

Executive Summary

1. Capita Property and Infrastructure Ltd (Capita) was commissioned by Rother Valley Railway Limited to undertake a Flood Risk Assessment (FRA) for the proposed reinstatement of the Rother Valley Railway between Robertsbridge and Udiam (Bodiam). The route is approximately 3.5 km and will link the existing railway between Bodiam and Robertsbridge. The proposed scheme includes reinstating the raised embankment, culverts and bridges.
2. The site is located in the Rother catchment. The River Rother flows in an easterly direction for approximately 30 km before flowing into the English Channel, at Rye. The Darwell Stream is a tributary of the Rother that joins the main flow at Robertsbridge. The area has been subjected to quite severe flooding over the last 20 years and a flood defence scheme was put in place for Robertsbridge in 2004.
3. The FRA has been prepared following guidance provided in the National Planning Policy Framework (March 2012) and the Technical Guidance to the National Planning Policy Framework (March 2012). The site has been modelled using ISIS and TUFLOW which are established software packages used for modelling rivers and floodplains. The modelling covered a number of flooding scenarios and compared the “without railway” baseline (i.e. the existing condition) with the Rother Valley Railway constructed scenario.
4. The work was carried out in close liaison with the Environment Agency and the key results are based on a 1% AEP (100 year) design flood event. This design flood event was utilised for the design of the flood protection works to Robertsbridge in 2003. The river modelling techniques currently available are more advanced than those available in 2003. The modelling undertaken for this FRA (2013) and by the Environment Agency in 2011 shows that minor overtopping of the existing flood protection scheme occurs at some locations for a 1% AEP flood event.
5. The modelling found that the construction of the railway would have a small effect on the flooding during a 1% AEP design flood event in Robertsbridge and on the downstream floodplain. The potential increase in flood levels is predicted to vary between 0.02 and 0.07 m at key locations in the study area (Table 4.2). Small sections of the defences are overtopped in both the existing (baseline) and ‘with railway’ scenario in the 1% AEP design flood event, although flooding behind defences is limited to the Mill site west of The Clappers/Northbridge Street. Full details are in paragraph 4.5.10
6. This report recommends raising the defences at the small number of vulnerable points to achieve the protection in the 1% AEP (100 year) flood event that the defences were designed to provide for the current (baseline) situation and to take account of the railway re-construction. In the ‘with railway and defences raised’ scenario there is no overtopping of the defences for the 100 year design flood event.
7. This FRA also considers future flood risk. To investigate future flood risk modelling was undertaken for the 1% AEP (100 year) with climate change flood event (this includes a 20% increase in the 1% AEP flood event flows). The model predicts overtopping of the defences in both the existing (baseline) and ‘with railway’ scenarios.
8. Following discussion with the Environment Agency this report also recommends raising the defences in a few additional locations in Robertsbridge to manage future flood risk. Details of the short lengths of defences involved are shown in Figure 10 (for the 1% AEP flood event) and Figure 11 (for the 1% AEP with climate change flood event).

9. The proposed railway is at risk of flooding during the 5% AEP design flood event in the area upstream of Udiam. However, the consequences of flooding will be managed through the train operators signing up for flood warnings and ceasing services when there is a risk of flooding.

10. The proposed railway is considered at low risk of surface water/sewer flooding. The track is generally higher than the surrounding ground and water is considered unlikely to pond on the tracks in significant volumes. The railway line will be built on a permeable base with no significant change in surface water run-off.

11. The proposed railway is considered at low risk of groundwater flooding and low to medium risk of flooding from artificial sources. The approach to managing the residual risk of flooding from artificial sources is discussed in section 5.5.

The table below summarised key aspects of the study:

Site Name	Rother Valley Railway, Robertsbridge
Location	Northbridge Street to Junction Road, Udiam
Client	Rother Valley Railway Ltd
Grid Reference	NGR TQ7380724014 to TQ7718624322
Length of Railway	3.5 km
EA Flood Zone Classification	Flood Zone 3
SFRA	Rother District Council SFRA
Current Site Use	Site of dismantled railway - farm land
Description of proposed development	Reinstate historic railway line in the Rother Valley
Vulnerability Classification	Less vulnerable
History of Flooding	The Robertsbridge area has experienced flood events in 1946, 1960, 1979, 1985, 1993, 1999, 2000, and 2008. The 2000 was severe with approximately 90 properties flooded, some to a depth of 1.5 metres.
Flood Defences	A flood alleviation scheme was constructed at Robertsbridge and Northbridge Street in 2003/4.
Summary of Risks	Fluvial – High Surface Water – Low Groundwater – Low Artificial Sources - Low to medium