

## **Parson's Tunnel to Teignmouth 2022 Frequently Asked Questions**

The questions and answers below cover the topics most frequently raised by members of the community who attended the November 2022 presentations in Holcombe and Teignmouth which provided an update on this scheme.

### Timescales

#### **What are the timescales associated with the work?**

The duration and scale of these works is unknown at the moment due to the current stage of the project. Having taken a step back and re-evaluated the scheme, we are at an earlier stage in the development of the new proposals than we were with the scheme that we put to you in 2020.

We will be carrying out our investigations over the next 18 months along with developing the construction plan, understanding consents requirements and taking the business case to the Government for further funding.

Following this, we will go into design work with the aspiration to design the whole scheme and then phase works for installation, targeting the higher-risk areas first. The scale of this scheme is smaller than the 2020 scheme, so if it was to be delivered as one project, we expect that it would take a maximum of 10 years, but it is unlikely to be delivered this way and would probably be phased in different packages of work. The earliest we are likely to start, subject to funding, is the second half of this decade.

### Vegetation and biodiversity

#### **You plan to remove vegetation on the cliff faces to install the nails and meshing but aren't the roots stabilising in themselves? Will this and the loss of natural water absorption from trees and plants be taken into account with the current inspections?**

The roots do help to stabilise rock faces; however, they cannot do everything we need them to do here so we are moving towards using active engineering measures to hold up the cliffs. The design solutions will take account of the impact of removing vegetation to install our interventions. The removal of vegetation only includes areas that need to be meshed.

**There will be amazing opportunities when vegetation regrows over the mesh. Could it be looked at to sow wildflowers rather than grasses? Is there an opportunity for improving the biodiversity of the cliffs e.g. reseeded or creating better spaces for nesting birds?**

Ecology is very important – especially in this beautiful environment – and we are working with ecologists to understand the impact of our works on the biodiversity in the area.

We're at an early stage with thinking about this on the scheme, but there is an opportunity to incorporate different ideas to help improve the local biodiversity and we will discuss with them the specific suggestion about including wildflowers in any areas that we reseed.

**What are the current thoughts about wildlife on the cliffs? How will you manage the removal of habitats in the area to install these interventions? Are you going to do an Environmental Impact Assessment?**

Yes, we do carry out Environmental Impact Assessments. Even for the ground investigation works that are taking place at the moment, we have to carry out ecological surveys looking at the wildlife and other ecology in the area and how we can carry out our work to limit any impact on them.

We do keep this very much in mind as we work and we assess and measure this as we go through each stage. We are particularly aware of the curl bunting that are unique to this area of the British coast. We will have ecologists carrying out watching briefs as needed and we have already had to relocate works to accommodate badger setts in the area.

## Funding

**When might the scheme secure funding and when will the work start?**

We will need to apply to the Department for Transport for funding. The economic situation is different now but more than £150m has already been invested on the resilience of this section of the railway from Dawlish to Teignmouth so there is a compelling case to continue with this scheme, which is the last part of the jigsaw puzzle. Without it, the railway line could still be closed, undermining the benefits of the other four projects in the South West Rail Resilience Programme.

The railway line is only as strong as its weakest link and so we will put the case to Government to fund these works and deliver the resilient railway line the South West deserves. So we have a good case for funding, but, to make it affordable in the current economic climate, the scheme may need to be phased.

At the moment, we are funded for the next 18 months of site investigation, and then, subject to further funding, we will need to develop the design for the scheme before we put together the funding application to deliver the work itself.

**What are the implications if funding is not secured?**

The railway is managed today through maintenance and inspections. This means that we respond reactively to changes in the cliffs. If a major scheme is not funded, then this more

reactive style of management will continue. A funded capital project would enable proactive measures to ensure falls from the cliffs do not reach the railway as opposed to reactive response which can still disrupt train services and is more expensive over time.

## Housing developments

**There are a lot of new and proposed housing developments at the top of the cliffs; how would these developments impact any water management interventions? Does Network Rail have any influence on planning decisions that would add to the amount of water flowing onto the cliffs?**

We understand that more developments at the top of the cliff could potentially have an impact and we need to take this into account in our design. We can't comment further than that at this stage of our investigations.

We are liaising with Devon County Council, South West Water and Teignbridge District Council about our proposals but we can only interact with, or comment on, planning applications in the same way that any other individual or organisation could.

