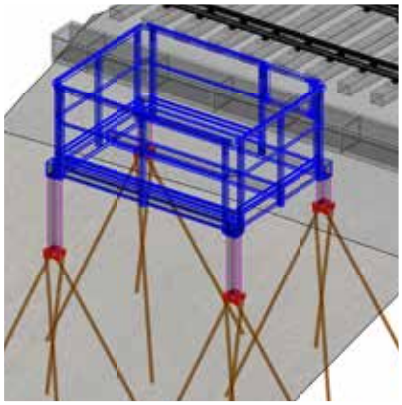






GRP Platforms, Steps & Walkways

Lightweight, Non Conductive, Earth Free Solutions

Environmental Friendly

jlecsys RAIL

fjd consulting

FIBERLINE COMPOSITES

NetworkRail

StrucSol FOUNDATION SOLUTIONS

GFRP Platforms
Steps & Walkways

Approval by Design

Safety
GFRP (Glass Fibre Reinforced Polyester) is safer than more conventional materials. No risk of electrical shock, removing the requirement for earth-bonding.

Lightweight
GFRP is lightweight which allows for easy delivery, assembly and installation. Reduced mechanical handling risks and no requirement for RRV's (Road Rail Vehicles), reducing costs, rail movements and potential possession over-runs.

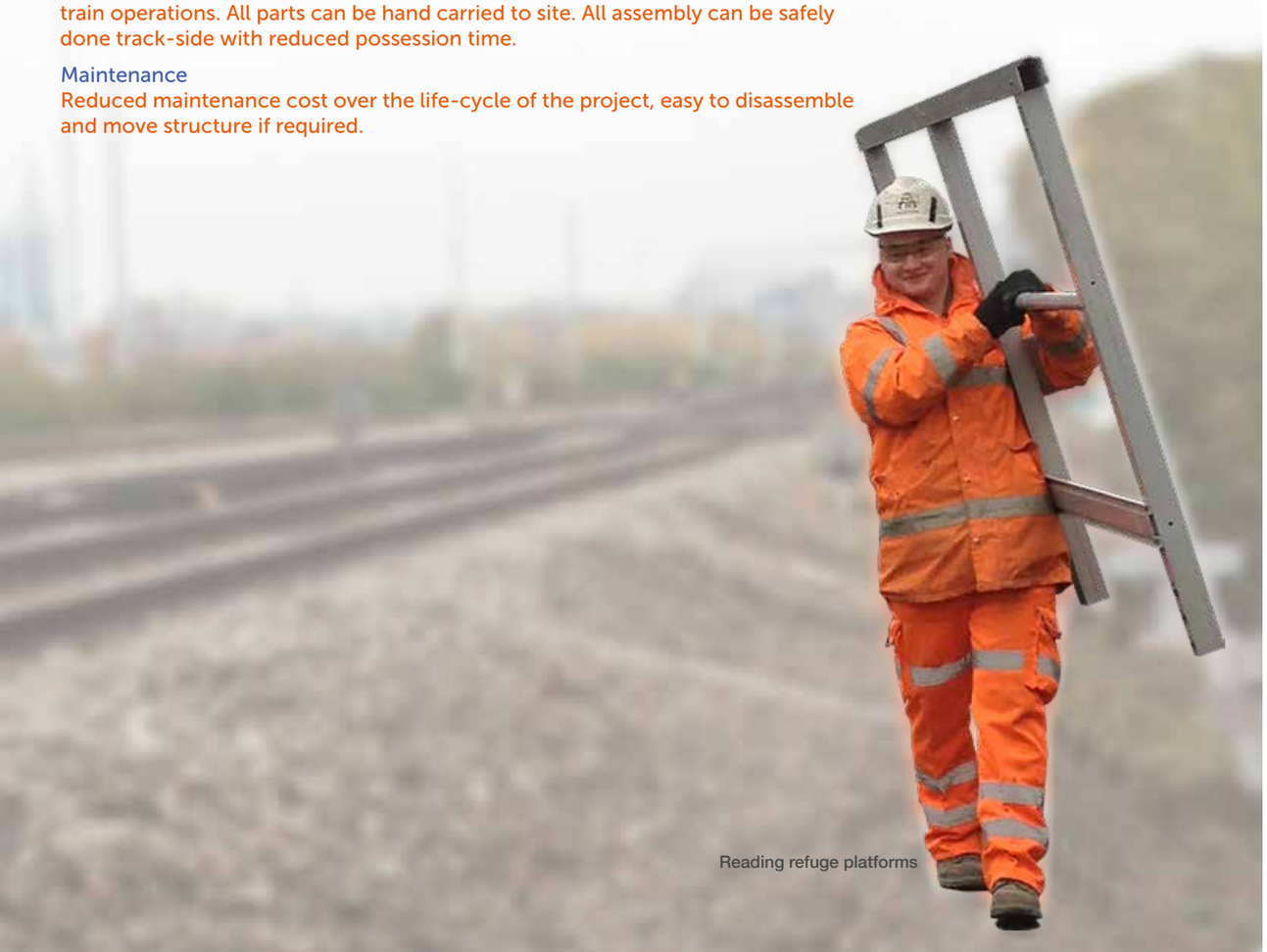
Turnkey
iLECSYS Rail provide a complete package from ground investigation, structural design, manufacture and site installation.

