For discussion
on 14 June 2011

PWSC(2011-12)25

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 – WATERWORKS
Water Supplies – Combined fresh/salt water supplies
96WC – Water supply to Pak Shek Kok reclamation area, Tai Po – stage 2

Members are invited to recommend to the Finance Committee –

(a) the upgrading of part of **96WC,** entitled "Water supply to Pak Shek Kok reclamation area, Tai Po – stage 2 phase 1", to Category A at an estimated cost of $79.8 million in money-of-the-day prices; and

(b) the retention of the remainder of **96WC** in Category B.

PROBLEM

The capacity of the existing fresh water supply system to Pak Shek Kok (PSK) reclamation area will not be adequate to meet the demand by late 2014.

/PROPOSAL …..

PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Development, proposes to upgrade part of **96WC** to Category A at an estimated cost of $79.8 million in money-of-the-day (MOD) prices for expanding the capacity of the existing service reservoir for supplying fresh water to the PSK reclamation area.

PROJECT SCOPE AND NATURE

3. The part of **96WC** that we propose to upgrade to Category A comprises the construction of an extension with a capacity of 6 000 cubic metres (m^3) to the existing PSK fresh water service reservoir (FWSR), the associated electrical and mechanical works and implementation of environmental mitigation measures.

4. A site plan of the proposed works under **96WC** is at Enclosure 1. A layout plan and a photomontage of the proposed FWSR extension are at Enclosures 2 and 3 respectively.

5. Subject to the funding approval of the Finance Committee (FC), we plan to commence the construction of the proposed works in December 2011 for completion in December 2014.

6. We will retain the remainder of **96WC** in Category B**,** which covers the laying of approximately 3 kilometres (km) of fresh water mains with diameter of 600 millimetres between Pun Chun Yuen and Ha Wong Yi Au, to cater for the estimated fresh water demand from PSK reclamation area beyond 2016. Funding for the remainder of **96WC** will be sought at a later stage after we have completed the design of the water mains.

/**JUSTIFICATION** …..

JUSTIFICATION

7. The major developments in the PSK reclamation area include the Science Park and private housing. In order to provide fresh water and salt water supply to the PSK reclamation area, DWS has undertaken works funded under **96WC**[1] to extend the nearby water supply system to cope with the anticipated demand arising from developments in the PSK reclamation area.

8. With the latest anticipated rate of population intake in the PSK reclamation area provided by the Planning Department in 2010, we estimate that the daily fresh water demand will increase from 2 920 m^3 in 2011 to 9 960 m^3 in late 2014. The capacity of the existing PSK FWSR of 5 500 m^3 will not be adequate to meet the projected demand by late 2014. With the completion of the proposed extension as described in paragraph 3 above in December 2014, the capacity of the existing PSK FWSR will be increased by 6 000 m^3 to 11 500 m^3 in order to maintain a reliable supply of fresh water to the area.

9. As the fresh water demand from PSK reclamation area is expected to increase further beyond 2016, a new section of fresh water mains as detailed in paragraph 6 will be laid to increase the supply of fresh water from Pun Chun Yuen FWSR to serve the area.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed works to be $79.8 million in MOD prices (please see paragraph 11 below), broken down as follows –

			$ million
(a)	Construction of PSK FWSR extension		60.0
	(i) civil works	59.0	
	(ii) electrical and mechanical works	1.0	
(b)	Environmental mitigation measures		1.0

/(c) …..

---

[1] Funded under **180WC** (part-upgraded to Category A from **96WC** in December 2001), about 5.2 km of fresh water mains and 2.4 km of salt water mains were laid between 2002 and 2006 to build up the necessary water supply network in pace with the roadworks and developments in the area.

		$ million	
(c)	Contingencies	6.0	
	Sub-total	67.0	(in September 2010 prices)
(d)	Provision for price adjustment	12.8	
	Total	79.8	(in MOD prices)

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

Year	**$ million (Sept 2010)**	**Price adjustment factor**	**$ million (MOD)**
2011 – 2012	2.0	1.04525	2.1
2012 – 2013	14.7	1.10143	16.2
2013 – 2014	20.7	1.16201	24.1
2014 – 2015	18.1	1.22592	22.2
2015 – 2016	7.4	1.29335	9.6
2016 – 2017	4.1	1.36448	5.6
	67.0		79.8

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 2011 to 2017. We will deliver the works under a re-measurement contract because the quantities of works are subject to variation during construction to suit the actual site conditions. The contract will provide for price adjustments.

