

DM COMPOSITES

DMWALK™

ST VINCENTS ROAD FRP BOARDWALKS

PROJECT OVERVIEW

Not every boardwalk can be built on flat ground with unrestricted access and a clean construction corridor.

The St Vincents Road Shared User Path and FRP Boardwalk was the opposite.

Delivered for Lane Cove Council, the project required DM Composites to construct a new pedestrian connection through a steep and heavily constrained natural corridor characterised by rocky terrain, dense vegetation, established trees, significant root systems and extremely limited working space.

The finished structure provides a durable new section of shared pedestrian infrastructure while responding carefully to the landscape through which it passes.

DM Composites was engaged to deliver the project as an integrated package, taking responsibility for the works from site preparation, survey and foundations through to the complete FRP superstructure, decking, balustrades, civil interfaces and final completion.

The result is an elevated FRP boardwalk that follows the edge of the natural terrain rather than relying on major earthworks to reshape it.

For DM Composites, St Vincents Road demonstrates one of the major advantages of an engineered FRP system: the ability to create lightweight elevated infrastructure in places where conventional construction methods become difficult, disruptive and expensive.



LOCATION:

St Vincents Rd, Greenwich
NSW 2065

CONSTRUCTION COMPLETION:

October 2026



PROJECT CONTEXT – CREATING A CONNECTION THROUGH DIFFICULT TERRAIN

The challenge at St Vincents Road was immediately apparent from the existing site.

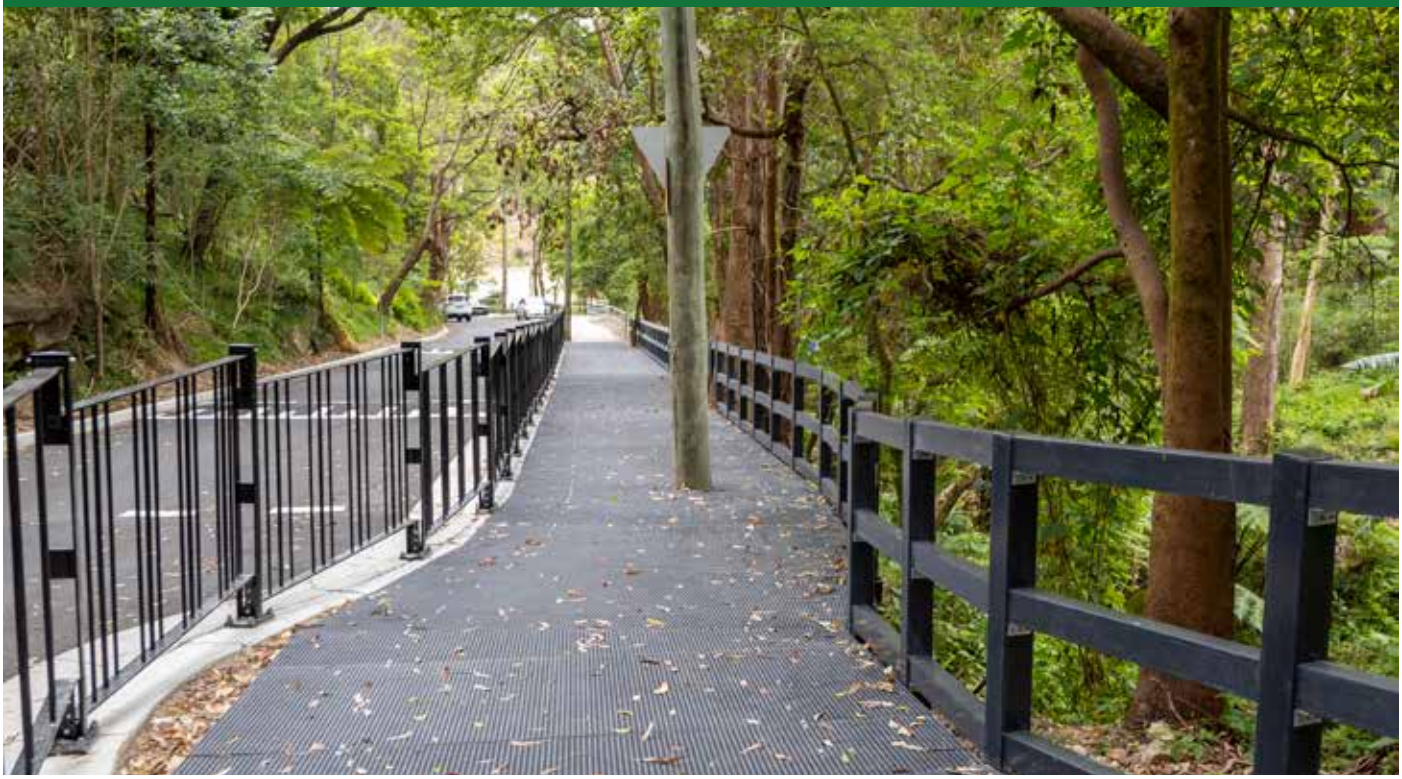
The proposed pedestrian route needed to negotiate a steep vegetated corridor where conventional widening and at-grade pathway construction would have required significantly greater excavation, retaining works and disturbance to the surrounding landscape.

