

Erosion Protection on the River Leith, Thrimby, Network Rail

Network Rail had identified an erosion and scour risk at the toe and embankment of one of their assets on the River Leith, near Thrimby, Cumbria. Salix were requested to work with Network Rail to provide an environmentally sensitive solution to address the issue.



The solution consisted of using Salix's RockLock™ – a combination of Rock Rolls and ground anchors to provide an ultimate fixing solution in high-energy environments. Given the flow velocities, ground anchors help to prevent the movement of the Rock Rolls.

RockLock™ requires significantly less material than traditional alternatives such as gabions, rip rap, and block stone. In this instance, a single 250mm surface layer of RockLock™ was installed. The RockLock™ solution resulted in an overall reduction in time and cost of construction, whilst providing a carbon footprint reduction compared with traditional alternatives.

The small stone grading found within Rock Rolls and Rock Mattresses allows for greater sediment accretion, vegetation establishment, and colonisation by benthic invertebrates compared with larger stone. As sediment accretes and vegetation establishes through, this helps to provide a continuation of the river habitat corridor.



Rock Rolls and Mattresses utilise a UV-stabilised virgin HDPE net containing a 40-80mm stone. Virgin HDPE has an estimated design life of up to 100 years.

Further up the rail embankment, TerraLock™ was installed to stabilise the slope and provide geotechnical stability from shallow slips. The VmaxC350 Turf Reinforcement Mat was used in this instance, allowing vegetation to establish through the Vmax while providing long-term bank stabilisation and erosion protection.