## Drainage

**If the water management systems will work, Network Rail needs to understand how much water will be moving under particular circumstances and how it integrates with the current water systems in place. What is Network Rail doing to understand this? Has this deep well drainage technology been used in other areas? What has the experience been?**

Wells like these have been used in other locations. The designers that we have working for us have experience developing this type of scheme and, as such, there are no concerns about constructability, but investigations are needed to confirm that this type of scheme would work in this particular location.

The investigations we have planned will focus on amounts of water and how they are moving over and through the cliffs. Depending on the weather and what storms and dry summer spells we see over the next year, this could change the length of monitoring required to enable us to capture the data.

There will also be variability across the area so we will be using multiple boreholes to capture this. Initial meetings have been held with Teignbridge District Council, Devon County Council and South West Water to let them know about these drainage ideas and to get information about their assets in the area.

We are not yet sure if our proposals will be self-contained or interact with existing systems, but we may need to discharge our water from the system and if so, we will be held to account by consents bodies such as the Environment Agency and the Marine Management Organisation) on the quality of the discharge.

If there are existing concerns with foul water in the areas at the top of the cliffs, our scheme would not directly address these; however, we will be working with the water bodies in the area to develop our scheme.

**How developed are the water management proposals? When will you know what the impact of these interventions on the local community?**

We do not have firm proposals at the moment for the location of any of these water control measures. Once installed, they will be visually unobtrusive. Their construction will require some intrusion but we will manage the work to minimise this as much as possible. Additionally, we do know that there are complex layers in the rock along the cliffs here, so we need to understand this through investigations and target the siting of the wells very carefully for it to work.

## Current maintenance

**Until the work is complete there is still a risk of cliff falls in the area. Is there any current monitoring in place and what are the current risks if we have a really bad winter?**

Different failures are discussed in terms of their probability (1 in 20 years or 1 in 99 years etc). However, we can't be sure within that period if a particular fall would occur in 20 years' time or next year. It is theoretically possible that failures can occur until the interventions are put in. But in the interim, we do have monitoring in place.

Some of the monitoring equipment is remote; for example, our catchfence movement sensors have parameters that are regularly checked by our railway asset management team. The asset managers also conduct monitoring surveys every couple of weeks.

In addition to this, we are working with a new peak rainfall data tool, following the derailment in Scotland in 2020, which identifies localised high rainfall and alerts the operations team to either impose speed restrictions in an area or to stop trains running completely.

## LIDAR monitoring

**Please can you explain what the new installations are that have gone in north of Sprey Point?**

The installations are looking at the cliff to monitor any movement in that particular section as there is water causing issues here at the moment, and the asset managers who receive the data outputs will feed back to the project as needed. They use LiDAR technology (light detection and ranging) and you can find out more using this link - [Earthworks Monitoring System \(Rail-technologies Solutions\) - L.B. Foster \(lbfoster.eu\)](#).

This equipment was installed by our asset managers so that whilst we are developing our

project, they are aware of any movements. There is also monitoring equipment in the slope of the 2014 failure gathering data but it has been fairly stable since 2014. Monitoring equipment like this could be used as part of our measures going forwards.

## Sea wall

### **Now that the scheme is no longer upgrading the sea wall, what is the management plan to maintain it?**

The sea wall has a management strategy in place with our asset management and maintenance teams. Money is spent on the wall each year and surveys take place following weather events. In the future, the wall will need addressing as we know sea level rise will become an issue so we will need to rebuild it at some point. We are currently re-evaluating when this will need to be. It is very unlikely that the type of washout failure seen at Dawlish will happen on this stretch. The section of sea wall at Dawlish that failed is right next to the railway whereas the sea wall along the Parsons to Teignmouth section is constructed differently.

### **What is being done to understand the impacts of rising sea levels in this area and what does that mean for the sea wall?**

At the moment, we are rerunning our coastal sea level predictions using the latest climate change data from 2018 to understand the impact this will have over time whilst leaving the railway where it is. This will help us to plan in necessary upgrades to the sea wall here.

## Expected disruption

### **What is the expected disruption from the construction works for residents living at the top of the cliffs?**

All construction has some level of disruption; however, we have been working along this stretch of railway on the South West Rail Resilience programme since 2014 and we have been trying to minimise disruption throughout. There will have to be some disruption, particularly to residents at the top of the cliff, so we will need to engage with those landowners. The project will need to access the top of the cliffs for rope access works and mesh installation etc. and then access will be needed for well installation. We will continue to engage with the community and specifically to more affected residents.

