

For information

**Legislative Council Panel on Development**

**334WF – Expansion of Tai Po water treatment works  
and ancillary raw water and fresh water transfer facilities – part 1 works**

**PURPOSE**

This paper briefs Members on the proposal to part-upgrade **334WF** to Category A, entitled “Expansion of Tai Po water treatment works and ancillary raw water and fresh water transfer facilities – part 1 works”, at an estimated cost of \$323.5 million in money-of-the-day (MOD) prices, for upgrading the existing facilities in Tai Po Water Treatment Works (WTW) and two pumping stations serving the Tai Po WTW.

**PROPOSAL**

2. The scope of the part of **334WF** which we propose to upgrade to Category A comprises –
  - (a) upgrading the existing water treatment facilities at Tai Po WTW to increase its output capacity from 250 million litre per day (Mld) to 400 Mld;
  - (b) upgrading the pumping capacity of the existing Tai Po fresh water pumping station (FWPS) to match the increased output of the WTW; and
  - (c) upgrading the pumping capacity of the existing Tai Po Tau No. 4 raw water pumping station (RWPS) to match the increased intake of the WTW.

— The locations of the proposed works are shown on the plan at **Enclosure**.

3. We plan to start the construction works in February 2010 for completion by September 2011.

## JUSTIFICATION

4. The expansion of the Tai Po WTW forms part of the overall enhancement of the reliability of water treatment works in Hong Kong. Sha Tin WTW is the largest WTW in Hong Kong supplying water to the northern part of Hong Kong Island and a substantial part of Kowloon. However, its plant and equipment are approaching the end of their service life and require substantial reprovioning. In order to reduce the risk of water supply interruption given rise by the reprovioning works, it is necessary to uprate the capacity of the Tai Po WTW from 250 Mld to 800 Mld in phases to maintain the overall water supply capacity so that the existing Sha Tin WTW facilities could be reprovioned in stages. As such, we plan to commence the first phase of Tai Po WTW uprating works in February 2010 so that its output capacity is increased from 250 Mld to 400 Mld by September 2011.

5. According to the present implementation programme, the design and site investigation works of **334WF** have already been upgraded to Category A in May 2009 and Water Supplies Department (WSD) has subsequently engaged consultant in June 2009. The design for the first phase of uprating works is now completed and we are ready to proceed with the works described in paragraph 2 above.

6. Upon completion of the proposed works in September 2011, Tai Po WTW will provide an additional treatment capacity of 150 Mld to take up some of the demand in Hong Kong Western and Central areas originally supplied by Sha Tin WTW thereby facilitating the commencement of the in-situ reprovioning of the Sha Tin WTW. Early commencement of the proposed works in Tai Po WTW is therefore vital for the reprovioning of Sha Tin WTW and hence the reliability of fresh water supply to urban Kowloon and Hong Kong Island.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the proposed works to be \$323.5 million in MOD prices, made up as follows –

|                                     | <b>\$ million</b> |
|-------------------------------------|-------------------|
| (a) Electrical and mechanical works | 225.7             |

|   |           |                                  |
|---|-----------|----------------------------------|
| (b) Civil works                         | 20.4      |                                  |
| (c) Environmental mitigation measures   | 3.9       |                                  |
| (d) Consultants' fee                    | 9.4       |                                  |
| (i) contract administration             | 7.0       |                                  |
| (ii) management of resident site staff  | 2.4       |                                  |
| (e) Remuneration of resident site staff | 24.9      |                                  |
| (f) Contingencies                       | 28.4      |                                  |
|   | Sub-total | 312.7 (in September 2009 prices) |
| (g) Provision for price adjustment      | 10.8      |                                  |
|   | Total     | <u>323.5</u> (in MOD prices)     |

8. The proposed part-upgrading of **334WF** to Category A will not give rise to any net increase in recurrent consequence.

