

**For discussion  
on 29 April 2025**

**Legislative Council  
Panel on Development**

**PURPOSE**

This paper briefs Members on our proposal to upgrade the following items to Category A for carrying out the improvement of fresh water supply to the Northern Metropolis (including Yuen Long and North District):

- (a) **371WF (part)** – Ngau Tam Mei water treatment works extension – main works – package one at an estimated cost of \$11,535.6 million in money-of-the-day (MOD) prices; and
- (b) **377WF** – Improvement of water supply to northern New Territories at an estimated cost of \$1,079.4 million in MOD prices.

**PROBLEM**

2. To cater for the water demand arising from different development projects in the Northern Metropolis (including Yuen Long and North District) at different stages, expansion and improvement to the water supply system are needed.

**PROPOSAL**

3. The Director of Water Supplies proposes to upgrade the following projects to Category A –

- (a) **part of 371WF** at an estimated cost of \$11,535.6 million in MOD prices to carry out Ngau Tam Mei water treatment works (NTM WTW) extension – main works – package one. Upon completion of 371WF, the water treatment capacity of NTM WTW will be increased from 230 000 m<sup>3</sup> per day to 440 000 m<sup>3</sup> per day so as to cater for the future development demands; and

- (b) **377WF** at an estimated cost of \$1,079.4 million in MOD prices to carry out improvement works of fresh water supply system to convey fresh water from Tai Po Water Treatment Works (TP WTW) to North District. Upon completion of **377WF**, additional fresh water will be conveyed from TP WTW to North District to cater for the future development demands.

4. The Secretary for Development supports the above proposals.

— 5. Details of the above proposals are provided at **Enclosures 1** and **2** respectively.

**Development Bureau**  
**Water Supplies Department**  
**April 2025**

**PWP Item No. 371WF (part)**  
**Ngau Tam Mei Water Treatment Works extension**  
**– main works – package one**

**PROJECT SCOPE**

We propose to upgrade part of **371WF** (proposed works) to Category A comprising –

- (a) increasing the water treatment capacity of the Ngau Tam Mei Water Treatment Works (NTM WTW) from 230 000 cubic metres (m<sup>3</sup>) per day to 440 000 m<sup>3</sup> per day by constructing new water treatment facilities within the existing NTM WTW and enhancing the existing associated facilities, and providing spare space in the new facilities to cater for possible further increasing of water treatment capacity up to 640 000 m<sup>3</sup> per day to cater for the demands in future;
- (b) laying approximately 8 kilometres (km) long of fresh water trunk mains with diameter ranging from 1 400 millimetres (mm) to 2 000 mm from the NTM WTW to the fresh water supply systems near Pok Oi Interchange and Tan Kwai Tsuen;
- (c) constructing an approximately 0.6 km long tunnel<sup>1</sup> for the laying of raw water mains with diameter ranging from 2 000 mm to 2 800 mm with provision of vehicular access, two raw water main connection chambers (namely “Chamber G2” and “Chamber G3”) for connections with the existing raw water tunnels and a ventilation building and a tunnel portal within the WTW, and providing ventilation and fire fighting systems inside the tunnel for the purpose of operation and maintenance; and
- (d) constructing a Ngau Tam Mei Fresh Water Primary Service Reservoir (NTM FWPSR) with a capacity of about 54 000 m<sup>3</sup>.

2. The location plan of the proposed works, the layout plan of the extension and enhancement works in the NTM WTW, the schematic layout for the connection of raw water tunnels and Chambers G2 and G3, and the cross section of the proposed tunnel are at **Annex 1, Annex 2, Annex 3** and **Annex 4 to Enclosure 1** respectively.

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<sup>1</sup> To increase the raw water supply to the NTM WTW, raw water mains and a vehicular access will be housed in the tunnel to allow for the access of engineering vehicles and personnel for the purpose of operation and maintenance.

3. We plan to commence the proposed works subject to funding approval by the Finance Committee (FC) and target to complete them in around five years and a half.

4. We will retain the remainder of **371WF** in Category C, which mainly comprises the required additional electrical and mechanical installations at the spare space to be provided in the NTM WTW and laying of underground water mains near Yuen Long Town centre. We will seek funding for the remainder of **371WF** at an appropriate juncture.

## JUSTIFICATION

5. Generally, to cope with the increasing water demand arising from new developments, we will first renovate existing water treatment works to enhance their treatment capacity. Secondly, we will make use of nearby water treatment works with surplus water treatment capacity to meet the demand in the concerned district. These two measures are the comparatively cost effective solutions. If necessary, we will consider extending the existing water treatment works to increase their treatment capacity to meet the growing demand for fresh water. However, if the above measures are unable to meet the significant high water demand for new developments, we will explore construction of new water treatment works to better meet the demands for such developments.

