



## Cliffside Staircase

### Hopton-On-Sea

**Sector:** Leisure  
**Client:** Coles Fabricators  
**Value:** £35,000  
**Completion:** May 2015

Technicus Consulting was appointed to provide structural design and detailing services for a new of steel access stair between the beach and cliff-top at Hopton-on-Sea.

The new stair was required to replace an old timber access stair lost due to coastal erosion caused by the December 2013 tidal surge.

The main challenges encountered in the design of the new stairs were the access to the site, and the fact that pad foundations had been cast on the cliff-side prior to a final stair arrangement being agreed upon.

To overcome the access issues the stair was designed as 4No cranked Vierendeel trusses spanning between 3No landing structures. This allowed the stair to be broken down into smaller components for transportation and on site handling. The middle landing was initially fixed in position and used as a setting-out point. The top and bottom landings were then fabricated with sliding supports to allow for thermal expansion of the staircase.

The use of AutoDesk Revit 3D drafting software allowed for the cliff-side topography and pad bases to be accurately modelled thus allowing detailing of the complicated multidirectional connections between elements.

The project was successfully delivered on budget and due to the detailed 3D modelling and accurate topographic survey information the structure was successfully fabricated and installed without modification.



View from lower landing level



View from beach level