



Outdoor Access Structures Case Study



Queens Park Lake Boardwalk Upgrade

Moonee Valley City Council

Project Overview

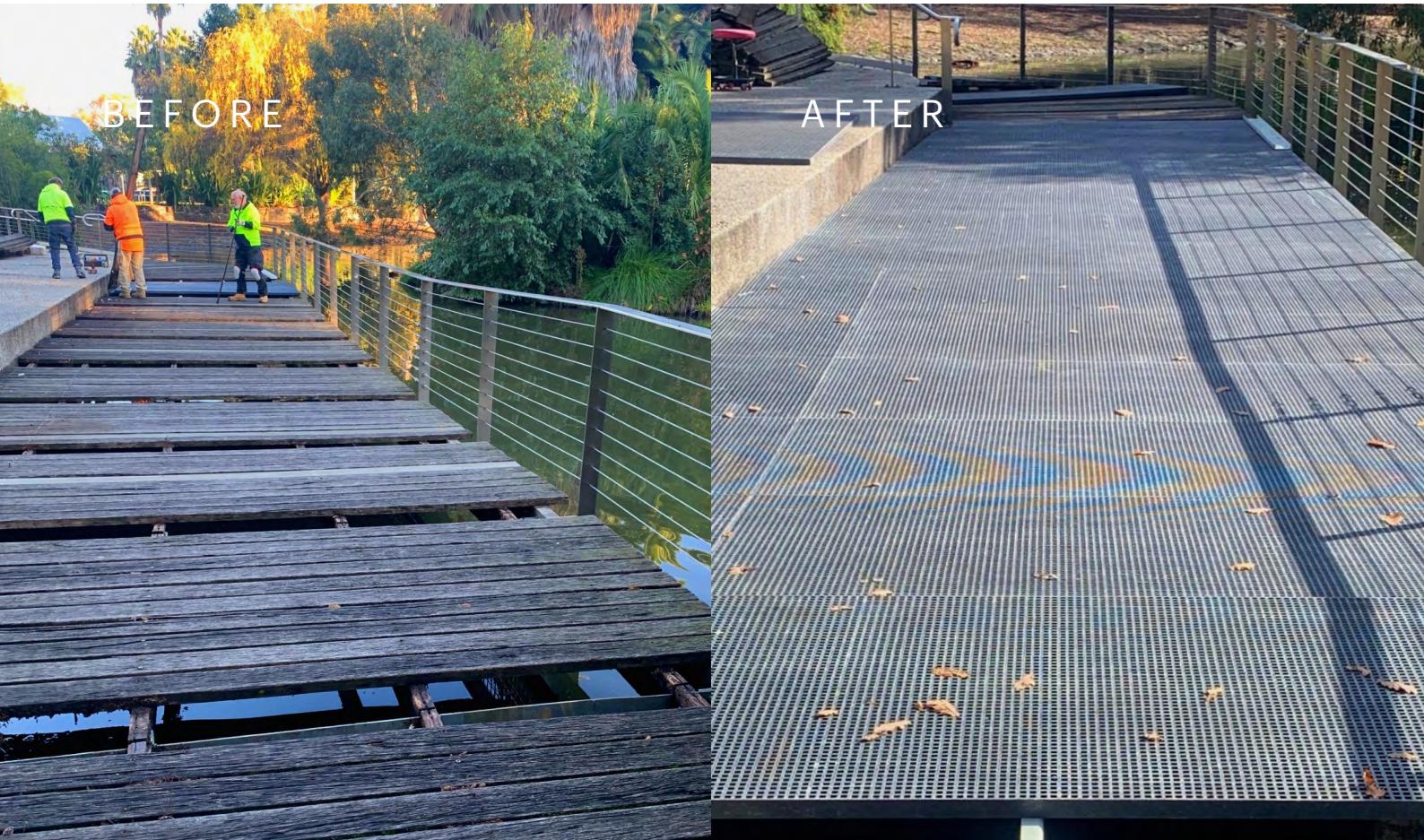
The existing timber boardwalk and substructure had decayed and rotted, creating significant safety hazards for the community.

Need

- Safe, durable decking and substructure to replace deteriorated timber.
- Low-maintenance, cost-effective materials to reduce lifecycle costs.
- Efficient design and installation methods to minimise disruption.

Scope

Design, supply, and installation of an engineered composite solutions.



