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6 July 2012

Clerk to the Panel on Development
Legislative Council Complex
1 Legislative Council Road,
Central, Hong Kong
(Attn: Ms. Connie SZETO)

Dear Ms. Szeto,

Panel on Development
Follow-up to Meeting on 24 April 2012
CB(1)1607/11-12(06)

In considering the paper on “Kai Tak Development – Reconstruction and Upgrading of Kai Tak Nullah” on 24 April 2012, Members expressed concerns about the large quantity of energy consumed and high operation cost incurred in the conveyance of treated effluent from the Tai Po and Sha Tin sewage treatment works to the Kai Tak Nullah (KTN) for discharge. In response to Members’ request, the Administration provides the requested information in the ensuing paragraphs.

Background

In order to achieve and maintain the water quality objectives

of Tolo Harbour, the Government established in 1986 the Tolo Harbour Action Plan (THAP) to improve the quality of water in Tolo Harbour. The key initiative in the THAP is the Tolo Harbour Effluent Export Scheme (THEES), which conveys treated effluent from both the Tai Po sewage treatment works (TPSTW) and Sha Tin sewage treatment works (STSTW) via pipelines/tunnel to the KTN. Since commencement of operation in phases between 1995 and 1998, the THEES has significantly reduced the quantity of pollutants entering Tolo Harbour while the conveyance of treated effluent has provided better flushing effect to the KTN. As a result, the water quality in Tolo Harbour as well as the KTN has shown encouraging improvements. Comparing the water quality monitoring results prior to the commissioning of the THEES and those in 2010, the average level of 5-day biochemical oxygen demand¹ (BOD₅), total inorganic nitrogen² (TIN) and *Escherichia coli* (*E. coli*) at Tolo Harbour has significantly reduced by 29%, 49% and 71% respectively, while the average level of BOD₅, TIN and *E. coli* at the KTN also reduced by 87%, 42% and 47% respectively.

Routing and Length of the Pipeline

Treated effluent from the TPSTW is first conveyed to the STSTW through a submarine pipeline in Tolo Harbour. The combined effluent of both sewage treatment works is then pumped to a tunnel portal at A Kung Kok, Shatin, and conveyed through the tunnel by gravity to the KTN for discharge. The THEES comprises-

- (i) two effluent pumping stations, located separately at the TPSTW and STSTW;
- (ii) a 6.7 kilometres (km) long submarine pipeline of 1 metre (m) diameter;
- (iii) a 1.7 km long twin rising mains each of 1.4 m diameter; and

¹ 5-day biochemical oxygen demand is a measure of the amount of oxygen used up by microbial in decomposing organic matter in a water sample over a period of 5 days.

² Total inorganic nitrogen is a measure of the amount of nutrients in the water.

- (iv) a 7.5 km long tunnel of 3 m diameter.

A layout plan of the THEES is at **Annex**.

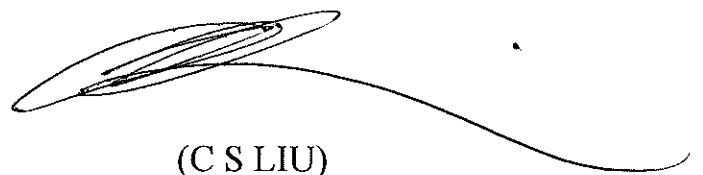
Energy Consumption

The conveyance of the treated effluent from both the TPSTW and STSTW to the KTN involves an annual power consumption of about 15 million kWh and annual expenditure of about \$13.5 million in 2011/12. Based on a total effluent discharged volume of about 115 million cubic metres, the average power consumption rate is about 0.13 kWh per cubic metre (m³) of effluent and the associated unit cost of power consumption is about \$0.12 per m³.

