

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 – WATERWORKS

Water Supplies – Salt water supplies

56WS – Improvement of salt water supply to Tsuen Wan and Kwai Chung

Members are invited to recommend to the Finance Committee the upgrading of **56WS** to Category A at an estimated cost of \$348.6 million in money-of-the-day prices.

PROBLEM

The capacity of the existing Tsuen Wan Salt Water Pumping Station (SWPS) is not adequate to cope with the anticipated increase in salt water demand of its current supply zone of Tsuen Wan, Kwai Chung and the extended supply zone covering Lai King and Northwest Lai Chi Kok areas.

PROPOSAL

2. The Director of Water Supplies, with the support of the Secretary for Development, proposes to upgrade **56WS** to Category A at an estimated cost of \$348.6 million in money-of-the-day (MOD) prices for upgrading the output capacity of the existing Tsuen Wan SWPS to cope with the anticipated increase in salt water demand and laying salt water mains to extend its supply zones to cover Lai King and Northwest Lai Chi Kok areas.

PROJECT SCOPE AND NATURE

3. We propose to upgrade **56WS** to Category A, which comprises –
- (a) installation of two additional pumpsets and replacement of the existing electro-chlorination system by sodium hypochlorite solution dosing system with associated electrical and mechanical plant and equipment in the existing Tsuen Wan SWPS; and
 - (b) laying of about 3.3 kilometres (km) salt water mains of 600 millimetres in diameter.
- _____ 4. A layout plan showing the proposed works is at **Enclosure 1**.
5. We plan to commence the proposed works upon obtaining funding approval from the Finance Committee for target completion in around four years.

JUSTIFICATION

6. The Tsuen Wan SWPS supplies salt water to Tsuen Wan and Kwai Chung areas for flushing currently. Salt water from the pumping station is delivered to service reservoirs and consumers through water mains. Owing to the increase in salt water demand arising from the planned developments in Tsuen Wan, Kwai Chung and the extended supply zone covering Lai King and Northwest Lai Chi Kok areas, we anticipate that the mean daily salt water demand in the aforesaid areas will exceed the total maximum output capacity of the existing Tsuen Wan SWPS by year 2025.
7. To cope with the anticipated increase in salt water demand, we have to uprate the output capacity of the existing Tsuen Wan SWPS from 108 000 cubic metres per day (m³/day) to 141 000 m³/day and lay about 3.3 km long salt water mains to extend the supply zone to cover Lai King and Northwest Lai Chi Kok areas. As part of the uprating works, the existing electro-chlorination system of the Tsuen Wan SWPS will be replaced by a sodium hypochlorite solution dosing system for better cost effectiveness.

8. Currently, there is a salt water supply system in the Kwai Chung Hospital (KCH) for flushing within the hospital and Lai King and Northwest Lai Chi Kok areas. This salt water supply system will be disconnected under the redevelopment programme of KCH¹. Extension of the existing Tsuen Wan SWPS's supply zone to cover Lai King and Northwest Lai Chi Kok areas is necessary in order to maintain the salt water supply to the aforesaid areas for flushing.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed works to be \$348.6 million in MOD prices, broken down as follows -

	\$ million (in MOD prices)
(a) Upgrading works of Tsuen Wan SWPS	29.1
(b) Laying of salt water mains	276.1
(c) Environmental mitigation measures	5.2
(d) Consultants' fees for advisory service for administration of contract adopting New Engineering Contract (NEC) ² form of contract	6.5
(e) Contingencies	31.7
Total	348.6

10. While the construction of the proposed works will be supervised by in-house staff, we propose to engage consultants to provide advisory service for administration of the contract for the proposed works which will adopt NEC form of contract. A detailed breakdown of the estimate for the consultants' fees by man-months is at **Enclosure 2**.

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¹ The redevelopment of KCH commenced in June 2016 for completion by the second quarter of 2025.

² NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It emphasizes cooperation, mutual trust and collaborative risk management between contracting parties.