Solution

Terra Firma FRP Engineering & Installation

Design & Material Specification

- The Terra Firma Design Team worked with council stakeholders to engineer a safe, compliant, and long-life solution.
- Materials were specified to meet relevant Australian Standards for pedestrian access structures (AS1657, AS1170, AS1428).
- FRP Moulded Mini Mesh Decking (RAL7015) and FRP Structural Profiles were selected for their superior corrosion resistance, strength-to-weight ratio, and slip resistance.
- Specifications included UV-stabilised FRP grating & profiles to ensure long-term performance with minimal maintenance.

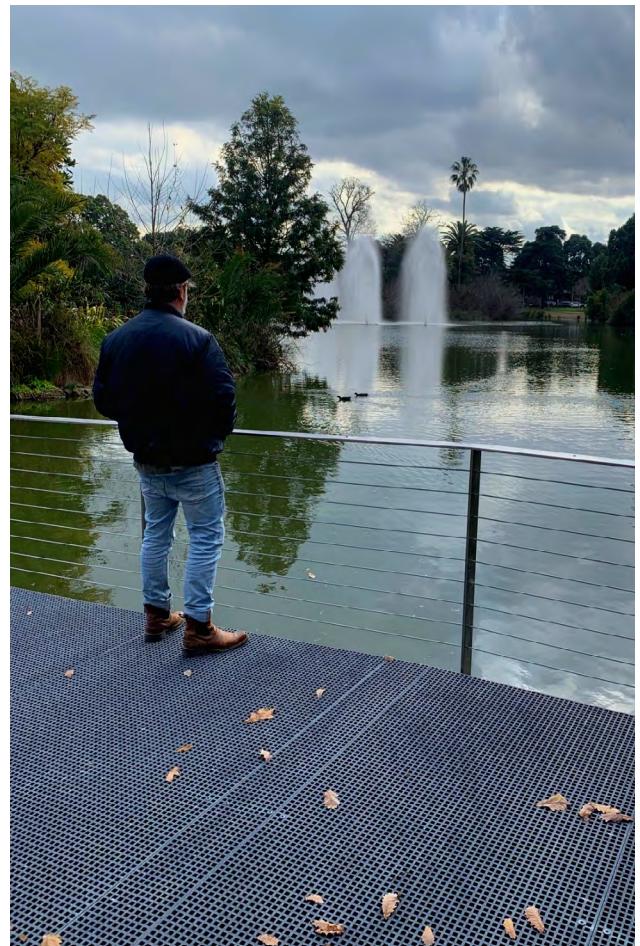
On-Site Installation

- Old timber was carefully removed and replaced with prefabricated FRP components, improving efficiency and reducing labour costs.
- Installation methods ensured the structure met safety compliance while maintaining aesthetic integration with the park environment.

Materials Used

FRP Mini Mesh & Structural Profiles

- TF FRP Moulded Mini Mesh (RAL7015): Provided safe, anti-slip pedestrian surfaces with proven durability in wet environments.
- TF FRP Structural Profiles: Used for the substructure, replacing decaying timber beams with lightweight, high-strength, corrosion-proof alternatives.





Outcomes and Benefits

- A safe, durable, and low-maintenance boardwalk for community use.
- Reduced lifecycle costs compared to traditional timber, with ROI analysis showing 30–40% savings over the asset life.
- Installation with minimal impact on the public.