Existing trees and root systems further restricted where structural supports could be positioned.

Instead of forcing a conventional pathway through these constraints, the solution was to elevate sections of the route using a lightweight FRP structural system.

This allowed the pathway to traverse difficult terrain while reducing the amount of permanent infrastructure in direct contact with the ground.

The boardwalk consequently becomes more than simply a pedestrian deck. It acts as a structural extension of the shared user path, carrying pedestrians through areas where the underlying terrain would otherwise make conventional pathway construction challenging.



DM COMPOSITES' ROLE

DM Composites delivered the project as a complete infrastructure package. Our scope included:

- **Site establishment and preparation**
- **Controlled vegetation clearing within the construction footprint**
- **Survey and detailed set-out**
- **Coordination around existing trees and root systems**
- **Micropile foundation installation**
- **Structural support columns**
- **FRP primary beams and bearers**
- **FRP joists and complete structural subframe**
- **Structural bracing and connection systems**
- **FRP grating pedestrian decking**
- **FRP balustrades and edge protection**
- **Interfaces with existing and new pathway infrastructure**
- **Concrete transition works**
- **Associated civil works**
- **Installation and construction management**
- **Progressive inspections and quality control**
- **Final finishing works**
- **Site clean-up and reinstatement**
- **Engineering close-out and completion.**

This integrated approach was particularly important because decisions made at foundation level directly affected the geometry of the FRP superstructure above.

Rather than separating the foundation contractor, FRP supplier and installation contractor into independent packages, the structure could be considered as one complete system from the ground to the finished walking surface.



THE KEY CHALLENGE: BUILDING WHERE THE SITE GIVES YOU VERY LITTLE ROOM

St Vincents Road was not a high-production construction environment.

The steep terrain and narrow work corridor restricted conventional plant movements. Dense vegetation limited laydown areas. Established trees and roots constrained foundation locations. Rocky ground complicated excavation and foundation installation.

Every structural support therefore needed to be considered in relation to what actually existed on site.

This required a construction approach based on survey, controlled set-out and progressive installation, rather than assuming that the same footing arrangement could simply be repeated along the entire alignment.

The structure had to adapt to the landscape.

Not the other way around.



MICROPILE FOUNDATIONS – A SMALL FOOTPRINT FOR A DIFFICULT SITE

One of the defining engineering features of the project was the use of micropile foundations.

Conventional large concrete footings would have required significantly greater excavation in an already constrained environment and increased the risk of disturbing surrounding tree roots and vegetation.

Micropiles provided a much smaller foundation footprint.

Each support location could be established with comparatively localised ground disturbance, allowing the elevated structure to be supported without creating a continuous strip of excavation beneath the boardwalk.

This foundation strategy was particularly well suited to the combination of:

- **Steep ground**
- **Rocky founding conditions**
- **Restricted construction access**
- **Existing vegetation**
- **Tree root constraints**
- **Limited working space.**

The micropiles effectively created discrete structural support points from which the FRP superstructure could be constructed.



A BOARDWALK THAT FOLLOWS THE LANDSCAPE

The completed boardwalk is visually defined by the way it tracks the existing terrain.