6. From now until 2030, with anticipated progressive completion and population intake of new development areas in the Northern Metropolis (NM) (including Kwu Tung North, Fanling North, Hung Shui Kiu/Ha Tsuen, Yuen Long South New Development Areas, as well as Hong Kong-Shenzhen Innovation and Technology Park in the Loop – Phase 1) and other individual housing projects in Yuen Long and North District, the demand for fresh water will increase. We are currently renovating Au Tau Water Treatment Works and Sheung Shui Water Treatment Works as well as improving the water supply system between Tai Po and Fanling in order to meet the short-term water demand in the areas. All the above works are expected to be completed by 2027.

7. From 2031 to 2036, in anticipation of completion of a series of remaining phases of new development areas in the NM (including Kwu Tung North, Fanling North, Hung Shui Kiu/Ha Tsuen, Yuen Long South New Development Areas), Ngau Tam Mei New Development Area, San Tin Technopole, New Territories North New Town<sup>2</sup> (Priority Development Area)

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<sup>2</sup> New Territories North New Town is located around Ta Kwu Ling including areas such as Heung Yuen Wai, Ping Che, Hung Lung Hang, Queen Hill, Man Kam To, and Lo Wu South.



and other housing projects in Yuen Long and North District, the demand for fresh water will increase significantly.

8. The NTM WTW commissioned in 2000 with a design water treatment capacity of 230 000 m<sup>3</sup> per day to provide reliable fresh water supply to areas including Yuen Long, Tin Shui Wai, Hung Shui Kiu, Ping Shan, Ngau Tam Mei, San Tin and Mai Po.

9. Subsequent to the launching of various development proposals in the NM including San Tin Technopole, Hung Shui Kiu/Ha Tsuen New Development Area, Yuen Long South New Development Area, Ngau Tam Mei New Development Area, etc., the NTM WTW will not be able to cope with the increase in water demand by 2031. Therefore, we propose to increase the water treatment capacity of the NTM WTW from 230 000 m<sup>3</sup> per day to 440 000 m<sup>3</sup> per day so as to meet the water demand for Yuen Long. Spare space will also be provided in the new facilities for further increase of the water treatment capacity of the NTM WTW. We also propose to increase the corresponding transfer capacities of the associated raw water supply system and fresh water supply system.

10. We will continuously review the water demand arising from future developments in the area and timely implement the remainder of the project.

## FINANCIAL IMPLICATIONS

11. We estimate the cost of proposed works as detailed in paragraph 1 above to be \$11,535.6 million in MOD prices, with estimated percentage of itemised expenditure roughly as follows -

Proposed Works	Estimated Percentage
(a) Water treatment facilities at NTW WTW - New treatment facilities <sup>3</sup> - Enhancing existing facilities	About 40% About 10%
(b) Fresh water trunk mains with diameter ranging from 1 400 mm to 2 000 mm	About 15%
(c) Ventilation Building, tunnel, vehicular access, raw water mains, Chambers G2 and G3	About 10%

<sup>3</sup> New water treatment facilities also include the provided spare space for the installation of required electrical and mechanical equipment, so as to further increase the water treatment capacity.

(d) NTW FWPSR	About 10%
(e) Other expenses <sup>4</sup>	About 15%

## **PUBLIC CONSULTATION**

12. We consulted the Town Planning and Development Committee of the Yuen Long District Council on 5 December 2024 on the proposed works. Members of the Committee expressed support to the proposed works.

## **ENVIRONMENTAL IMPLICATIONS**

13. Part of the proposed works<sup>5</sup> of the project is classified as designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) which requires an application of Environmental Permit (EP) for its construction and operation. The EIA report concludes that the environmental impact causing by the project conforms to the standards of EIAO and Technical Memorandum on EIA Process. The EIA report was approved in September 2024 according to EIAO with an EP issued. For other parts of the proposed works which are not classified as designated project under Schedule 2 of EIAO (Cap. 499) (other proposed works), we had completed a Preliminary Environmental Review (PER) which was agreed by the Director of Environmental Protection in February 2025. The PER concludes that the other proposed works would not cause any long-term adverse environmental impacts.

14. We have incorporated the mitigation measures recommended in the EIA report and the PER in relevant works contracts so as to minimise any environmental impacts during construction. These measures include frequent water spraying on sites to reduce emission of fugitive dust, use of movable noise barriers/enclosures and low-noise-generating plant to reduce construction noise, and proper treatment of run-off from sites to reduce water quality impact. We have included in the project estimates the cost required to implement these mitigation measures.

15. At planning and design stages, we have optimised the size of the process facilities and adopted advanced compact treatment system to minimise building footprint and excavation to reduce generation of

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<sup>4</sup> "Other expenses" include consultants' fees, remuneration of resident site staff and project contingencies, etc.

