

DRAB Completes Shoring Design for Aramco Stadium Stormwater Connection Works, Dammam - Saudi Arabia



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Business Development Department – Amman, Jordan | October 2025

Dammam, Saudi Arabia – October 2025 – DRAB Engineering Consultants is proud to announce the completion of the shoring design for the stormwater connection works at Aramco Stadium, a landmark development that will serve as one of the future World Cup venues.



Figure 1: Proposed Project

SCOPE

The completed scope covered the design and analysis of a temporary shoring system supporting a deep excavation reaching approximately 8 meters, required for the installation of new stormwater infrastructure adjacent to the stadium. The adopted system consisted of a soldier-pile wall with steel plate lagging and multi-level bracing, ensuring safe, efficient, and constructible excavation works under challenging ground conditions.

KEY DESIGN ASPECTS

Designed in accordance with BS EN 1997-1 (Eurocode 7) and AASHTO LRFD, and developed using state-of-the-art soil-structure interaction modeling tools, the system reflects DRAB’s commitment to safety, constructability, and material optimization. Relevant FHWA guidelines for temporary works were also considered, ensuring full stability under all operational and safety load cases.

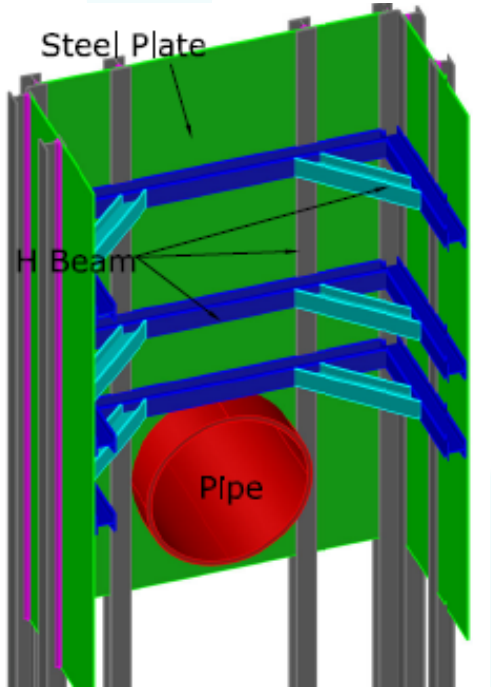


Figure 2: Soldier Piles Design Concept

Result Parameter	Symbol / Reference	Value	Unit	Remarks
Excavation Depth	H	12	m	Final design depth
Max. Wall Bending Moment	Mmax	60.5	kN-m/m	At $\approx$ mid-height of wall
Max. Wall Shear	Vmax	85.9	kN/m	At upper half of wall
Max. Strut Reaction	Rmax	128.7	kN/m	Uppermost strut (EL $\approx$ -2 m)
Max. Wall Deflection	δ_{max}	0.020	m	Within H/400 limit
Factor of Safety – Embedment	FStoe	1.71	–	Satisfactory (> 1.5)
Factor of Safety – Basal Stability	FSbasal	2.23	–	Satisfactory (> 1.5)
Factor of Safety – Global Stability	FSglobal	> 1.3	–	Meets code requirement

Figure 3: Analytical & Structural Performance Results

“This successful design underscores DRAB’s commitment to technical excellence and optimized engineering solutions that adapt to each project’s challenges,” said a DRAB spokesperson. “It also represents an important milestone as we continue to expand our presence across the Gulf region.”