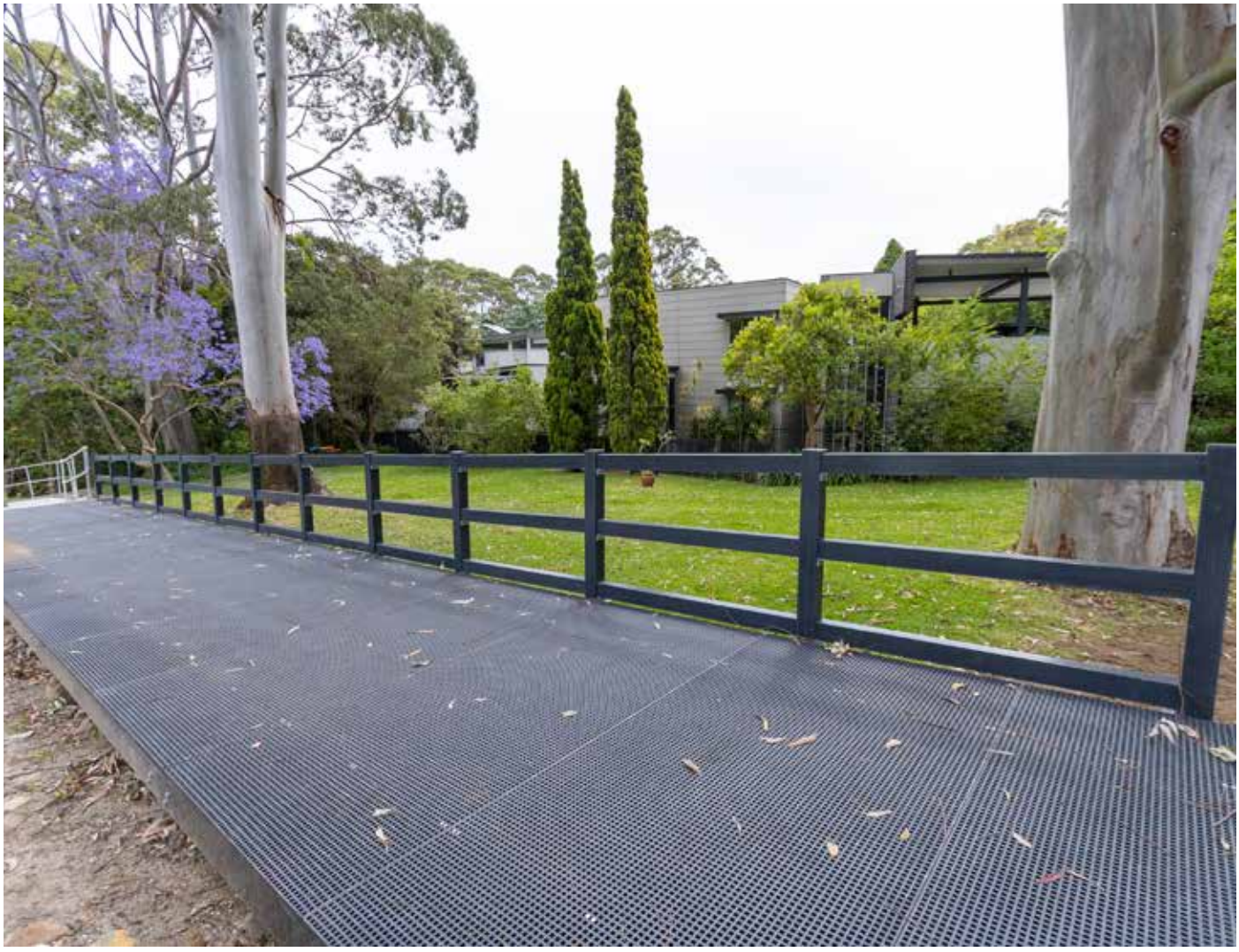
Rather than appearing as a heavy piece of civil infrastructure imposed onto the site, the elevated structure follows the pathway alignment along the slope, maintaining a relatively narrow physical footprint.

In constrained sections, the structural arrangement allows the pedestrian deck to project across areas where conventional earthworks would otherwise have been necessary.

This creates a cantilevered/elevated character, with the FRP framing carrying the walking surface above the natural slope.

The geometry demanded careful coordination between foundation locations, column heights, beams, joists and finished deck levels.

Minor errors at foundation level could have translated into significant alignment problems further along the structure, making accurate survey and progressive verification critical throughout construction.



THE FRP STRUCTURAL SYSTEM

Above the foundations, DM Composites delivered a complete pultruded FRP structural system.

The boardwalk incorporates:

FRP columns transferring loads into the micropile foundations.

Primary FRP beams and bearers forming the principal load-carrying structure.

Secondary FRP joists supporting the pedestrian deck and distributing loads through the framing system.

Structural bracing and connections maintaining stability throughout the elevated structure.

FRP grating decking forming the trafficable surface.

FRP balustrades and edge protection integrated with the boardwalk framing.

The result is not simply an FRP deck installed over a conventional steel structure.

The FRP profiles form the structural superstructure itself, allowing the benefits of composite materials to extend throughout the boardwalk.

THE FRP STRUCTURAL SYSTEM

On many projects, FRP's low self-weight is discussed primarily as a material advantage.

At St Vincents Road, it became a construction advantage.

Heavy structural members are difficult to manoeuvre through steep, vegetated and restricted work areas. They can require larger cranes, lifting equipment, temporary access platforms and more extensive site disturbance simply to position them.

Pultruded FRP components provide a significantly different construction proposition.

Their high strength-to-weight ratio allows structural members to be delivered and handled in comparatively manageable sections, reducing dependence on heavy lifting equipment and making progressive assembly more practical within the narrow construction corridor.

This was particularly valuable where access became increasingly difficult away from the road.



WORKING AROUND EXISTING TREES AND ROOT SYSTEMS

One of the most important construction considerations was the interface with existing vegetation.