Foundations
The fundamental element of the platform system is the foundation solution, which is a patented product and specific to iLECSYS Rail. The piling solution is hand portable and again does not require RRV's or possessions for installation.

Quality
iLECSYS Rail use Fiberline E23 structural profiles for GFRP platforms. Fiberline Composite profile is compliant to EN 13706 (part 1, 2 & 3)

Efficient Installation
The modular GFRP platform is designed to be installed with minimal effect on train operations. All parts can be hand carried to site. All assembly can be safely done track-side with reduced possession time.

Maintenance
Reduced maintenance cost over the life-cycle of the project, easy to disassemble and move structure if required.



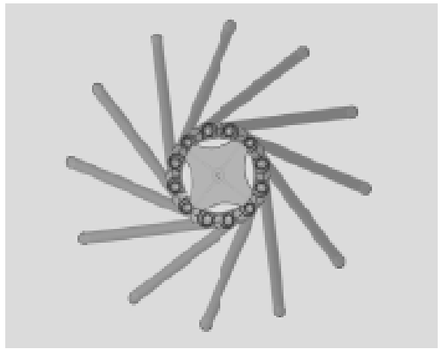
Reading refuge platforms

StrucSol
FOUNDATION SOLUTIONS

RAPID ROOT

Concept

The Strucsol RapidRoot anchor was developed following years of frustration regarding foundation solutions for nominal structural loads where the remote location or the limited access made traditional piling rigs cost prohibitive or logistically difficult. With traditional piling techniques capacity is improved by either increasing the pile diameter and the weight of the hammer or by increasing the auger diameter and the backfill material specification. Using small installation equipment typically means a reduction in capacity, however with the Strucsol RapidRoot anchor multiple small diameter raked piles are driven by a 20kg or 30kg self powered driving hammer. These small diameter piles are connected at ground level by a load transfer plate, which in turn carries the structural loads. As the structural load increases, the number of piles attached to the load transfer plate increases with arrays of between four and sixteen piles achievable. Piles are available in diameters of between 42mm and 68mm and multiple length arrangements can be achieved with piles extended in length by mechanical connections and 1.5m long extension tubes. Piles can be arranged in any configuration and are driven to lockout or set.



Typical installation equipment would normally consist of:

- 1 x 20kG Petrol drive hammer
- 1 x Scanner for cable detection
- Spade for excavation
- Spirit level
- Tape measure
- Cordless impact driver

Applications

The StrucSol rootpile can be scaled to work cost effectively on projects as diverse as signage support and bridges.
The method of extending the pile means that piles can be continuously driven until set is achieved. The use of a crimped extension, means it is possible to use shorter sections of pile, which is beneficial for manual handling and transporting the piles and equipment to site. Once the pile is installed, levels and alignment can be adjusted via a load transfer plate levelling head.

BASR

BRISTOL AREA SIGNALLING RENEWALS

" The main constraint of BASR Phase Two was the unavailability of possessions. The hand portable structures and RapidRoot foundation system enabled the works to go ahead within a fenced green zone day shift. This removed the wider costs of a possession and possession management. Day works allow much greater flexibility when working around other disciplines and utilise normally unproductive day working shifts.
Programmes can be reduced by the removal of RRVs from a scheme. The working time of an RRV during a possession is approximately 60% of the full possession time due to the safety procedures associated with accessing the railway at the nearest RRAP and the maximum 5mph speed limit. In addition removing the requirement for RRVs on site reduces the risks to Health & Safety with regard to the countless incidents which occur when working at night with heavy machinery."

Edward Blackett
Construction and Innovation Manager - iLECSYS Rail

PHASE ONE

During Phase One of this scheme over 15 GRP platforms were installed. These platforms were all installed using a combination of concrete foundations and traditional piling techniques. The ability to hand deliver the platforms to site and assemble them in situ is estimated to have resulted in approximately 48 Road Rail Vehicle (RRV) movements being removed from the scheme.

