersrailway.co.uk for more information.