ROI Comparison

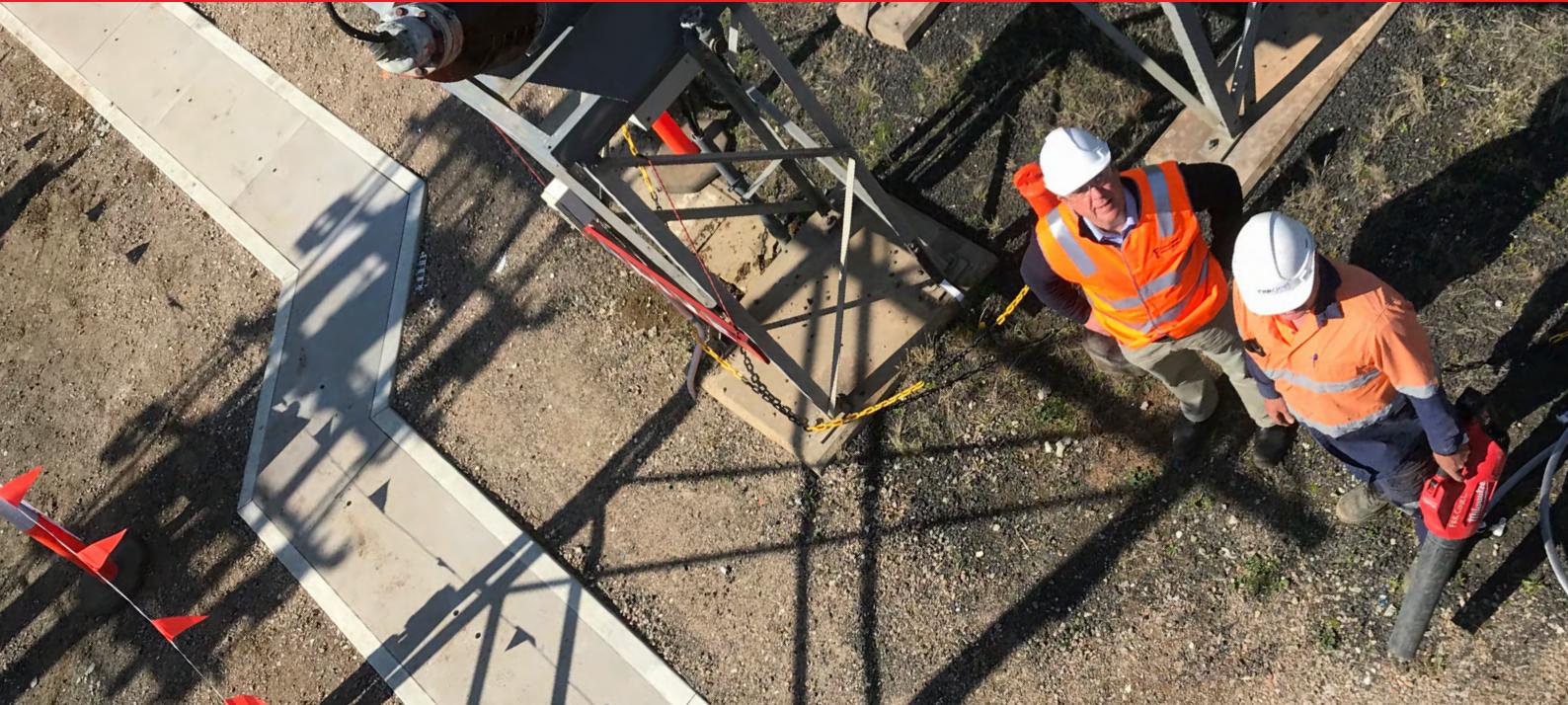
Outdoor Access Structures

Criteria	Terra Firma FRP Boardwalks	Steel Boardwalks	Timber Boardwalks
CapEx / Installed Cost	Lower – prefabricated FRP profiles, lightweight handling, no welding/painting; 15% savings on prelims/site works	High – heavy cranage, fabrication, coatings; more prelims	Low upfront material cost, but on-site fabrication driving higher installation costs
Installation Time	Faster – modular panels, hand-tool cutting, no cranes; saves 20–25% time	Slower – welding, cranage, surface coating, weather delays	Slow on-site fabrication, requiring skilled carpenters and trades
Lifecycle Costs (20 yrs)	Lowest – no rot, no corrosion, minimal maintenance; 30–40% lifecycle savings	High – corrosion, repainting, recoating; replacement at ~15 yrs	Very high – rot, insect attack, splintering; major replacements every 7–10 yrs
Health & Safety	Safest – up to 70% lighter, reduced manual handling risks, slip-resistant surface	Heavy lifting risks, crane dependency, hot works	Splinters, rot, slip risk when wet; manual handling issues
Whole-of-Life ROI	Strong – NPV positive, ROI 25–30% better over life of asset	Negative – lifecycle costs erode upfront spend	Negative – low upfront, but poor durability leads to very high lifecycle costs



About Terra Firma Industries

At Terra Firma, we imagine infrastructure differently.



Imagine halving time to deploy,
Imagine lowering capital costs by up to 60%,
Imagine infrastructure that lasts up to 10 times longer
across its whole-of-life,
Imagine reducing OH&S incidents 200 fold versus
traditional alternatives.

For over 30 years Terra Firma have led the transition
from heavy, traditional materials to create the solution
category for smarter, safer and more sustainable pit
lid, access cover and FRP grating solutions based on
composite designs.

Take a look next time you're walking past your favourite
restaurant, enjoying the scenery in your local park,

launching a boat at your marina, refuelling your car at
the local service station or performing a maintenance call
at your water of energy utility, with hundreds of locations
and thousands of deployments, chances are you will see
Terra Firma in action.

From custom designs to pre-engineered solutions,
our dedicated team provide you the tools, expertise
and support to help engineers, project managers and
operators reduce costs, save time and lower OH&S risk.
We're not just supplying advanced materials and
technologies – at Terra Firma we're setting the standards
for how they will be deployed into the future.



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