

BANGKOK WASTEWATER - STORM PUMPING STATION

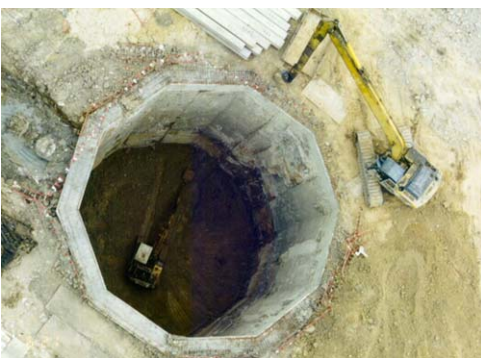
Deep Circular Diaphragm Wall

Technical Reference No. 09/99

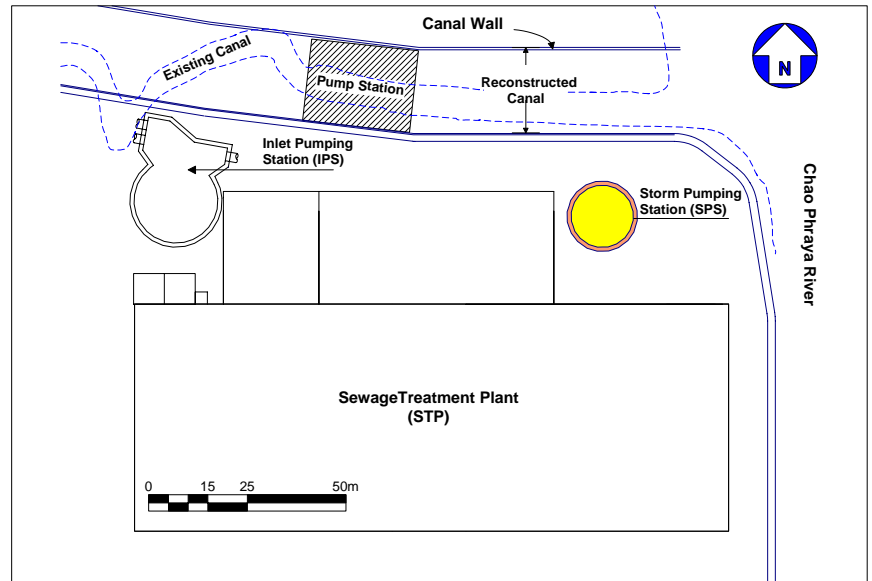
GENERAL

The Storm Pumping Station is one of the main pumping stations for the Bangkok Wastewater Treatment Plant Project, Yannawa Works. It is a deep circular shaft located by the sewage treatment plant at Rama III Road, Yannawa, Bangkok. The circular-shaped shaft has a 1.0m thick cast in-situ diaphragm wall with toe depth of 24.2m below ground level. The circular perimeter wall of the shaft is composed of 10 panels approximately 5.2m in length and form an inside diameter of 15m. The layout of the panels was arranged to maximize the strength of the structure. It was designed for maximum excavations depths of up to 23.0m inside the shaft to allow construction of a 2.0m thick base slab and internal structures without use of lateral supports.

The shaft has a bulk head opening to receive an incoming 2.25m diameter pipe at 18.6m below ground level.



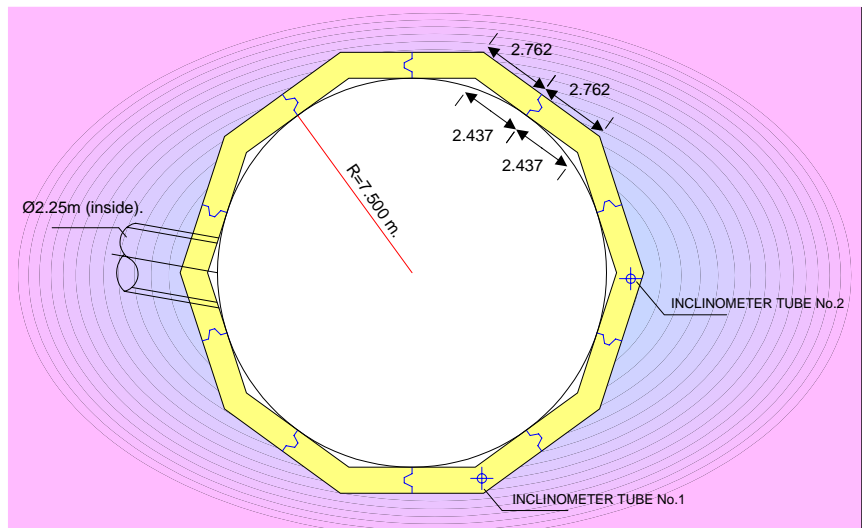
Excavation inside the shaft.



Location of Storm Pumping Station.

WORK UNDERTAKEN

- DIAPHRAGM WALL: 1,216.40sq.m. (1.0m Thick)
- INSTRUMENTATION: 2 Inclinator Tubes in the wall.



Panel arrangement.

TYPE OF WORK:	Cast in-situ Diaphragm Wall
OWNER:	Bangkok Metropolitan Administration
SUPERSTRUCTURE	
CONTRACTOR:	Samsung – Lotte – CEC Joint Venture
DESIGNER:	Ove Arup and Partners International Ltd.
PERIOD:	1996



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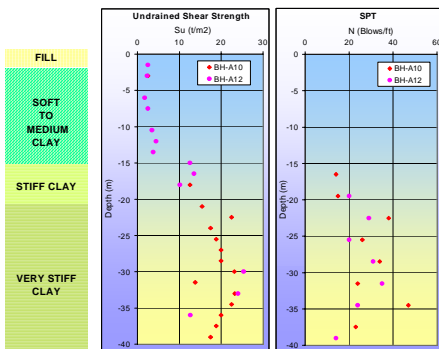
Guide wall construction.



Diaphragm wall panel excavation.



Installing a 24m-long reinforcement cage for a diaphragm wall panel.



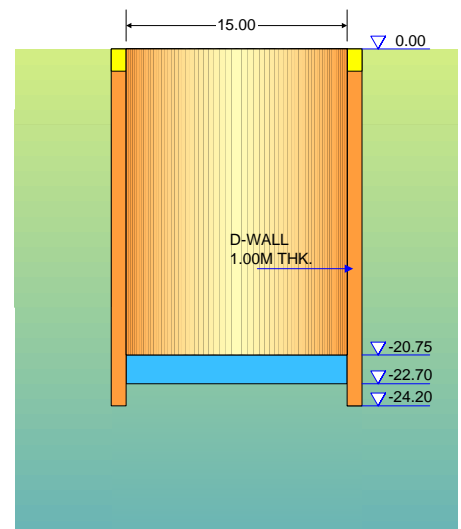
Subsoil conditions.



Excavation in progress.



Excavation at depth about 20.0m below the ground.



Sectional view (schematic).

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References:

- Puller, M. (1996), "Deep Excavations – A Practical Manual", published by Thomas Telford Publishing, London. Pp. 245-249.
- Xanthakos, P. P. (1994), "Slurry Walls as Structural Systems, Second Edition", published by McGraw-Hill Inc. Pp. 772-791.