PHASE TWO

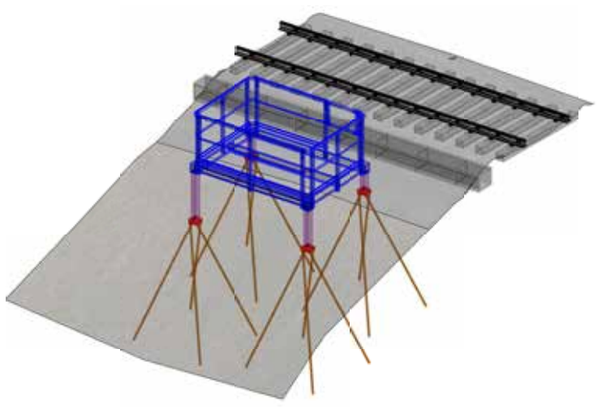
Phase Two platforms were installed using the new innovative Strucsol RapidRoot system. Alongside the RapidRoot foundation and installation equipment, the platform was hand carried to site and assembled in situ during a 5 hour day shift. By using the RapidRoot system the requirement for heavy concrete foundations and the associated curing times was removed.

DESIGN EXPERTISE

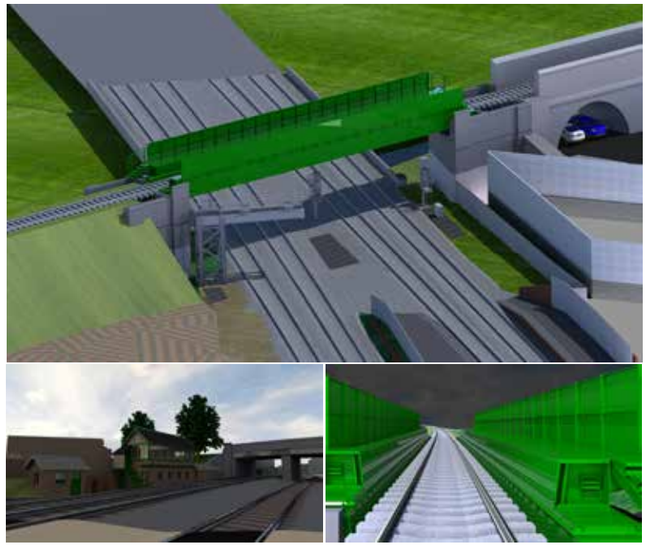
Design Expertise - Temporary Works - Permanent Civils Design - Multidisciplinary Design

A major benefit of using GRP over more conventional materials is the ease of installation and delivery to site. iLecsys are working in close collaboration with FJD Consulting to support a robust set of engineering designs to assist with this process.

FJD Consulting provide civil engineering design expertise across a range of industries but with a particular focus on the Rail sector. Using the latest design technology, including Building Information Modelling (BIM), a specific and robust set of designs can be created in a swift and timely manner.



The transition towards BIM governance extends beyond the mere requirement to produce 3D designs and output. 3D design solutions, when they are applicable to the project requirements, can readily combine the source survey data (whether it be cloud burst, LIDAR or topographic survey) with the proposed design layouts. This provides a CAD model for integrated interdisciplinary design, clash detection and construction sequencing. With this model, FJD Consulting can produce 'fly-through' views, photographic montage production for planning submissions and construction sequence briefing.



With this wealth of information the client and installation team has clear visibility of the full scope of works, product design, specification and installation guidelines. Simple PDFs are available to show construction stages including groundworks and product build.
Designs can be produced for the entire iLecsys range of GRP products which includes trackside platforms, staircases, handrails and fencing.

fjd consulting

Projects Delivered

Bowes Park Staircase

Reading Refuge Platforms

Manchester Viaduct

Bowes Park Walkways



Leicester Training School



Handrail Solutions

GFRP Profile Information

EN13706 - The European structural FRP standard

Fiberline structural profiles are all certified to according to EN13706 ensuring that all products meet or exceed certified minimum criteria. Like steel types are graded by their yield strength (ie. S235) in the European structural steel standard (EN 10025), the grade designation system in EN13706 is based on the elasticity (ie. E23) and specifies everything from testing and tolerances to surface quality and mechanical properties.

Durability and Lightweight

All structural profiles are made from non-corrosive materials and therefore offer excellent resistance to general environmental factors and a variety of chemicals. The materials have a much longer life expectancy than conventional construction materials and are virtually maintenance free.

GFRP is lightweight which allows for easy delivery, assembly and installation. Reduced mechanical handling risks and a reduced requirement for RRV's (Road Rail Vehicles), reducing costs, rail movements and potential possession over-runs.

Environmental Sustainability

The combination of corporate dedication, constant process optimisation and an energy efficient material make Fiberline structural profiles a very environmentally friendly choice, leaving less than half the carbon footprint compared to conventional construction materials.

ilecsys RAIL

FIBERLINE COMPOSITES

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