13. We estimate the additional annual recurrent expenditure arising from the proposed works to be $100,000.

/14. …..

14. The project by itself will lead to an increase in production cost of water by 0.02% in real terms by 2017[2].

PUBLIC CONSULTATION

15. We consulted the Environment, Housing and Works Committee of the Tai Po District Council on 12 January 2011. Members supported the proposed works.

16. We also consulted the Tai Po Rural Committee on 15 February 2011. Members supported the proposed works.

17. We circulated to the Legislative Council Panel on Development an information paper on the proposed works on 12 May 2011. Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

18. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We have completed the Preliminary Environmental Review for the proposed works, which concludes that the works would not have any long-term environmental impact. We have included in paragraph 10(b) above a sum of $1.0 million (in September 2010 prices) in the project estimates for the implementation of standard pollution control measures to mitigate short-term environmental impacts during construction stage. These measures include the use of movable noise barriers and silenced construction plant for noisy construction activities, frequent cleaning and watering of the site and the provision of wheel-washing facilities to prevent dust nuisance.

/19. …..

---

[2] The increase in production cost of water is calculated at the present price level and on the assumption that the water demand remains static during the period from 2011 to 2017.

19. At the planning and design stages, we have considered the layout and founding level of the proposed service reservoir extension to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities[3]. We will encourage the contractors 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.

20. 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 and 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 at public fill reception facilities and landfills respectively through a trip-ticket system.

21. We estimate that the proposed works will generate in total about 14 300 tonnes of construction waste. Of these, we will reuse about 4 600 tonnes (32.2%) of inert construction waste on site and deliver 9 100 tonnes (63.6%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 600 tonnes (4.2%) 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 $320,700 for this project (based on a unit cost of $27 per tonne for disposal at public fill reception facilities and $125 per tonne[4] at landfills).

/HERITAGE …..

---

[3] 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.

[4] 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 per m^3), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

HERITAGE IMPLICATIONS

22. 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.

LAND ACQUISITION

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

BACKGROUND INFORMATION

24. We upgraded to Category B **96WC** entitled "Water supply to Pak Shek Kok reclamation area, Tai Po" in October 1999. We engaged consultants to carry out the detailed design of the works in PSK reclamation area at a total cost of $200,000 under the block allocation **Subhead 9100WX** "Waterworks, studies and investigations for items in Category D of the Public Works Programme". The consultancy contract was completed.

25. In December 2001, FC approved the upgrading of part of **96WC** to Category A as **180WC** "Water supply to Pak Shek Kok reclamation area, Tai Po – stage 1" at an approved project estimate of $47.3 million in MOD prices for the laying of 5.2 km of fresh water mains and 2.4 km of salt water mains in Ha Wong Yi Au and in the PSK reclamation area. The remainder of **96WC** was retained in Category B and was retitled as "Water supply to Pak Shek Kok reclamation area, Tai Po – stage 2". The works under **180WC** were completed in December 2006.

26. In early 2011, we engaged a landscape consultant to undertake the landscape design for the PSK FWSR extension at an estimated cost of $300,000. We charged this amount to the block allocation **Subhead 9100WX** "Waterworks, studies and investigations for items in Category D of the Public Works Programme". The detailed design of the proposed works for the PSK FWSR extension using in-house staff resources has been substantially completed.

/27. …..