11. Subject to funding approval, we plan to phase the expenditure as follows –

Year	\$ million (in MOD prices)
2021 – 2022	40.4
2022 – 2023	57.5
2023 – 2024	71.2
2024 – 2025	80.6
2025 – 2026	59.8
2026 – 2027	39.1
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	348.6
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12. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2021 to 2027. We will deliver the proposed works under NEC form of contract with provision for price adjustment.

13. We estimate the additional annual recurrent expenditure arising from the proposed works to be \$11.08 million.

14. The project will lead to an increase in the total annual expenditure on waterworks operation by 0.23% in real terms upon the completion of the project³.

PUBLIC CONSULTATION

15. We consulted the Traffic and Transport Committee of Kwai Tsing District Council and obtained support from the members on 18 December 2020.

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³ The increase in annual expenditure is calculated at the 2020-21 price level on the assumption that all other factors remain constant during the period until the completion of the project.

16. We consulted the Legislative Council Panel on Development on 26 January 2021. Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

17. The proposed works is not a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499). We have carried out a Preliminary Environmental Review (PER) for the project concluding that the project would not have any long-term environmental impacts. We will incorporate the mitigation measures recommended in the PER into the works contract to control the environmental impacts arising from the construction works to within established standards and guidelines. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks and use of silenced construction plant. We have included in paragraph 9(c) above a sum of \$5.2 million (in MOD prices) in the project estimate for the implementation of these environmental mitigation measures.

18. At the planning and design stages, we have optimised the design and layouts to reduce generation of construction waste. In addition, we will require the contractor to reuse inert construction waste (e.g. demolished concrete and excavated soil and rock) on site or at other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities⁴. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce generation of construction waste.

19. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

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⁴ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste at public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

20. We estimate that the proposed works will generate in total 18 095 tonnes of construction waste. Of these, we will reuse 11 370 tonnes (63%) of inert construction waste on site and deliver 5 820 tonnes (32%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 905 tonnes (5%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfills is estimated to be about \$590,000 for this project (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities and \$200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap.354N)).

HERITAGE IMPLICATIONS

21. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

22. The proposed works do not involve resumption of private land.

TRAFFIC IMPLICATIONS

23. We have carried out a Traffic Impact Assessment for the proposed works and would implement appropriate temporary traffic management schemes to ensure that the proposed works would not cause any significant impact on the traffic during the construction and operation stages. The temporary traffic arrangements at construction stage will be submitted to Transport Department, Hong Kong Police Force and other relevant departments for approval.

