

Innovative Retaining Solutions for AMAALA



Amala Rosewood Resort, Triple Bay, Kingdom of Saudi Arabia

Tensar geogrid-reinforced soil walls were selected to form retaining structures for grade separation adjacent to residential villas. Compared with conventional reinforced concrete walls, Tensar walls addressed geometry constraints and accommodated vegetation and utility requirements.

CLIENT'S CHALLENGE

The retaining wall system was required to conform precisely to the proposed alignment while providing the flexibility necessary to adapt to site constraints. The design needed to facilitate tiered landscaping with vegetated terraces, whilst seamlessly integrating existing and proposed utility corridors. Furthermore, the solution had to support a natural boulder-faced aesthetic using locally sourced stone, within a restricted spatial envelope.

TENSAR SOLUTION

The Tensar® Wrap Around Facing (WAF) geogrid reinforced soil wall system offered an optimal and adaptable solution for complex wall geometries, seamlessly integrating vegetation, utility corridors, and the client envisaged natural boulder finish. This ensured compliance with both engineering and architectural requirements. The system's rapid, staged construction significantly reduced material usage, accelerated delivery, and minimised carbon footprint, providing clear advantages over traditional retaining structures

B E N E F I T S

- **Flexible reinforced soil system** accommodating varying wall alignments.
- **Faster construction** using layered reinforced soil and sequential trades, minimizing programme delays.
- **Cost-effective solution** with lower material, labour, and foundation requirements.
- **Lower embodied carbon footprint** compared to conventional RC wall alternatives.

Tensar®

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PROJECT DETAILS

Application

Earth Retaining Walls & Slopes and Sub-grade Stabilisation | No. 564

Constructed in
2024

Client:
AMAALA

Lead Consultant:
DSA Architects International (DSA)

Landscaping Consultant:
Cracknell

Design Architect:
Citterio-Viel & Partners

Designer:
Astbury Shepherd Gilmour Engineering Consultants (ASG)

Main Contractor:
Saudi Salco Contracting Company (SALCO)

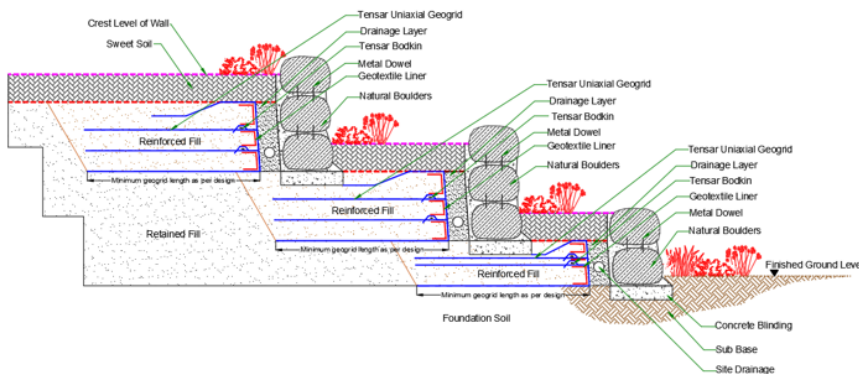
Tensar Distributor:
Roads Development Trading Est.

PROJECT BACKGROUND

The Rosewood AMAALA Resort, located at Triple Bay along Saudi Arabia's Red Sea coast, is part of the AMAALA giga project and was developed with a strong focus on sustainability, wellness, and biodiversity conservation. Given its sensitive coastal and ecological setting, the project required engineering solutions that could minimise environmental impact while delivering flexibility, stability, and long-term performance.

As part of the site development works, the Tensar Wrap-Around Facing (WAF) geogrid-reinforced soil wall system was adopted to construct retaining structures that integrated with the resort terrain. The system accommodated varying site geometries and elevation changes through single-, double-, and triple-tiered wall configurations, with wall heights ranging from approximately 2.0 m to 6.5 m and lengths from 14 m to 62 m.

The Tensar system delivered stable, visually compatible retaining structures that supported the project's sustainable design objectives while meeting functional, architectural, and landscape integration requirements.



Three-tiered Tensar® Wrap Around System (WAF) accommodating the natural boulder facing



Natural stone boulders and planted vegetation harmoniously blending with the completed Tensar® Wrap Around Facing (WAF) reinforced soil wall system

“The Tensar® WAF solution demonstrated exceptional adaptability and versatility, efficiently addressing complex geometric constraints while aligning seamlessly with the project's sustainability ambitions and aesthetic requirements.”

Ramsel Pinto
Associate Director
Astbury Shepherd Gilmour Engineering
Consultants (ASG)

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