Annual Operating/Maintenance Expense

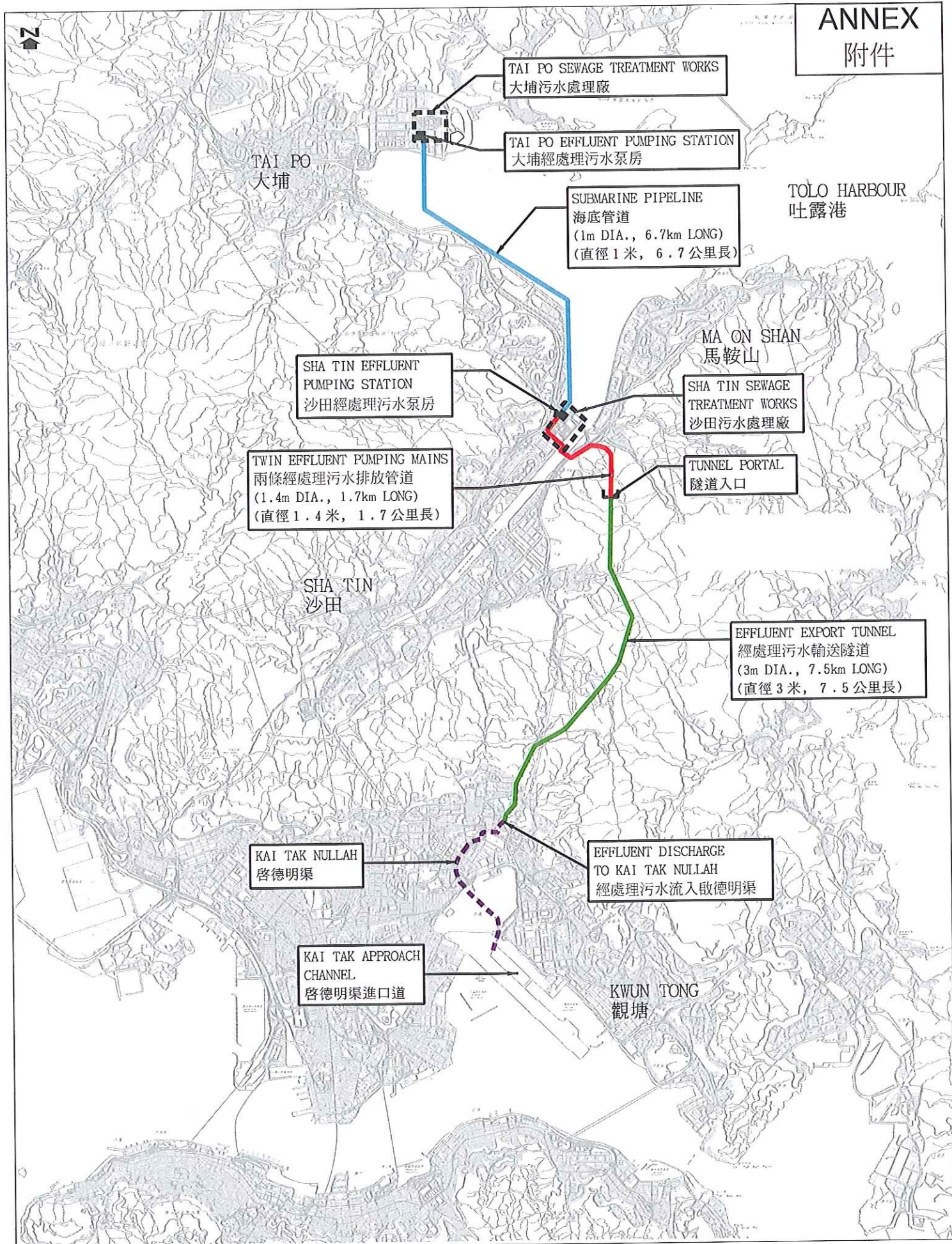
Apart from the expenditure on energy consumption for effluent pumping as stated above, the operation/maintenance expense of the THEES in 2011/12 is \$6.5 million.

Yours sincerely,



(C S LIU)
for Secretary for Development

c.c. DCED (Attn : Mrs. Sorais LEE)



LAYOUT OF TOLO HARBOUR EFFLUENT EXPORT SCHEME

吐露港經處理污水輸送計劃示意圖