

# WINNER'S

## CASE STUDY



Category **Project of the Year 2014**  
 Winner **Dawlish Sea Wall Emergency Works,**  
 Network Rail  
 Sponsor **QinetiQ**

### Overview

The images of rail track swinging in the air after the Dawlish sea wall was breached came to symbolise the devastation caused by last winter's storms.

The damage to the 4.5 mile stretch of Brunel's famous sea wall and rail track on the South Devon Railway coastal route was the most destruction to have been caused to the wall and the wider area since Victorian times.

It severed the only rail connection from the South West to the rest of the UK, so rebuilding the washed away railway as quickly as possible was critical to communities

and business in the West Country.

To plan and deliver this project in a short timescale under the watchful eye of the government and in the full glare of the media would have been challenging in normal circumstances. Add in relentless attack from continued storms, appalling weather and surging tides and it became a heroic effort, taking the commitment, collaboration and ingenuity of Network Rail, multiple contractors, stakeholders and the community working together.

## Objectives

Opened in 1846, the South Devon Railway is the only rail connection from the South West to the rest of the UK and has outstanding scenic views – a secondary benefit as Brunel selected this route to minimise the cost of alternative steep gradients.

The first storm hit on 4 February 2014. Within hours, a team was on site to assess the havoc wreaked by 80mph winds and 5 metre high waves. Emergency work was instigated to minimise further risk of damage, stabilise the exposed ground and to protect properties on Riviera Terrace immediately above the washed out track.

The initial plan was to reconnect the route in six weeks. This quickly became an eight week programme following a second wave of destructive storms and ferocious seas which swamped the temporary breakwater on Valentine's Day, increasing the original damage by a third and adding 20 per cent to the overall project scope.

## Challenges

As well as nature's unpredictability, one of the main challenges was managing the interface between six main contractors on a scheme with unclear scope and immense pressure to deliver as soon as possible. It was also essential to establish relationships with local people who had been evacuated and with Teignbridge District Council as well as managing the involvement of the Marine Management Organisation and Crown Estates to ensure necessary licenses were in place.



The importance of the work to the public and businesses was never underestimated. It was difficult to commit to a date in the first days as the scope was not only unclear but increasing all the time, yet people needed to know so they could make plans.

There were also issues with those living alongside the line not only being disturbed by the work but also impacted by the physical damage to their homes, land and property. The need to manage their expectations of what the project team could deliver – and honestly saying what they could not – was another factor to be taken into account.

## Resources

A collaborative effort between all parties was at the forefront of this project in helping to sustain motivation, commitment and drive to deliver the project safely and on time.

Less than 48 hours after that first phone call, a joint team comprising Network Rail, BAM Nuttall, AMCO, Dyer & Butler, Sisk, Tony Gee and Network Rail's local maintenance delivery unit had assembled to assess, plan and implement solutions in response to the damage. Mott MacDonald, Amey (signalling replacement), AmeyColas (track renewal) and CAN (Specialist access drilling and soil nailing) also joined the team to provide additional project support in the following weeks.

The project leaders comprised of a team of professionals from Network Rail. An average of 300 people each day and 150 each night worked tirelessly to re-open the line, clocking up some 300,000 site hours.





## Innovation and lessons learned

Without the encouragement and application of innovation, the project would have not been a success. No idea was discounted and expert opinion was sought from within the industry and outside.

Simple solutions such as sharing offices and open meetings were the key to real collaboration among contractors. A single, integrated programme allowed complex interfaces to be effectively managed and consistent, current information made available to all parties.

Daily drop-in meetings and formal weekly meetings kept local people informed of progress. A customer liaison phone was set up so that the residents could contact the team with any queries at any time and a 'book of appreciation' was opened in the local library.

As work continued 24/7, fatigue was controlled through rolling shifts with those living locally working 12 hour shifts and those travelling working either 8 or 10 hours.



## Success

The rail link to South and West Devon and Cornwall re opened on time to an extremely ambitious programme, allowing Dawlish and beyond to be reconnected to their railway and the rest of the UK.

The team received good feedback from local councils and the public, including letters and cards of thanks from local residents. For the project team, the immediate success of achieving the goal has also led to long-term networking and relationships, leading to opportunities for collaboration on future projects.

Prime Minister David Cameron, praised the 'orange army' of engineers as they have become known, for their "herculean effort" in completing the repairs.





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