## ENVIRONMENTAL IMPLICATIONS

9. Tai Po WTW together with the Tai Po FWPS, is a designated project under the Environmental Impact Assessment (EIA) Ordinance, Cap. 499 ("the Ordinance") but is exempted from the provisions of the Ordinance because its construction commenced in 1998 before the Ordinance came into effect. The environmental impacts of Tai Po WTW and Tai Po FWPS have nevertheless been addressed in the EIA report completed in January 1996. Notwithstanding the exemption, we completed an Environmental Review (ER) in February 2009. The EIA report and ER concluded that, with implementation of mitigation measures, the environmental impacts of the proposed project could be controlled to meet the established standards and criteria.

10. The proposed uprating of Tai Po Tau No. 4 RWPS is not a designated project under the Ordinance. We carried out a Preliminary Environmental Review (PER) in May 2009. The PER concluded that, with the implementation of mitigation

measures, the environmental impacts of the proposed project could be controlled to meet the established standards and criteria.

11. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of appropriate mitigation measures in the relevant contracts. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities. We will implement an Environmental Monitoring and Audit programme during the course of construction to ensure that potential impacts are adequately addressed. We have included a sum of \$3.9 million (in September 2009 prices) in the project estimate for the implementation of the environmental mitigation measures.

12. We have optimized the size of the sludge thickening tanks in the planning and design stages to reduce the generation of construction waste where possible. 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<sup>1</sup>. We will require the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

13. We will also 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 construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

14. We estimate that the project will generate in total 1 005 tonnes of construction waste. Of these, we will reuse 50 tonnes (5%) of inert construction waste on site and deliver 880 tonnes (88%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 75 tonnes

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<sup>1</sup> 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 in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

(7%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about \$33 135 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>2</sup> at landfills).

## **TRAFFIC IMPLICATIONS**

15. To minimise possible disruption to traffic during construction, we have completed a traffic impact assessment (TIA) for the proposed works. The TIA has concluded that the proposed works would not cause significant impact to the local traffic network.

## **HERITAGE IMPLICATIONS**

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

## **PUBLIC CONSULTATION**

17. We consulted the Tai Po Rural Committee on 11 November 2008. WSD subsequently arranged a joint site inspection to the Tai Po WTW for the local village representatives on 4 March 2009, during which WSD addressed the following concerns raised by the village representatives:

- (a) In response to the concern on the possible hazard due to the increase in the use of chlorine in the water treatment works, WSD has assured that the current limit of chlorine storage would not be exceeded.

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<sup>2</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

- (b) In order not to affect the traffic of Shek Lin Road, all the construction vehicles would be required to enter Tai Po WTW via Tai Po Road – Tai Wo and not to use Shek Lin Road except in cases of emergency.
- (c) The height of the new buildings would be on a par with the existing buildings and would not infringe aesthetics of the surroundings.

18. We consulted the Tai Po Rural Committee and the Environment, Housing and Works Committee of the Tai Po District Council on 14 and 15 July 2009 respectively in respect of the proposed works at Tai Po WTW and the two pumping stations. WSD undertook to maintain communication with relevant members of the Committees and Lam Tsuen village representatives before and during construction of the proposed works. Both Committees supported the proposed works.

## LAND ACQUISITION

19. The proposed works do not require any land acquisition.

## BACKGROUND INFORMATION

20. On 23 October 2007, we submitted an information paper to the LegCo Panel on Development with regard to the strategy on reprovisioning of Sha Tin WTW.

21. We included **334WF** in Category B in November 2007. In June 2008, we engaged consultants to carry out the investigation study for the proposed works under **334WF** at a cost of about \$10.0 million charged under the block allocation of **Subhead 9100WX** “Waterworks, studies and investigations for items in Category D of the Public Works Programme”. The investigation study was substantially completed in March 2009 as scheduled.

22. On 8 May 2009, we upgraded part of **334WF** to Category A as **339WF** “Expansion of Tai Po water treatment works and ancillary raw water and fresh water transfer facilities – design and site investigation” at an approved project estimate of \$43.4 million in MOD prices. We engaged consultants in June 2009 to undertake the design and site investigation works.