### **What is the expected disruption from the construction along the bottom of the cliffs, on the sea wall and to the beach?**

We do not yet have a detailed construction plan but once we have developed it, we will ensure that you are kept informed, and we will do our best to minimise disruption to the local community. The types of work that we would expect to carry out along this stretch, such as the nails and netting would be similar to work already carried out close to the rockfall shelter we are building north of Parson's Tunnel, where there have already been a

large number of nails and mesh installed, primarily during the daytime and with limited disruption to the public.

Access to the sea wall in the short term will not be affected, unless needed for maintenance access/works. However, when the scheme is built, we may require some more outfalls to be installed in the sea wall, but the scale of the scheme is much smaller than the 2020 scheme and any impacts on beach access will be correspondingly much less disruptive. It should be noted that any outfalls would need to be put in in conjunction with the statutory water management bodies.

## Alternative options

### **Why can't you just leave the cliffs and the sea wall as they are today?**

With climate change over the next century it is likely to increase extreme weather events which have an impact on the cliffs. We are constrained in space at the bottom of the cliffs so catch fences cannot be allowed to get very full before they need to be emptied. We therefore need to have extra interventions to assist. Climate change will also bring rising sea levels which will eventually require the sea wall to be upgraded to provide resilience to the railway here.

### **Can't you just cut away the loose rock from the cliffs?**

Regrading the cliffs (cutting away rock to reduce the steepness) is one of the engineering possibilities we considered. However, this would require a huge amount of rock to be cut away and removed from site – an operation that is calculated to take six to 12 months when the railway would need to be closed for the entire duration.

Further work has since established that a significant amount of land at the top of the cliffs – some from private properties and, potentially, a section of the main road from Dawlish to Teignmouth – would be required for permanent acquisition. The impact on private property, the natural environment and the railway meant this option was not considered further.

### **Have you considered opening the inland route via Okehampton?**

This was looked at after the events of 2014. Whilst the line is open now to Okehampton, there is a long difficult stretch beyond this that would be more expensive to reinstate than this proposed scheme. Additionally, we wouldn't want to abandon any of the areas that the current mainline route serves, for example Dawlish and Teignmouth, that would not be covered by that inland route, so this rail route will need to be protected.

### **In the measures being proposed there is no mention of rockfall shelters – will these be considered?**

We are not considering rockfall shelters in this area. They have a high capital cost and don't address all of the risks that we have here. A rockfall shelter is a passive solution allowing the cliff to fail but holding the debris away from the railway.

We are focusing on more active solutions in this section. The other issue here is that there is very constrained space between the railway and the cliffs in which to build foundations etc.

**If the concern is slipping, why not take the railway out to sea leaving the beach and cliff where it is? Has this been advanced as a proposal?**

One of the schemes reviewed was to build a viaduct out to sea. One issue with this is the footprint required and the environmental impact to the coast. We will also still need to maintain the sea wall. The engineering around the viaduct, the cost and its environmental impact would be prohibitive.

## Visual impact

**What can be done to ensure that the visual impact of the scheme is considered in relation to the local area?**

We are at a very early stage with our proposals so we are not yet sure what everything will look like. The visual impact of the different mitigations (catch fences etc.) will be dependent on the design, and safety will be most important to ensuring that our mitigations are effective and long-lasting.

## Confidence in this scheme

**Is this exact solution used elsewhere? What is your confidence in this method working?**

This exact solution is not used elsewhere but these types of solutions and combinations of them are tried and tested around the UK and Europe. The design will be tailored to this area and each of the components will be addressing different combinations of risks that we see in this section of cliffs. Our confidence level in this scheme is fairly high, but we are doing the investigations to verify our thinking.

**How long will this updated scheme guarantee resilience? Does this scheme deliver the same resilience as the previous 2020 scheme?**

The original requirement for this scheme was to last 100 years. This is still the intention for the revised scheme. The meshing components use stainless steel, and we are working with our specialists to ensure that we can use materials that last 100 years but reduce the costs. The previous scheme was a build-once scheme with not much requirement for maintenance throughout its life. This solution would need a maintenance regime (eg. tightening of the mesh), but the scheme in conjunction with its maintenance regime will be designed to last 100 years.

**What will the impacts of these interventions be? Will the drilling not create higher risk and cause more failures? Won't the holes for the bars destabilise the cliffs further? Won't the deep wells encourage water ingress? Will this not cause failures itself?**

Our interventions in this section have been fairly regular over time. Historically, interventions have been generally passive eg. netting and catch fences, but this does mean that the cliffs can still fail. These solutions are active and designed to stop it moving in the first place. We are careful to manage safety risks as we carry out installation and the drilled holes for the nails are grouted to stop destabilisation.