<sup>5</sup> Part of the proposed works include fresh water trunk mains, raw water mains, Chambers G2 and G3 that are within the existing Lam Tsuen Country Park or conservation area.

construction waste wherever practicable. In addition, we will require contractor to reuse inert construction waste (e.g. excavated soil and rock) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities (PFRF)<sup>6</sup>. We will encourage contractor to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce generation of construction waste.

16. At 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 day-to-day operations on site comply with the approved plan. We will require contractor to separate inert and non-inert construction waste on site for disposal at appropriate facilities. We will control disposal of inert and non-inert construction waste at PFRF and landfills respectively through the Trip-Ticket System.

17. We estimate that the proposed works will generate a total of about 1 418 000 tonnes of construction waste. Of these, we will reuse about 600 000 tonnes (42%) of inert construction waste on site and deliver about 705 000 tonnes (50%) of inert construction waste to PFRF for subsequent reuse. We will also reuse about 23 000 tonnes (2%) of non-inert construction waste and dispose of the remaining about 90 000 tonnes (6%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfills is estimated to be about \$68.06 million for the proposed works (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as per the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).

## **HERITAGE IMPLICATIONS**

18. The project will not affect any Heritage Sites namely all declared monuments, proposed monuments, graded historic sites / buildings or structures, sites of archaeological interest, all sites / buildings or structures in the new items to be graded; and Government historic sites identified by the Antiquities and Monuments Office.

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<sup>6</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Any person must obtain a license from the Director of Civil Engineering and Development before disposing of inert construction waste at public fill reception facilities.

## LAND ACQUISITION

19. The proposed works do not require any private land resumption.

## TRAFFIC IMPLICATIONS

20. We have conducted the traffic impact assessment (TIA) for the proposed works and the findings of the TIA indicate that with the implementation of appropriate temporary traffic arrangements (TTAs), the construction of the proposed works will not cause any significant traffic impact on the surrounding roadwork networks<sup>7</sup>. We will also discuss, scrutinise and review the TTAs proposed by the contractor in the Traffic Management Liaison Group with a view to minimising traffic impact arising from the proposed works. In addition, we will set up a community liaison group and telephone hotlines to respond to public enquiries or complaints.

## BACKGROUND

21. In December 2020, the FC approved the part upgrade of **371WF** to Category A as **372WF**, entitled “Ngau Tam Mei Water Treatment Works extension – investigation study, design and site investigation”, at an approved project estimate of \$136.6 million in MOD prices, for engaging consultants for the investigation and design as well as the site investigation works for the NTM WTW extension. We have completed the detailed design of the proposed works.

22. There are 3 943 trees within the proposed works boundary, of which 802 trees will be retained. The proposed works will involve removal of 3 141 trees, including 3 136 trees to be felled and five trees to be transplanted at other areas in the proposed works boundary. All trees to be removed are common trees that are not trees of particular interest<sup>8</sup>. We will

<sup>7</sup> At key locations of the proposed works (such as narrow and busy road sections, locations crossing multiple busy road sections, etc.), we will adopt trenchless method in laying water mains.

<sup>8</sup> “Trees of particular interest” are defined in paragraph 3.3 of the Guidelines for Tree Risk Assessment and Management Arrangement promulgated by the Development Bureau. Examples of “trees of particular interest” are listed as follows:

- (a) Old and Valuable Trees (OVTs) and trees that are potentially registerable in the Register of OVTs;
- (b) Trees of 100 years old or above;
- (c) Trees with trunk diameter equal to or exceeding 1.0 metre (measured at 1.3 metres above ground level), or with height/canopy spread equal to or exceeding 25 metres;
- (d) Stonewall trees or trees of outstanding form (taking account of overall tree sizes, shape and any special features);

incorporate planting proposals as part of the proposed works, including 1 366 trees.