BACKGROUND

24. We upgraded **56WS** to Category B in September 2017.

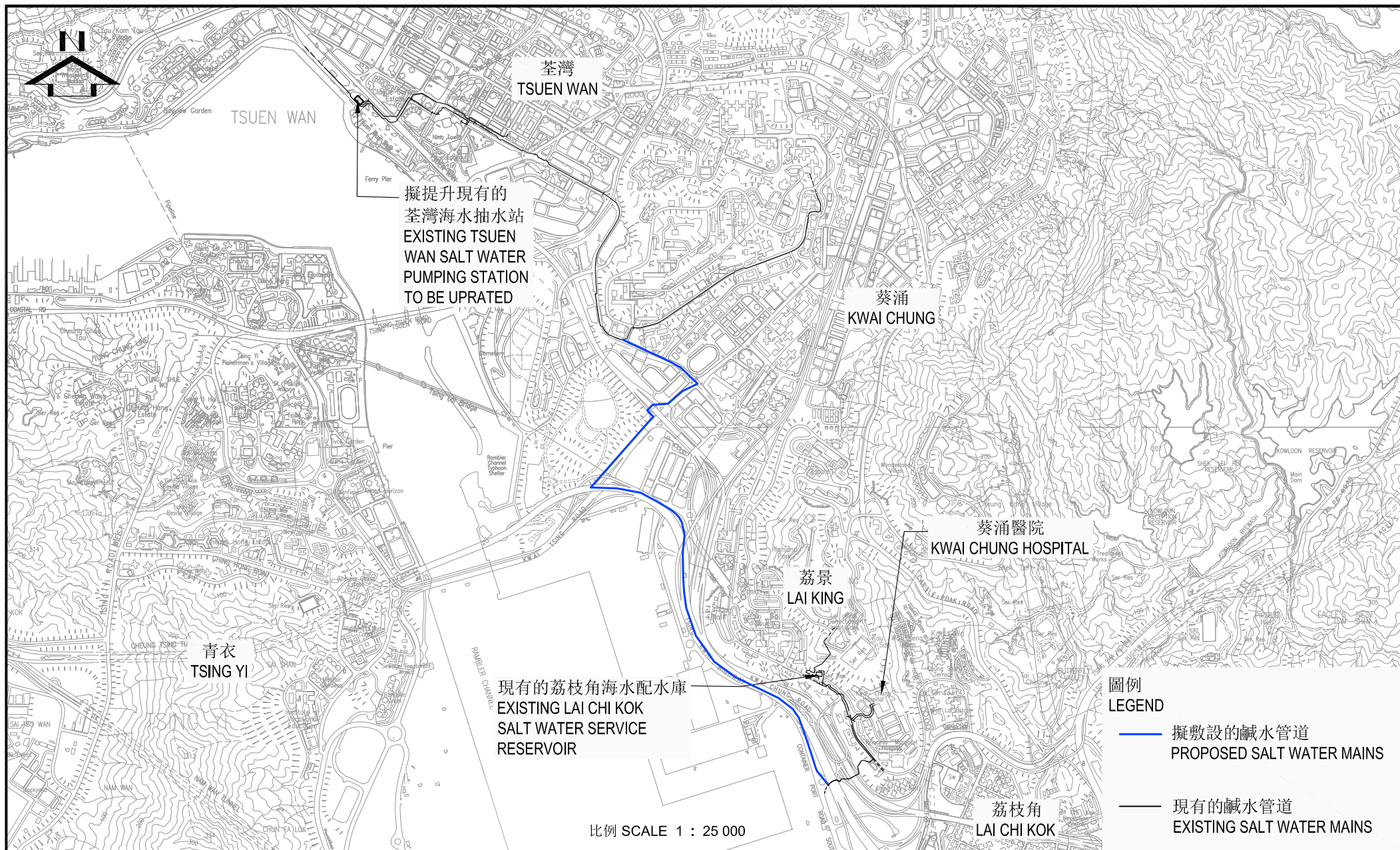
25. In October 2020, we included an item under block allocation Subhead **9100WX** “Waterworks, studies and investigations for items in Category D of the Public Works Programme” at an estimated cost of \$2.06 million in MOD prices for carrying out ground investigation and engagement of consultants to undertake the traffic impact assessment study.

26. We have substantially completed the detailed design of the proposed works using in-house resources.

27. The proposed works will not involve any tree removal or planting proposal.

28. We estimate that the proposed works will create about 70 jobs (60 for labourers and 10 for professional or technical staff) providing a total employment of 2 900 man-months.

Development Bureau
February 2021



工務工程編號 56WS — 荃灣及葵涌鹹水供應系統改善工程
P.W.P. Item No. 56WS --- Improvement of salt water supply to Tsuen Wan and Kwai Chung

Enclosure 2 to PWSC(2020-21)35

56WS – Improvement of salt water supply to Tsuen Wan and Kwai Chung

Breakdown of the estimate for consultants' fees (in September 2020 prices)

		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Consultants' fees for advisory service for administration of contract adopting New Engineering Contract (NEC) form of contract ^(Notes 2 & 3)	Professional	24	38	2.0	4.1
	Technical	24	14	2.0	1.5
Total					<hr/> 5.6#

*MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to arrive at the full staff costs including the consultants' overheads and profit, as the staff were employed in the consultants' offices (as at now, MPS point 38 = \$85,870 per month and MPS point 14 = \$30,235 per month).
2. The actual man-months and fees will only be known after the consultants have been selected.
3. The Water Supplies Department (WSD) will deploy in-house staff to supervise the construction of the proposed works. The fees in (a) above will be used for engaging consultants to provide advisory service for WSD's contract administration and quantity surveying.

Remarks

The figures in this Enclosure are shown in constant prices to correlate with the MPS salary point of the same year. The figure marked with # is shown in money-of-the-day prices in paragraph 9.