Established trees were not simply obstacles that could be removed to create a convenient structural grid.

Foundation and framing locations needed to respond to the actual conditions encountered on site.

The combination of micropile foundations and lightweight FRP framing gave the project team greater flexibility to work around sensitive areas while maintaining the required structural load path.

Where practical, the structure could span between discrete support locations rather than introducing unnecessary excavation around root zones.

This approach helped retain the character of the existing corridor while still delivering permanent public infrastructure through it.



FRP GRATING – A PRACTICAL WALKING SURFACE

FRP grating forms the finished pedestrian surface across the elevated structure.

For this environment, an open grating system provides several practical benefits.

Rainwater can pass through the deck rather than ponding on the surface. Leaf litter and small organic debris are less likely to create the same drainage issues associated with completely solid decking. Air and light can continue to reach portions of the ground and vegetation beneath the structure.

The grating also maintains the broader advantages of FRP:

- **Corrosion resistance**
- **Rot resistance**
- **Slip-resistant pedestrian surface**
- **Low maintenance requirements**
- **Low self-weight**
- **Modular replacement if individual panels are ever damaged.**

For a boardwalk passing through a heavily vegetated corridor, these characteristics make FRP grating particularly appropriate.



DURABILITY WITHOUT RELYING ON A PAINTED CORROSION-PROTECTION SYSTEM

Long-term maintenance was another important consideration.

Outdoor boardwalk infrastructure is continuously exposed to moisture, rainfall, vegetation and changing temperatures.

Traditional metallic structural systems generally require some form of corrosion protection, while timber infrastructure introduces its own long-term deterioration mechanisms associated with moisture, decay and biological attack.

Pultruded FRP does not rust or rot.

Importantly, DM Composites' FRP profiles do not rely on a conventional decorative paint coating to provide their finished colour. Pigmentation is incorporated directly into the resin system during manufacture, helping create a durable integral finish rather than a surface layer that requires periodic repainting.

For Council, this reduces the number of maintenance activities likely to require future intervention within a difficult-access corridor.

CONCRETE TRANSITIONS AND CIVIL INTERFACES

A boardwalk is only successful if the transitions at either end work properly.

DM Composites' scope therefore extended beyond the elevated FRP structure to include the associated concrete transition and civil works required to connect the new boardwalk into the surrounding shared user path.

Particular attention was required at these interfaces to achieve:

- **Smooth transitions between pavement types**
- **Correct finished surface levels**
- **Appropriate pathway gradients**
- **Consistent pedestrian movement**
- **Drainage away from transition points**
- **Durable interfaces between concrete and FRP construction.**

These details may appear minor compared with the elevated structure itself, but they strongly influence how the finished infrastructure feels to pedestrians and other users.



CONSTRUCTION IN A CONSTRAINED NATURAL CORRIDOR

The site conditions meant that construction sequencing was critical.

The team could not simply open the entire corridor, stockpile materials everywhere and work simultaneously along the full boardwalk.

Works needed to progress methodically.

Survey and set-out established the required geometry. Foundation locations were prepared and micropiles installed. Structural supports were established progressively. FRP beams and joists followed, creating the structural skeleton of the boardwalk. Decking and balustrades were then installed as sections became structurally complete.

This approach reduced the amount of incomplete structure exposed at any one time and allowed site access, safety controls and material handling to move progressively with the work front.

A COMPLETE DESIGN & CONSTRUCT OUTCOME

The significance of St Vincents Road is not simply that DM Composites supplied FRP.

The project demonstrates the company's ability to take responsibility for the complete physical delivery of an elevated pedestrian structure.

The works involved multiple disciplines:

Survey established the boardwalk geometry.

Civil works prepared the site and transition interfaces.

Foundation engineering transferred structural loads into difficult ground conditions.

FRP structural engineering created the elevated framing system.

Composite fabrication produced the individual structural members and decking components.

Construction and installation brought those systems together on a steep and constrained site.

Quality and engineering close-out confirmed the finished infrastructure was ready for Council use.

Managing these interfaces within one package reduces the gaps that can otherwise occur when foundations, structural design, material supply and installation are separated between multiple contractors.



PROJECT OUTCOME

Completed in October 2026, the St Vincents Road FRP Boardwalk now provides a durable pedestrian connection through one of the more challenging sections of the new shared user path.

The finished structure demonstrates how elevated FRP infrastructure can provide an alternative to excavation-heavy conventional construction in difficult terrain.

By combining micropile foundations with a lightweight pultruded FRP superstructure, DM Composites was able to create a pathway that responds to steep ground, rock, vegetation, tree roots and restricted construction access while maintaining the durability expected of permanent Council infrastructure.

For the community, the finished result is straightforward: a safe and practical pathway through the corridor.





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