23. The proposed works will not involve any tree removal or planting proposals.

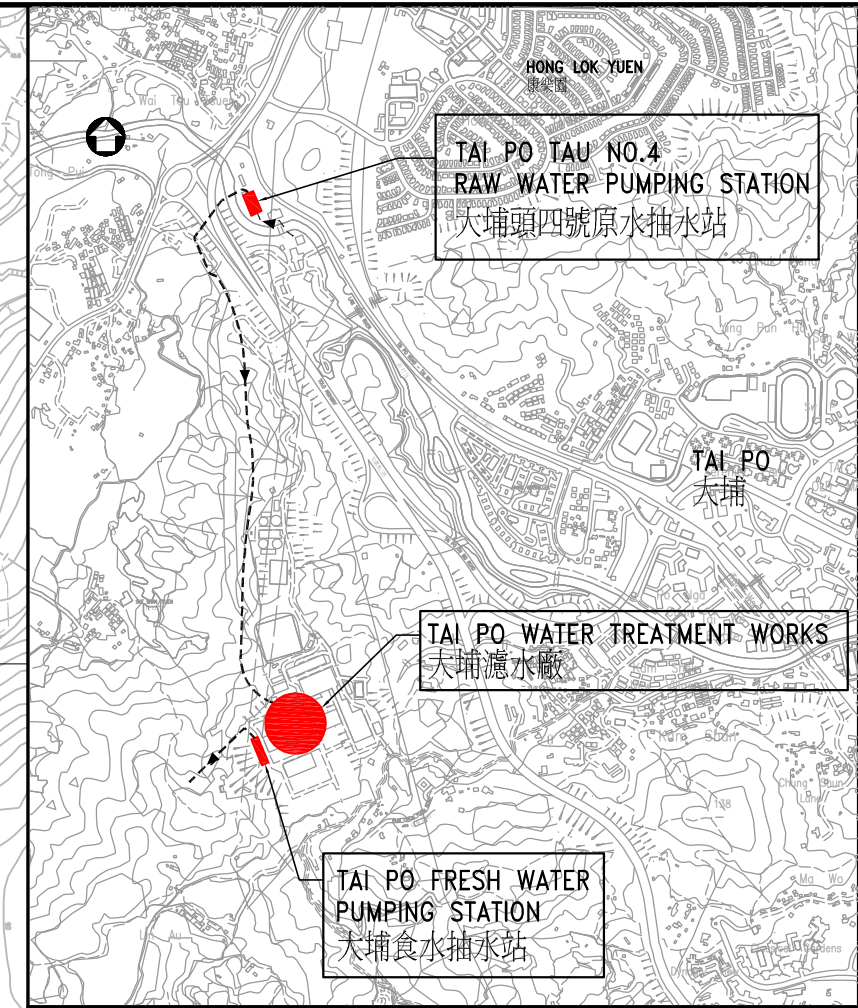
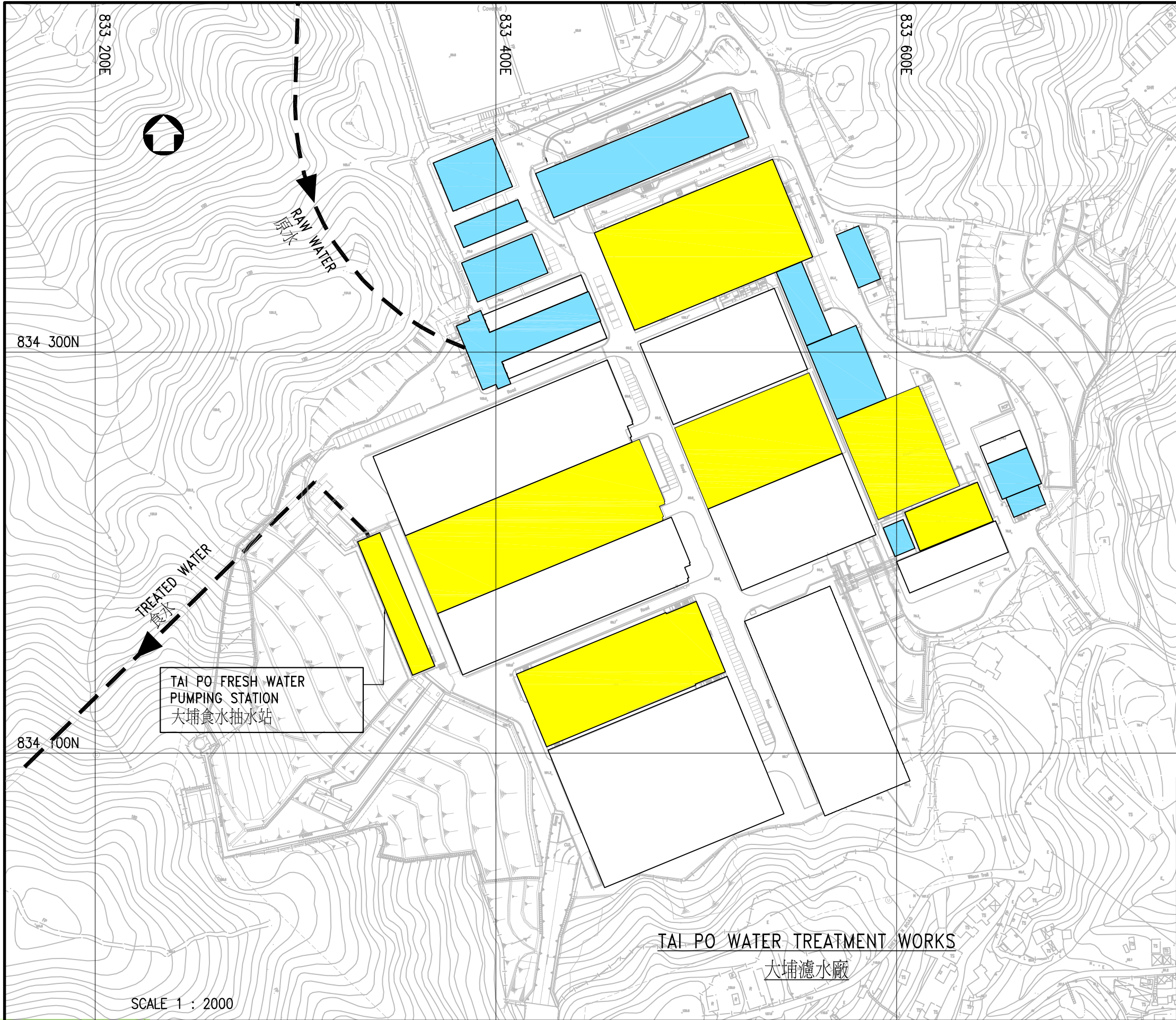
24. We estimate that the proposed works will create about 133 jobs (100 for labourers and another 33 for professional/technical staff) providing a total employment of 2 250 man-months.