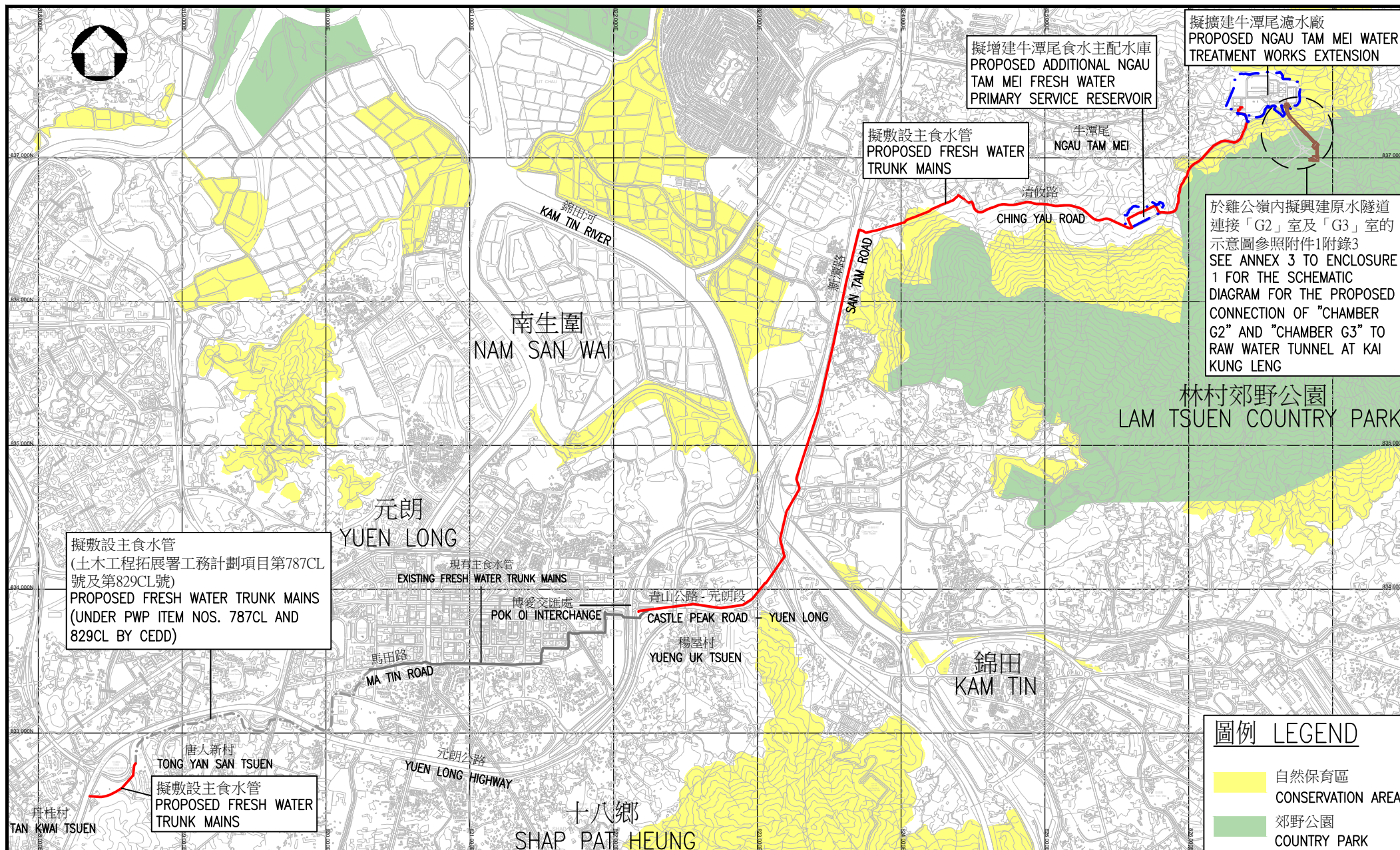
## **WAY FORWARD**

23. We plan to submit the proposal to the Public Works Subcommittee (PWSC) for review. Upon obtaining support from the PWSC, we will apply for funding from the FC to take forward the proposed works. Members are invited to provide their views on this proposed funding application and the related works.

**Development Bureau  
Water Supplies Department  
April 2025**

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- (e) Rare tree species listed in “Rare and Precious Plants of Hong Kong” (<https://www.herbarium.gov.hk/en/publications/books/book2/index.html>) published by Agriculture, Fisheries and Conservation Department;
  - (f) Known Fung Shui trees;
  - (g) Landmark trees with evidential records to support the historical or cultural significance of the trees;
  - (h) Trees which may arouse widespread public concerns; and
  - (i) Trees which may be subject to strong local objections on removal.





工務計劃項目第 3 7 1 W F 號(部分) - 牛潭尾濾水廠擴展工程 - 主項工程 - 第一期  
PWP ITEM NO. 371WF (PART) - NGAU TAM MEI WATER TREATMENT WORKS EXTENSION  
- MAIN WORKS - PACKAGE ONE

