

## Ground improvement using vibro stone columns for 1.25 MMTPA PTA plant

Mangalore, Karnataka

Keller efficiently installed and monitored vibro stone columns for the large diameter steel tank foundations with variable ground conditions, addressing differential and total settlement concerns.



### The project

JBF Petrochemical industries Ltd proposed to construct a new paraxylene terephthalic acid (PTA) plant with a capacity of 1.25 million metric tonnes per annum (MMTPA) in Mangalore, India. The plant mainly comprised storage tanks, process plants, substations and other ancillary buildings. Keller was commissioned to design and execute ground improvement works for three paraxylene tanks and two fire water storage tanks with diameters 64m and 35m respectively. Tank pad civil works were also required for the three paraxylene tanks and two fire water storage.

## The challenge

The subsoil conditions at the site were soft to firm layers of sand of varying thicknesses followed by very dense silty sand or weathered rock and the main challenge was to improve the bearing capacity whilst limiting the total and differential settlement of the tank pad foundation.

## The solution

Keller designed a ground improvement solution using bottom feed vibro stone columns to enhance the bearing capacity of the soil whilst limiting the total and differential settlement. Tank pad work included the laying of stone blanket, HDPE membrane, sand pad, stone ring beam and bitumen works.

## Project facts

### Owner(s)

JBF Petrochemicals Ltd

### Keller business unit(s)

Keller India

### Main contractor(s)

JBF Petrochemical Ltd

### Engineer(s)

TechnipFMC Ltd.

### Solutions

Bearing capacity / settlement control

### Markets

Oil and gas

### Techniques

Vibro stone columns