## **WAY FORWARD**

25. We intend to submit **334WF** for part-upgrading to Category A for consideration by the Public Works Subcommittee in January 2010, with a view to seeking funding approval from the Finance Committee in February 2010.



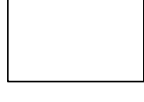
**Development Bureau**  
**December 2009**





KEY PLAN  
SCALE 1 : 20 000

LEGEND:

|   |  |
|---|--|
|  | EXISTING STRUCTURES IN WHICH FACILITIES ARE TO BE UPDATED<br>將會提升的設施所在的現有建築物 |
|  | OTHER EXISTING STRUCTURES<br>其他現有建築物   |
|  | RESERVE FOR FUTURE FACILITIES<br>擴展工程預留地                                     |

核准 APPROVED  
  
 總工程師/顧問工程管理 CE/CM  
 7 / 12 / 2009

工務計劃項目第334WF號 - 大埔濾水廠及附屬原水和食水輸送設施的擴展工程 - 第一期工程 - 位置圖  
 P.W.P. ITEM NO. 334WF - EXPANSION OF TAI PO WATER TREATMENT WORKS AND  
 ANCILLARY RAW WATER AND FRESH WATER TRANSFER FACILITIES - PART 1 WORKS - LOCATION PLAN

 **水務署**  
 Water Supplies Department  
 草圖編號 SK62009/508  
 SKETCH NO. SK62009/508