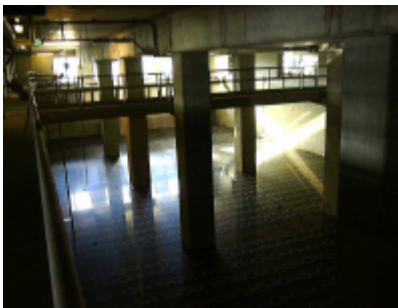


YANNAWA Wastewater Treatment Plant – Bangkok, Thailand

Client: Bangkok Metropolitan Authority (BMA)

Value: £98million



Description:

A new ‘multi-storey’ sewage treatment works designed for 200,000m³/d DWF and 1,000,000m³/d maximum flow. The treatment plant comprises 7 No. 260kW fixed speed Flow to Full Treatment Pumps and 8 No. 460kW fixed speed Storm Pumps, coarse and fine screens, screenings handling equipment, grit classifiers, interstage pumping station, CASSTM activated sludge plant, air blower installation, night soil storage, sludge treatment and dewatering, multi-stage wet scrubber odour control plant, building and site services.

The purpose of the Yannawa project is to provide wastewater collection and treatment for the Bangrak, Sathorn, BanKhor Laem and Yannawa districts of Bangkok with a combined area of approximately 2,850 hectares.

KEY FEATURES

- The present (1995) contributory population of approximately 500,000 is expected to double to 1,000,000 by the design horizon year of 2020.
- Three phases of construction are anticipated with an available land area of only 32,000m².
- Dry Weather flow 200,000m³/d (Phase 1).
- Maximum flow to the works 1,000,000m³/d (Phase 1).
- Maximum flow to the works 2,000,000m³/d (Ultimate)

YANNAWA Wastewater Treatment Plant – Bangkok, Thailand

Earth Tech were responsible for the complete detailed electrical and instrumentation design for the Flow to Full Treatment and Storm Pumping Stations and the Treatment Plant. Earth Tech were appointed as the design consultants for the mechanical, electrical and civil element of the Wastewater Treatment Works.

Sludge for disposal off site is to be lime stabilised and achieve a minimum solids concentration of 20%.

The need for a high quality effluent on a confined site with poor ground conditions and odour control requirements requires innovative solutions, suitable for multi-storey construction. For this reason, the process chosen for removal of biological pollutants does not have primary or final settlement tanks and is based on the Cyclic Activated Sludge System (CASSTM), a fed-batch single sludge – single basin nutrient removal methodology.

The Cyclic Activated Sludge System has been installed worldwide and works on a variable volume ‘fill and draw’ principle. CASSTM is capable of achieving high quality effluents in a single stage including denitrification and biological phosphorus removal. Large fluctuations in biological and hydraulic load are automatically accommodated with the flexibility and control offered by the operational cycles.

The proposed works is essentially a four storey compartmented box construction and the nature of the process allows a grid of columns to be placed within the aeration tanks for direct load transfer to the piled foundations.

The achievement of a much smaller footprint than a conventional inlet works has been possible by the use of ‘Dynamic Separation’ of non-biodegradable materials.

The proposed works therefore provides an economic flexible solution for the Yannawa site to meet the high performance quality standards specified by the Client.

Earth Tech were appointed by the Samsung-Lotte-CEC Joint Venture as a subconsultant to Ove Arup. Ove Arup were responsible for the sewerage system design, architectural and building design, building and site services. In addition to the electrical and instrumentation design, Earth Tech were also responsible for the process and mechanical engineering design. Close liaison with the main consultant, Ove Arup, was an essential part of providing the Client with an integrated design.

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