 **水務署**  
Water Supplies Department

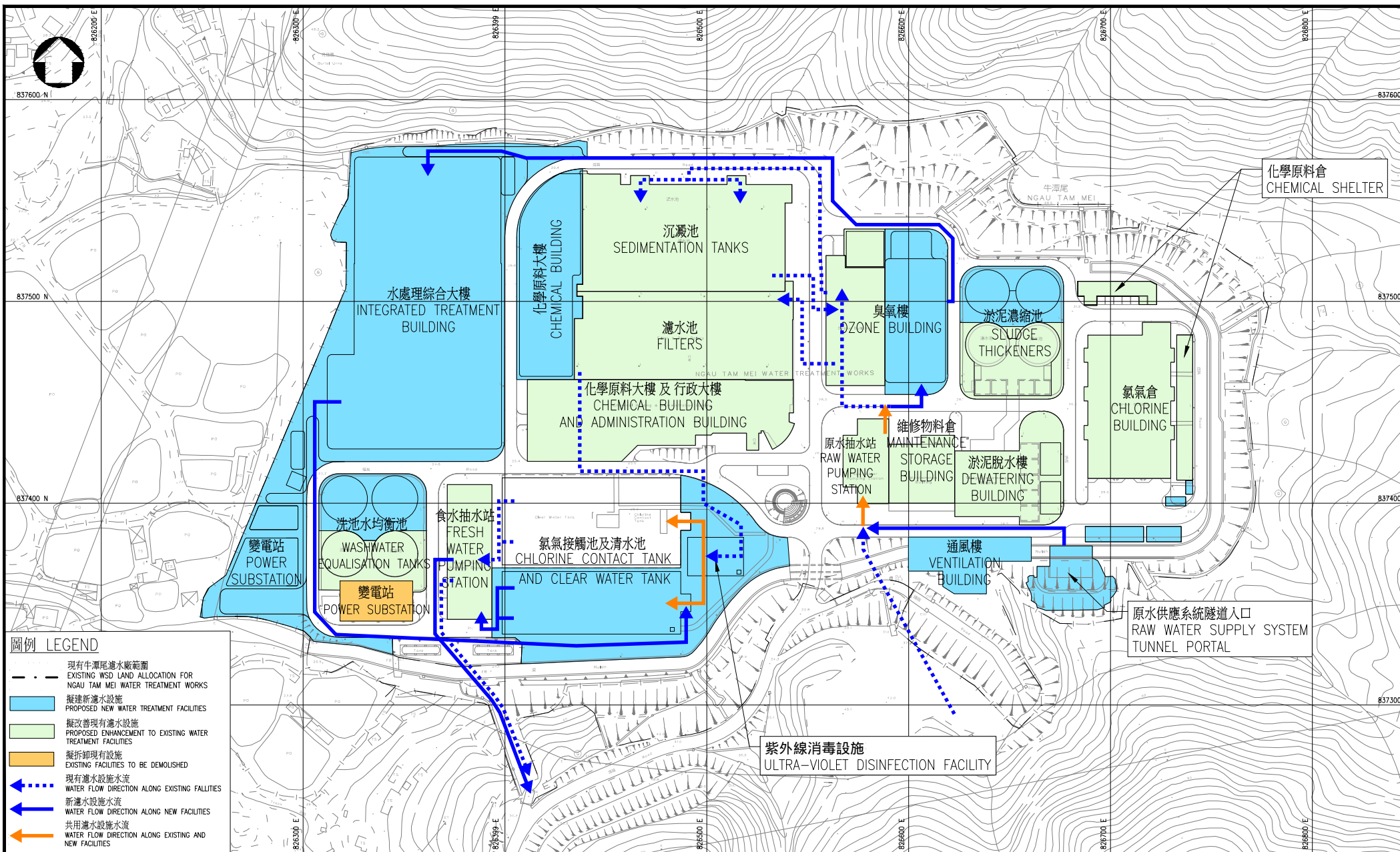
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**SK 52050/1**

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附件1 附錄1 ANNEX 1 TO ENCLOSURE 1



