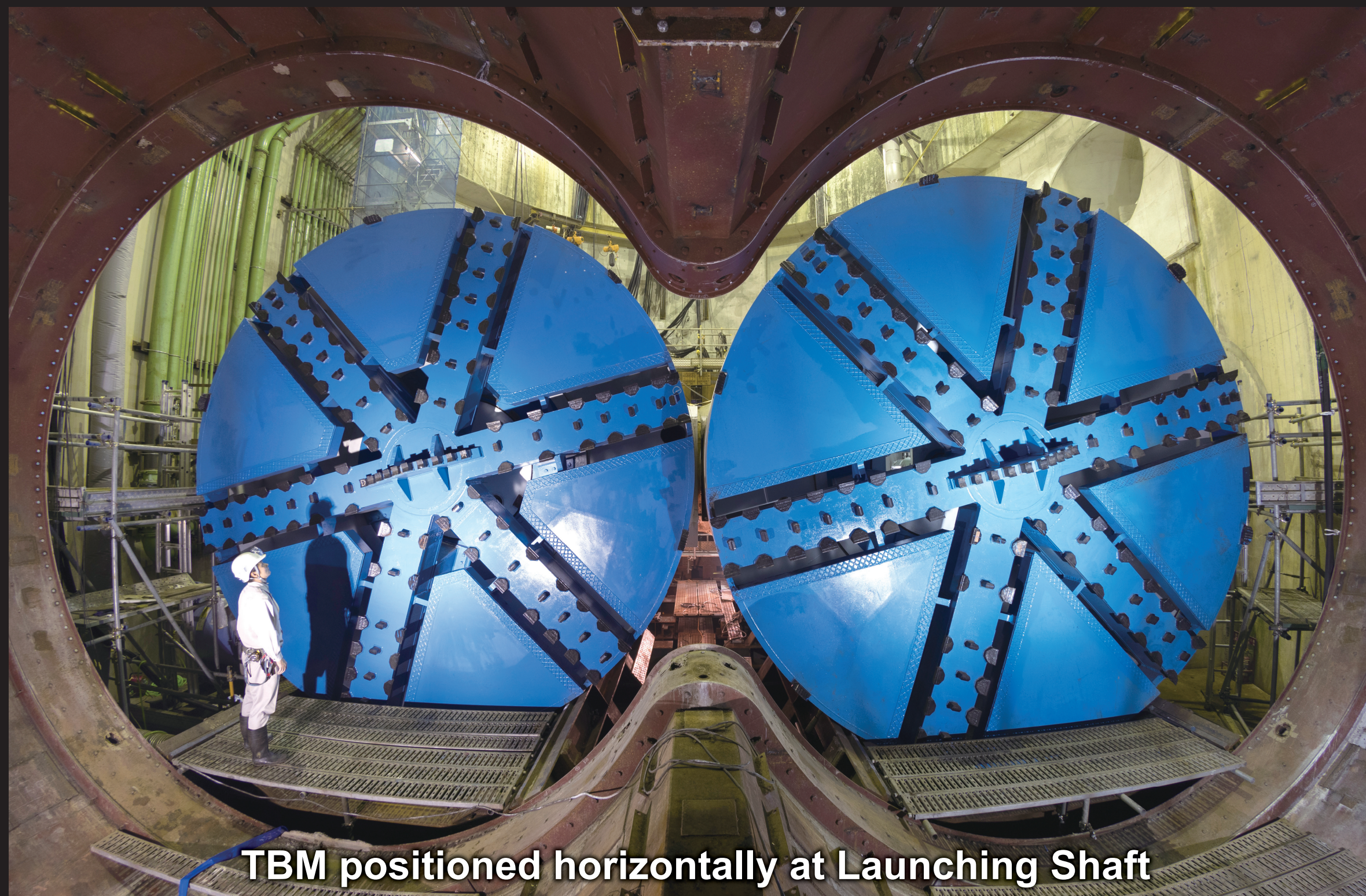


World's First Spiral Excavation Using H&V Shield Tunnelling Method



Due to severe site constraints, two circular pipelines with inner diameter of 5m were simultaneously constructed underneath The Tachiaigawa River located in Shinagawa Ward, Tokyo with the aim to mitigate damages caused by floods to the vicinity while at the same time improving quality of the water.