We already have inclined drains in the area that are working and not causing further issues and the wells we are considering are pumped wells, so they will capture the water and pump it away from the area. We are still at an early stage with this concept and the investigations will help us to determine if there are potential consequences of the measures that we would need to manage and also whether the proposals will work as required.

## Climate change

**Have you considered the potential impact of climate change on the netting – particularly on how intense rainfall and drought conditions will affect the cliffs?**

We will use the latest climate change data from 2018 to analyse the risks in the cliffs over the next 100 years. The netting also gets tightened to account for variability of the rockface over time.

## Previous scheme

**Is it 100% guaranteed that the railway won't be moved onto the beach?**

We can't completely rule it out at this stage as we need to do the investigations to confirm that these new proposals will work; however, we are fairly confident. We have a set of expectations for what we might find but there is a small possibility that we could find something that fundamentally changes our current understanding of the cliffs. There is no 100% guarantee that we will never revisit that scheme, but we are actively working on solutions that leave the railway where it is.

**The original scheme was to move the railway out to sea but now the plan is to leave it where it is and install rock anchors. What are the pros and cons of the different schemes?**

The previous scheme looked to move the railway away from the cliffs and put buttresses in place against them. This immediately removes the risk from those cliffs and is a scheme that can be implemented, taking away the need to return for 100 years.

The scheme had a high cost and high impacts on the local community and the beach, but it would have enabled us to construct the scheme once and then walk away. It also addressed all the risks from the cliffs and the sea in a blanket approach.

The revised scheme means that we are likely to add solutions to the cliffs incrementally in a phased construction plan and that we will need to return to tackle the sea wall when sea levels rise.



The new proposals have a more targeted approach to the risks from the cliffs and will require ongoing maintenance. These solutions would be using an active system, which stops the failure from occurring, rather than passive, which contains rockfall after failure to prevent it reaching the track. A lot of the current installations in this section are only passive.

We would also be adding in water management interventions which are designed to mitigate against the bigger risks, as well as using newer materials which are more resilient to corrosion and the marine environment. So, we are using a toolbox of options to tackle the risks while leaving the railway where it is; it is more of a mix and match approach, not a single large-scale solution.

**The previous proposals were going to create more space for footpaths and other amenities that do not now appear to be in this updated scheme. Will this be addressed further down the line?**

This updated scheme does not include the amenities from the 2020 scheme as it is on a much smaller scale and there is not enough space to include them as we are not moving the railway. The amenities in the previous scheme were there to offset the partial beach loss and other impacts created by that scheme.

We are now focusing on our core requirement for a resilient railway and right now we know that the main risk comes from the cliffs, rather than the sea.

We have kept Devon County Council informed about where we are with this. The next opportunity to consider this will be when the time comes to renew the sea wall and could perhaps look something like the work at Dawlish.

## New technologies

**What emerging technologies are being used on this scheme?**

The main emerging technology is the materials being used for the nails and meshing. These materials are designed to last longer and deal with corrosion in the marine environment better whilst controlling cost. We are working with our contractors and the manufacturers to do this. It is also helpful that we will be installing a similar system in the area to the north – Dawlish to Holcombe – ahead of this scheme and we are able to work on developing innovations to deliver benefits across both phases.

## Consents and communication

### **What consents are needed for this updated scheme?**

For the previous scheme, we needed a TWAO (Transport and Works Act Order). One of the things not yet known for this scheme is if a TWAO will be needed as this depends on the design and construction plan. It is a possibility that a TWAO will be needed, but we are not yet sure on the interaction with local planning. If a TWAO is required, we would return to a more formal style of statutory consultation.

### **When will you next come out to talk to the public?**

It will take us around 18 months to gather the data we need to make firm proposals for this scheme. Following this, we need to find suppliers to help us build the scheme and give us constructability advice. Once we have the results of their initial work we will have a step forward in the details of the scheme and the level of information we can give so this will be a good time to come back out to talk to you. However, we will keep you updated in the meantime if there are significant developments.

## Miscellaneous

### **I'm surprised that there is no mention about sorting access from the bottom of Smuggler's Lane onto the beach?**

This scheme is about reducing risk from the cliffs, so this is not planned to be addressed as part of this project. However, if there is a particular issue this may need to be addressed by our asset managers. Please let us know of any key concerns in the area as safety of the public in and around our assets is important.