

WATER BLOCK PACKAGE, HRRL

BARMER, RAJASHTAN



Overview

Keller successfully delivered an optimal and sustainable foundation solution to support the proposed units—RWTP (Raw Water Treatment Plant), RO-DM (Reverse Osmosis—Demineralization Plant), and CPU (Condensate Polishing Unit)—at the HCPL Rajasthan Refinery in Barmer. The foundation design was tailored to the site's geotechnical challenges, ensuring long-term stability and performance for these critical infrastructure components.

• The project

M/s HPCL Rajasthan Refinery Limited (HRRL) has put forth plans to build a Raw Water Treatment Plant (RWTP), RO-DM, and CPU as a part of refinery structure. M/s EIL was the project consultant, and M/s L&T Construction Wet IC secured the construction contract. M/s L&T awarded M/s Keller to design & execute the foundation works for proposed structures.

• The challenge

The proposed site was located in a low-lying area previously occupied by dead salt pans. To achieve the desired Finished Ground Level (FGL), the entire plot was raised by placing approximately 2 meters of good quality soil. The native subsoil profile consisted of silty sand at the top, followed by stiff to hard clay extending up to 20 meters below the EGL. The upper silty sand layer exhibited high salinity and was prone to collapse, presenting significant geotechnical challenges.

• The solution

Leveraging its engineering and operational expertise, M/s Keller conducted a detailed analysis and implemented a dual foundation strategy. Structures with lower sensitivity to settlement were supported using open foundations on vibro stone columns, which provided effective ground improvement and load distribution. For structures requiring stringent settlement control ($\leq 25\text{mm}$), Keller employed BCIS piles to ensure stability and performance. This resulted in overall time & cost savings for the overall project.

Application

Settlement Control & Bearing Capacity enhancement

Technique

Vibro Stone Column
BCIS Piles

Market

Industrial / Oil and Gas

Client

L&T Construction Wet IC

Main contractor

Keller Ground Engineering
India Private Limited

Contract Value

NA

Keller business unit (s)

Keller Ground Engineering
India Pvt. Ltd