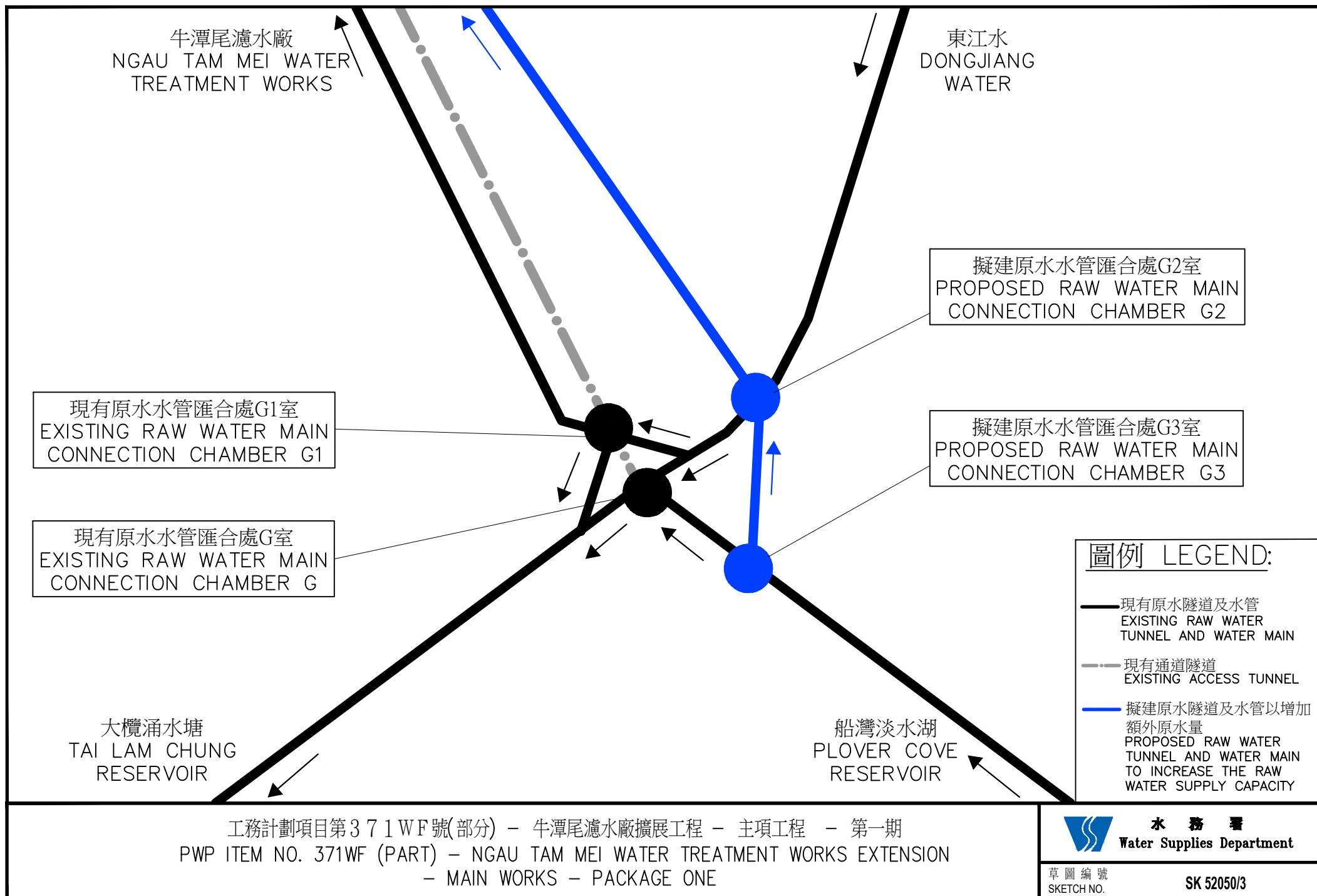


工務計劃項目第 3 7 1 W F 號(部分) - 牛潭尾濾水廠擴展工程 - 主項工程 - 第一期  
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**水務署**  
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草圖編號  
SKETCH NO. SK 52050/2

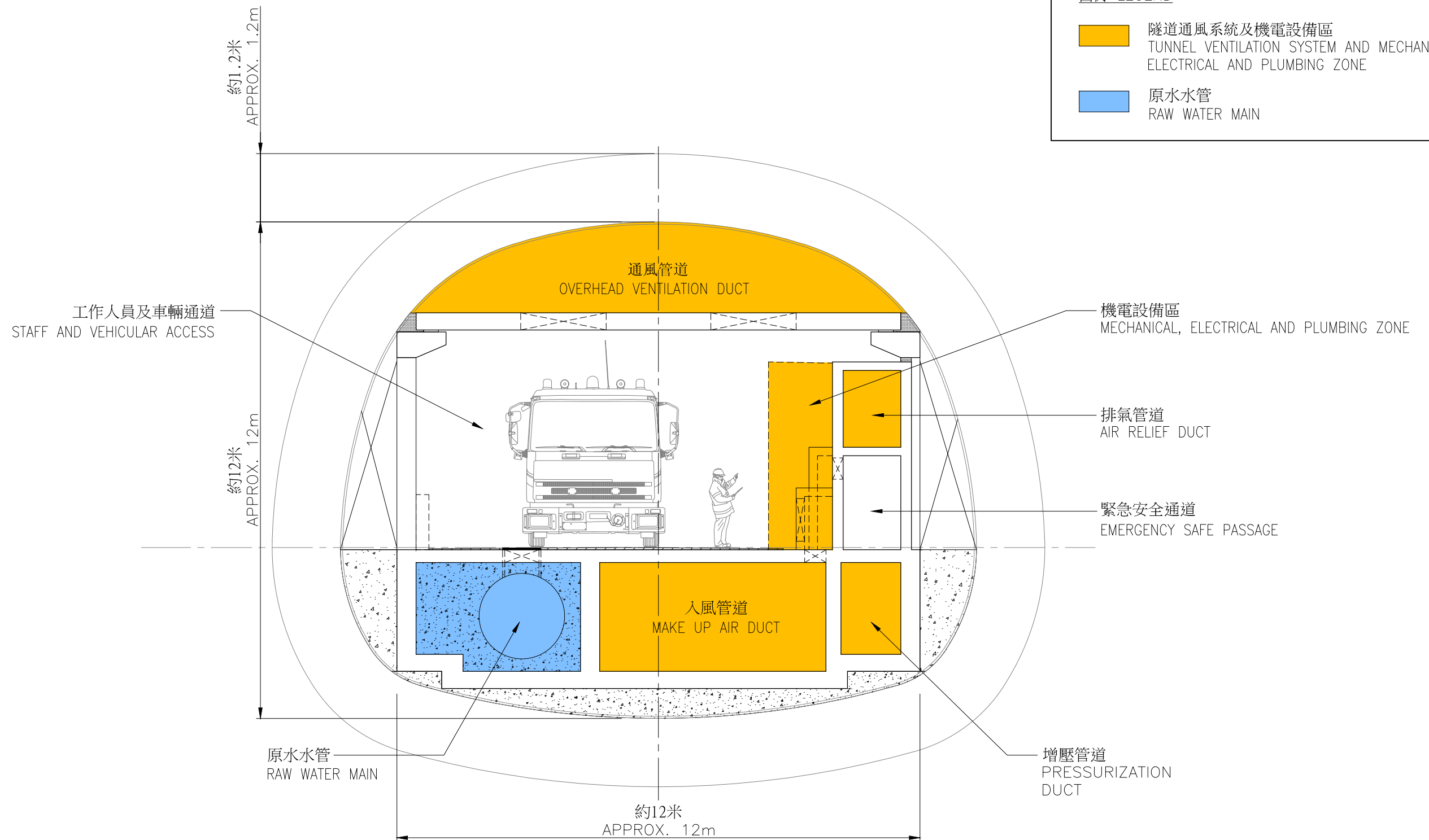
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圖例 LEGEND