This project adopted the world's first attempt the H&V (Horizontal & Vertical) Shield Tunnelling Method, which is capable of simultaneously constructing two adjacent tunnels in a spiraling manner by two inter-connected TBMs.

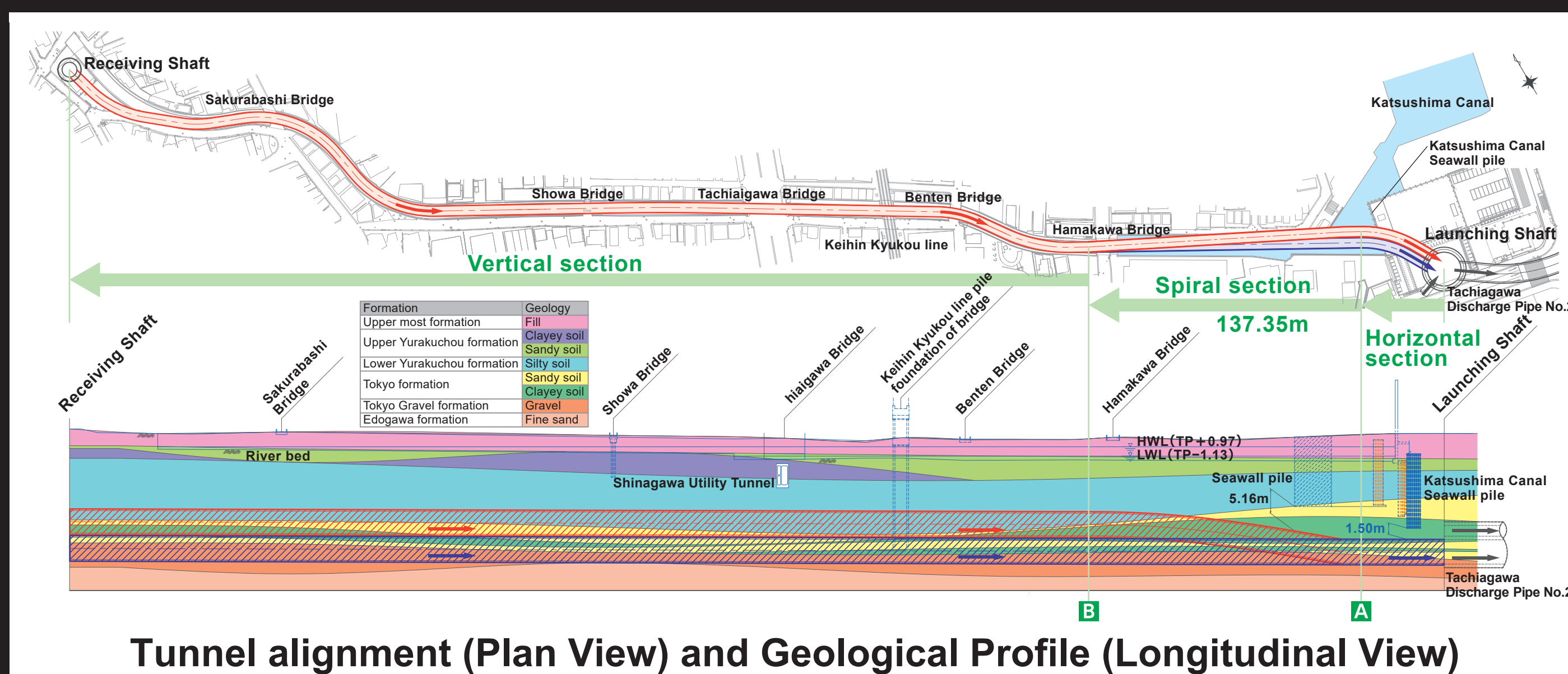


TBM positioned horizontally at Launching Shaft



View of H&V Shield Machine

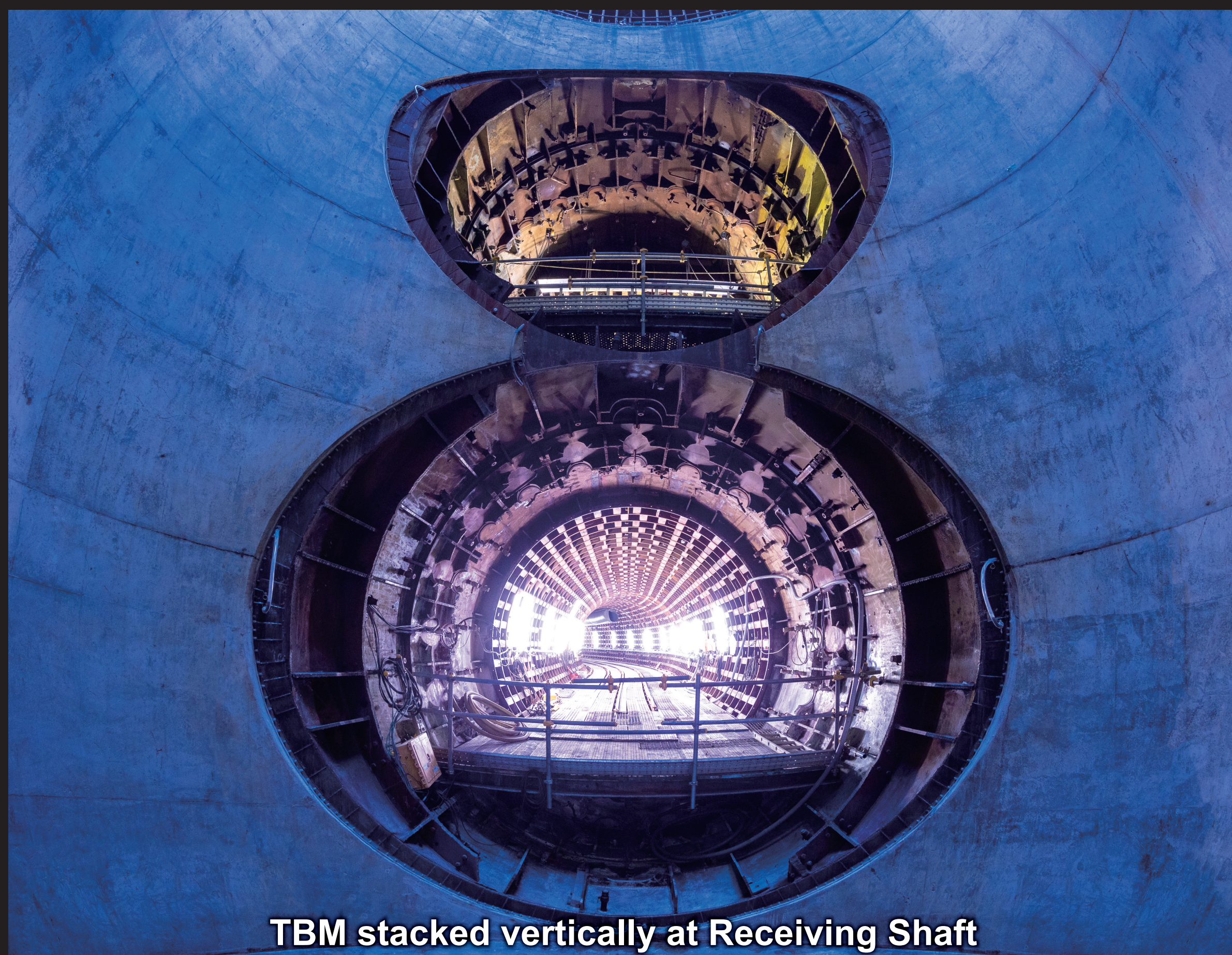
Client	Bureau of Sewerage Tokyo Metropolitan Government
Engineering firm	NIHON SUIKO SEKKEI
Main Contractor	SHIMIZU CORPORATION
TBM Manufacturer	Kawasaki Heavy Industries, Ltd.



Tunnel alignment (Plan View) and Geological Profile (Longitudinal View)



View within spiral section



TBM stacked vertically at Receiving Shaft

H&V Shield Tunnelling Method has the advantages that reducing the range of soil improvement and only requiring one starting step. It also shortened the construction period as well as reducing the construction cost.

This project is the winner for ITA Tunneling Award 2022 for Project of the Year (between 50-500mil€)

