

DM COMPOSITES

DMWALK™

KAMAY BOTANY BAY WHALES FRP BOARDWALK

PROJECT BACKGROUND

The boardwalk forms part of the visitor infrastructure within the National Park, following a curved alignment through the coastal landscape and connecting to a dedicated whale viewing platform. The project incorporates elevated and low-level boardwalk sections, changes in elevation, landings and stairs within a sensitive coastal environment. The structural drawings identify the Whales Boardwalk as part of the Kamay Botany Bay National Park Master Plan Stage 1 works.

DM Composites was responsible for developing and supplying the FRP structural boardwalk package, coordinating the system with the project geometry, ground conditions and the stainless-steel elements incorporated around the viewing platform.



LOCATION:

Kurnell, Sydney, NSW

CONSTRUCTION COMPLETION:

August 2026



DM COMPOSITE'S SCOPE

The design and supply package incorporated:

- **Structural FRP boardwalk framing**
- **102 × 102 × 6.4 mm FRP bearers**
- **FRP posts**
- **FRP mini-mesh pedestrian grating**
- **FRP kick rails**
- **FRP stair treads**
- **Associated connections and proprietary grating fixings**
- **Shop detailing and coordination with the stainless-steel viewing platform and balustrade system**
- **Adaptation of the supporting system to suit varying ground and rock conditions.**

The structural design nominates FRP bearers at a maximum of 900 mm centres, supported either on posts founded into the ground or on packers and sleeper footings depending on available ground clearance.



ENGINEERED FRP BOARDWALK SYSTEM

A key feature of the project is that FRP was used for more than the walking surface. The boardwalk incorporates an FRP structural subframe, providing a lightweight and corrosion-resistant supporting system beneath the decking.

Detailed sections show FRP bearers at maximum 900 mm centres, together with FRP posts. Depending on local conditions, posts could be founded into natural ground or installed into rock core holes, allowing the system to respond to the changing terrain along the boardwalk alignment.

This modular approach was particularly suited to the winding boardwalk geometry shown on the project plans and allowed the structure to follow the landscape rather than relying on a conventional straight, repetitive structural arrangement.

FRP MINI-MESH DECKING

FRP mini-mesh grating was incorporated throughout the boardwalk as the primary pedestrian surface. The structural design required the grating to span between supporting beams and be secured using proprietary fixings in accordance with the manufacturer's recommendations.

The specified boardwalk surface was 38 mm thick mini-mesh FRP grating, supplied in a Sand RAL 1001 finish with UV stabilisation, fire-retardant properties and anti-slip grit. The landscape documentation identifies the FRP boardwalk system for the Whales Loop Path and steps.

The structural performance criteria required the mini-mesh system to accommodate a 4.5 kN working point load and 5.0 kPa working uniformly distributed load, providing a robust pedestrian surface suitable for public infrastructure use.



DESIGNED AROUND A COMPLEX CURVED ALIGNMENT

Unlike a conventional straight boardwalk, the Whales Boardwalk follows a highly curved alignment responding to the existing terrain and landscape.

The project plans show the structure progressively changing direction before transitioning into the whale viewing platform and stair arrangement. This required careful detailing of the FRP framing and decking geometry to maintain the architectural alignment while providing appropriate structural support to the walking surface.

The design also incorporated curved FRP kick rails, allowing the edge treatment to follow the geometry of the boardwalk.

INTERFACE WITH STAINLESS STEEL STRUCTURES

The project combines FRP with 316/316L stainless steel structural elements, particularly around the viewing platform and stair areas. The structural specification nominates 316/316L stainless steel for the stainless-steel components, reflecting the demanding coastal exposure of the site.

DM Composites' boardwalk system therefore needed to integrate accurately with the stainless-steel framed viewing platform, stairs and balustrades.

Detailed interface connections were developed between the FRP and stainless-steel components, including deck support plates, stainless-steel bolts and proprietary M-clips for securing the FRP grating.



ADAPTABLE FOUNDATION SOLUTION

Ground conditions varied along the alignment, requiring a boardwalk system capable of accommodating both natural ground and exposed rock.

The design incorporated several support arrangements, including:

- Timber sleeper foundations for low-clearance sections
- Solid FRP posts embedded into natural ground
- FRP posts installed into 150 mm diameter rock core holes
- Stainless-steel supported sections on concrete pad footings around the elevated viewing platform.

This allowed the structural system to be adapted locally rather than imposing a single foundation solution across the entire site.



DESIGNED FOR A COASTAL NATIONAL PARK ENVIRON-

Material selection was particularly important due to the project's exposed coastal location.

The landscape documentation specifically required metals to be suitable for marine environments, while the structural specification adopts corrosion protection requirements appropriate to very high marine exposure conditions.

FRP provides a strong solution in this environment because it is inherently resistant to corrosion and does not rely on conventional protective coatings to maintain its structural performance.

Combined with its relatively low weight, the system also provides advantages for transportation, handling and construction within environmentally sensitive National Park sites.

PROJECT OUTCOME

The completed design and supply package demonstrates DM Composites' capability to deliver complete engineered FRP boardwalk systems, rather than simply supplying individual FRP products.

For the Kamay Botany Bay Whales Boardwalk, DM Composites integrated structural FRP framing, support posts, mini-mesh decking, stair components and kick rails into a complex curved boardwalk geometry, while coordinating interfaces with stainless-steel structural elements and varying foundation conditions.

The result is a durable, low-maintenance boardwalk solution specifically suited to an exposed marine environment and high-use public National Park setting.



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