- 隧道通風系統及機電設備區  
TUNNEL VENTILATION SYSTEM AND MECHANICAL,  
ELECTRICAL AND PLUMBING ZONE
- 原水水管  
RAW WATER MAIN



原水隧道橫切面  
CROSS SECTION OF PROPOSED RAW WATER TUNNEL

**PWP Item No. 377WF**  
**Improvement of Water Supply to Northern New Territories**

**PROJECT SCOPE**

We propose to upgrade **377WF** (proposed works) to Category A comprising –

- (a) laying of around 5.2 km long fresh water trunk mains of diameters ranging from 600 mm to 1 400 mm from Tai Po Water Treatment Works (TP WTW) to Fanling;
- (b) construction of a new Fresh Water Pumping Station (FWPS) in Tong Hang with a design capacity of about 400,000 m<sup>3</sup>/day; and
- (c) modification of the existing pumps and associated electrical and mechanical installations in the existing Tai Po FWPS.

2. The location plan of the proposed works is at **Annex 1 to Enclosure 2**.

3. We plan to commence the proposed works subject to funding approval by the Finance Committee (FC) and target to complete them in around five years.

**JUSTIFICATION**

4. In view of progressively increase in fresh water demand in North District, we are currently carrying out some waterworks improvement works to cope with the short-term increase in water demand in North District. However, due to the proposed developments in the Northern Metropolis (NM), including Kwu Tung North New Development Area, Hong Kong-Shenzhen Innovation and Technology Park in the Loop, Fanling North New Development Area and New Territories North New Town (Priority Development Area) etc, it is anticipated that the water supply system in North District cannot cope with the increase in fresh water demand by 2031. Implementation of Ngau Tam Mei water treatment works extension – main works – package one in **Enclosure 1** alone is not sufficient to cater for the additional fresh water demand arising from the developments in the NM. While there is space constraint in Sheung Shui Water Treatment Works rendering its further increase in water treatment capacity infeasible, TP WTW

have surplus water treatment capacity<sup>1</sup>. Therefore, we propose to implement the proposed works, which involves laying water mains between TP WTW and Fanling and constructing a new water pumping station to supply water from TP WTW to North District, with a target completion date of 2030.

## FINANCIAL IMPLICATIONS

5. We estimate the cost of proposed works as detailed in paragraph 1 above to be \$1,079.4 million in MOD prices, with estimated percentage of itemized expenditure roughly as follows -

	Estimated Percentage
(a) Laying of Fresh Water Mains	About 50%
(b) Construction of a New Fresh Water Pumping Station	About 30%
(c) Modification of Tai Po Fresh Water Pumping Station	About 5%
(d) Other expenses <sup>2</sup>	About 15%

## PUBLIC CONSULTATION

6. We consulted District Facilities and Works Committee of Tai Po District Council and North District Council for the proposed works on 8 January 2025 and 3 February 2025 respectively. Committees of both District Councils expressed support to the proposed works.

## ENVIRONMENTAL IMPLICATIONS

7. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We have completed a Preliminary Environmental Review (PER) for the proposed works which has been agreed by the Director of Environmental Protection in March 2025. The PER

<sup>1</sup> Once on-situ reprovisioning of Sha Tin Water Treatment Works – South Works is completed by 2027 and gradually resumes water supply to Hong Kong Island and Kowloon, TP WTW will be able to reduce its load in sharing water supply responsibilities for Sha Tin Water Treatment Works. We anticipate that this will free up sufficient surplus treatment capacity at TP WTW allowing fresh water to be redirected to North District through the proposed waterworks without affecting the water supply to the Tai Po area.

