

GRIFFITHS

civil engineering and construction

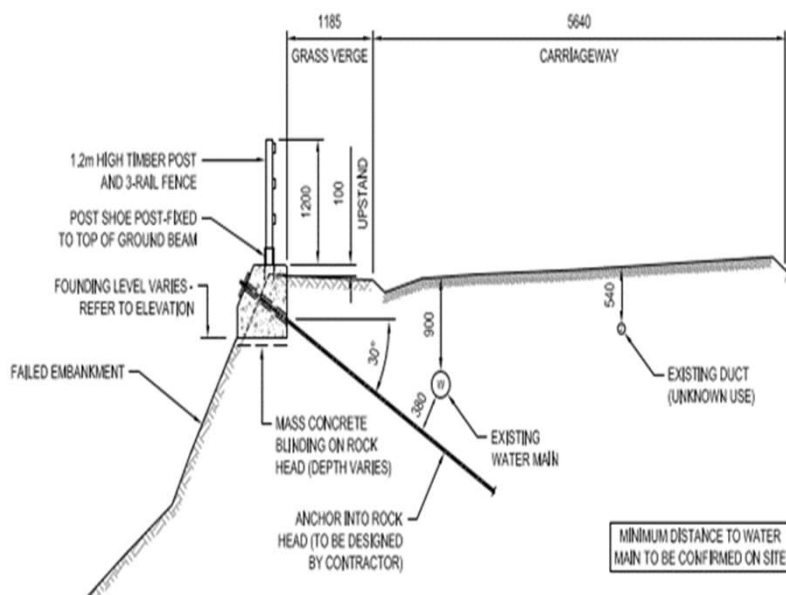
Geotechnical Division Case Study Black Rock Retaining Wall

Griffiths were appointed by Monmouthshire County Council to construct a concrete edge beam to prevent further failures of a slope adjacent to a busy rural road.

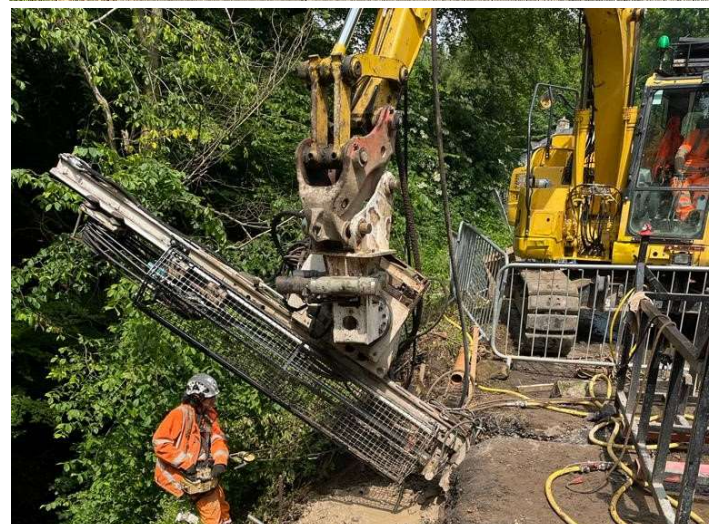
The site was located 100m north of the A465 Heads of the Valleys Road between Brynmawr and Abergavenny. The area of works forms the Southern lane of a section along Main Road in the Black Rock area of Monmouthshire.

The primary objective of the works being stabilisation of the existing embankment using a series of stainless steel soil nails installed to a depth of approximately 8m followed by the construction of a new reinforced concrete retaining wall finished off with a post and timber rail fence

The works were to be undertaken within a single lane closure using two way traffic lights which had been in place since the slip occurred in January 2020 during storm Dennis. Griffiths employed Forest Support services to manage the traffic management including liaison with the duelling works on the A465 Heads of the valleys road.



Pictured above: Soil Nail and Reinforced Concrete beam detail



Pictured above: Rope Access Technician installing 8m long soil nails

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Griffiths were appointed by Monmouthshire County Council via the Southeast Wales Highways Framework to deliver the project which had caused disruption for local commuters following a series of storm events which occurred early 2020.

The main project team commenced works on site in June 2021 some 4-weeks after receipt of contract, mobilising suitable and sufficient welfare units within the existing Traffic Management. The main body of works were planned to ensure the safe access and egress for passing motorists in the live North Bound lane, Maesygwartha-Brynmawr.

One of the main challenges for the project team, notably a newly laid 225mm water main located approximately 1.5m from the edge of the carriageway and at a depth of 900mm in the immediate line of all proposed soil nails.

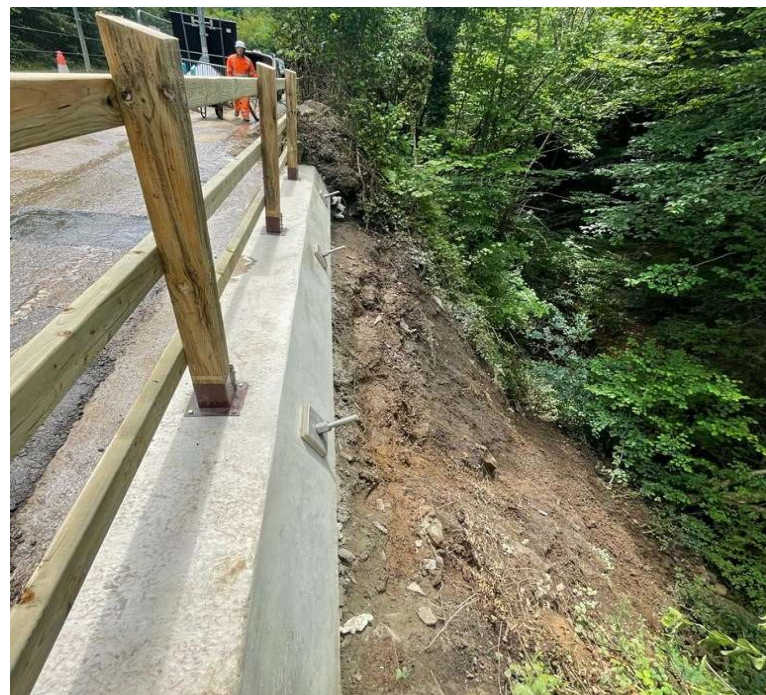
To mitigate clashing with the water main during installation of soil nails, the project team called on Welsh Water to approve our proposal to hand excavate next to the water main and install a 150mm soil pipe directly underneath the pipe at the proposed angle of 30° horizontal as required by the designer.

Once the water main have been positively identified and the vegetation removed from the adjacent verge, the main excavation commenced utilising a 13T zero tail swing excavator to work safely inside the narrow traffic management.

Following on from the excavation our Geotechnical drillers were able to install the soil nails through the pipe which eliminated damaging the main during drilling works

Following installation of all soil nails, Griffiths operatives constructed the reinforcement cage on top of concrete blinding, installed timber formwork and falsework and poured the small amount of concrete (4m³) using a volumetric mixer to prevent wastage of expensive materials. The timber handrail was installed post curing of the edge beam and re-instatement of the carriageway surfacing prior to re-opening the road to traffic

All works were completed as planned without any accidents or incidents, on budget and within the programme duration.



Pictured above: Completed edge beam including timber handrail attached.



Pictured above:

Fig 1) Soil Nails installed prior to edge beam construction.

Fig 2) Reinforced cage and formwork prior to concrete pour.

Fig 3) Edge beam poured prior to installation of post and rail fence.

Project details at a glance

Client:	Monmouthshire County Council
Location:	North Clydach, Monmouthshire
Completed:	July 2021
Value:	£70,000
Contract:	NEC4 Option B

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