<sup>2</sup> “Other expenses” include consultants’ fees, remuneration of resident site staff and project contingencies, etc.

concluded that the proposed works would not cause any long-term adverse environmental impacts.

8. We have incorporated into the relevant works contract mitigation measures recommended in the PER to alleviate short-term environmental impacts during construction to within prevailing standards and guidelines. These include frequent watering of the site to reduce emission of fugitive dust, use of movable noise barriers/enclosures and silenced plant to reduce noise generation, etc. We have included in the project estimates the cost associated with implementation of these mitigation measures.

9. At planning and design stages, we have optimised the design, layout and construction sequence of the proposed works to minimize the 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 in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities (PFRF)<sup>3</sup>. We will encourage the contractor to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce generation of construction waste.

10. 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 measures 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 PFRF and landfills respectively through the Trip-Ticket System.

11. We estimate that the proposed works will generate a total of about 210 500 tonnes of construction waste. Of these, we will reuse about 135 000 tonnes (64.1%) of inert construction waste on site and deliver about 75 000 tonnes (35.6%) of inert construction waste to PFRF for subsequent reuse. We will dispose of the remaining about 500 tonnes (0.3%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at PFRF and landfills is estimated to be about \$5.43 million for the proposed works (based on a unit charge rate of \$71 per tonne for disposal at PFRF and \$200 per tonne at landfills as per the Waste

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<sup>3</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Any person must obtain a license from the Director of Civil Engineering and Development before disposing of inert construction waste at public fill reception facilities.

Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).

## HERITAGE IMPLICATIONS

12. The project will not affect any Heritage Sites, namely, all declared monuments, proposed monuments, graded historic sites / buildings or structures, sites of archaeological interest, all sites, buildings or structures in the list proposed to be graded; and Government historic sites identified by the Antiquities and Monuments Office.

## LAND ACQUISITION

13. The proposed works do not require any private land resumption.

## TRAFFIC IMPLICATIONS

14. We have conducted a traffic impact assessment (TIA) for the proposed works and the findings of the TIA indicate that with implementation of appropriate temporary traffic arrangements (TTAs), construction of the proposed works will not cause any significant traffic impact on the surrounding road networks<sup>4</sup>. We will also discuss, scrutinise and review the TTAs proposed by the contractor in the Traffic Management Liaison Group with a view to minimising traffic impact arising from the proposed works. In addition, we will setup telephone hotlines to respond to public enquiries or complaints.

## BACKGROUND

15. In January 2024, we engaged a consultant to undertake the investigation study and design including TIA, PER, tree survey, etc. and carried out site investigation for the proposed works at an approved project estimate of \$27.0 million in MOD prices under block allocation **Subhead 9100WX** “Waterworks, studies and investigations for items in Category D of the Public Works Programme”. We have completed the detailed design of the proposed works.

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<sup>4</sup> At key locations of the proposed works (such as East Rail Line, Tolo Highway, Sha Tau Kok Road – Lung Yeuk Tau etc.), we will adopt trenchless method in laying water mains to avoid causing significant traffic impact on the surrounding road networks.

16. There are 553 trees within the proposed works boundary, of which 258 trees will be retained. The proposed works will involve transplanting of one tree and removal of 294 trees. All trees to be transplanted or removed are not trees of particular interest<sup>5</sup>. We will incorporate planting proposals as part of the proposed works, including the planting of 251 trees and 248 shrubs and the establishment of about 322 square meters of grassland.

## **WAY FORWARD**

17. We plan to submit the proposal to the Public Works Subcommittee (PWSC) for review. After obtaining support from the PWSC, we will apply for funding from the Finance Committee to take forward the proposed works. Members are invited to provide their views on this proposed funding application and the related works.

**Development Bureau  
Water Supplies Department  
April 2025**

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<sup>5</sup> “Trees of particular interest” are defined in paragraph 3.3 of the Guidelines for Tree Risk Assessment and Management Arrangement promulgated by the Development Bureau. Examples of “trees of particular interest” are listed as follows:

- (a) Old and Valuable Trees (OVTs) and trees that are potentially registerable in the Register of OVTs;
- (b) Trees of 100 years old or above;
- (c) Trees with trunk diameter equal to or exceeding 1.0 metre (measured at 1.3 metres above ground level), or with height/canopy spread equal to or exceeding 25 metres;
- (d) Stonewall trees or trees of outstanding form (taking account of overall tree sizes, shape and any special features);
- (e) Rare tree species listed in “Rare and Precious Plants of Hong Kong” (<https://www.herbarium.gov.hk/en/publications/books/book2/index.html>) published by Agriculture, Fisheries and Conservation Department;
- (f) Known Fung Shui trees;
- (g) Landmark trees with evidential records to support the historical or cultural significance of the trees;
- (h) Trees which may arouse widespread public concerns; and
- (i) Trees which may be subject to strong local objections on removal.