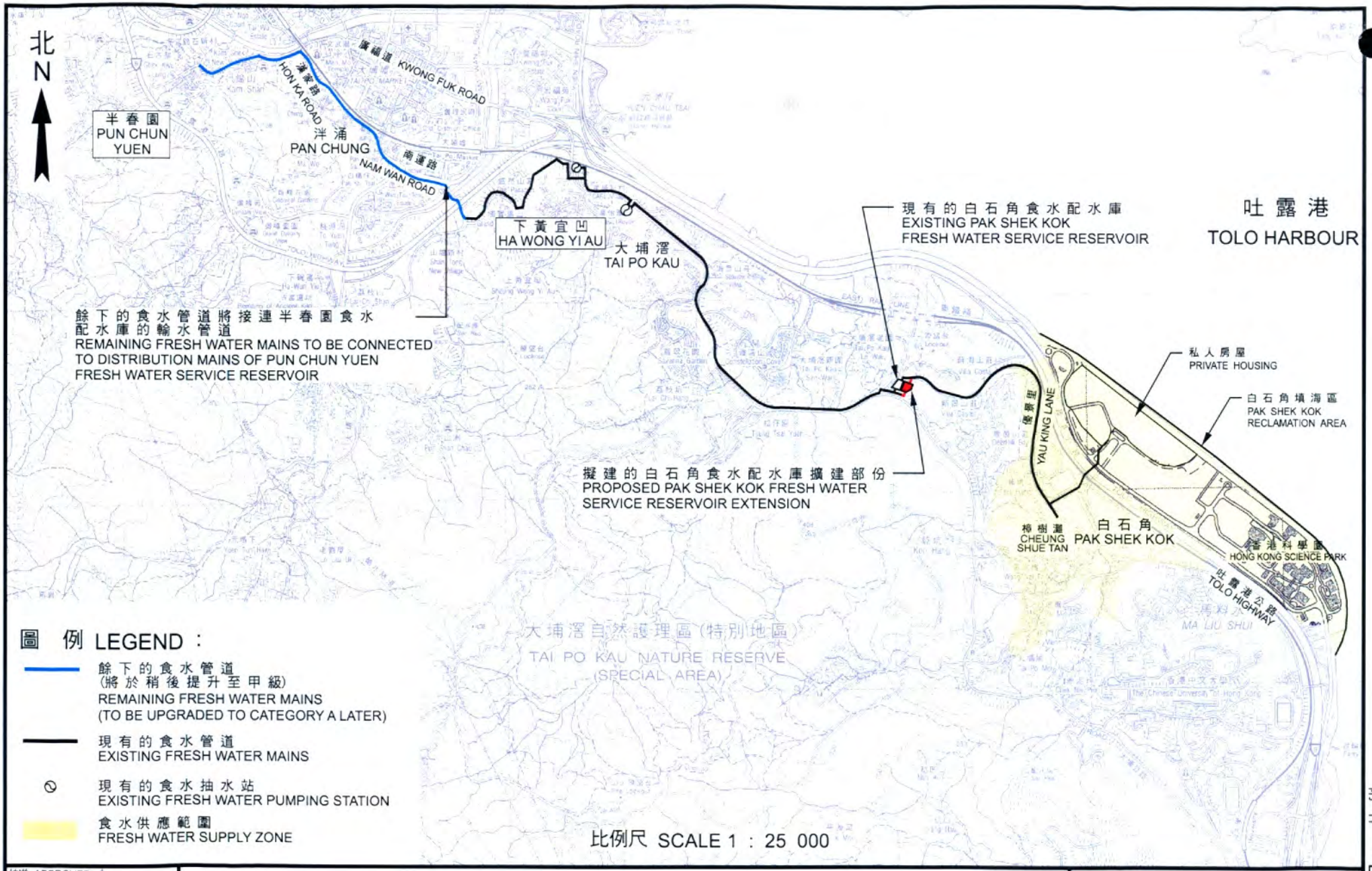
27. Of the 42 trees within the project boundary, 27 trees will be preserved. The proposed works will involve 15 trees to be felled, none of which are important trees[5]. We will incorporate planting proposals as part of the project, including 28 trees, shrubs, ground covers and hydroseeding as appropriate.

28. We estimate that the proposed works will create about 46 jobs (40 for labourers and another six for professional/technical staff) providing total employment of 1 130 man-months.

Development Bureau
June 2011

---

[5] "Important trees" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria:
(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



核准 APPROVED

總工程師/設計 CE / Des

6 / 5 / 2011

工務計劃項目第96WC號 — 大埔白石角填海區供水計劃 - 第2階段

P.W.P. Item No. 96WC — Water supply to Pak Shek Kok reclamation area, Tai Po - stage 2

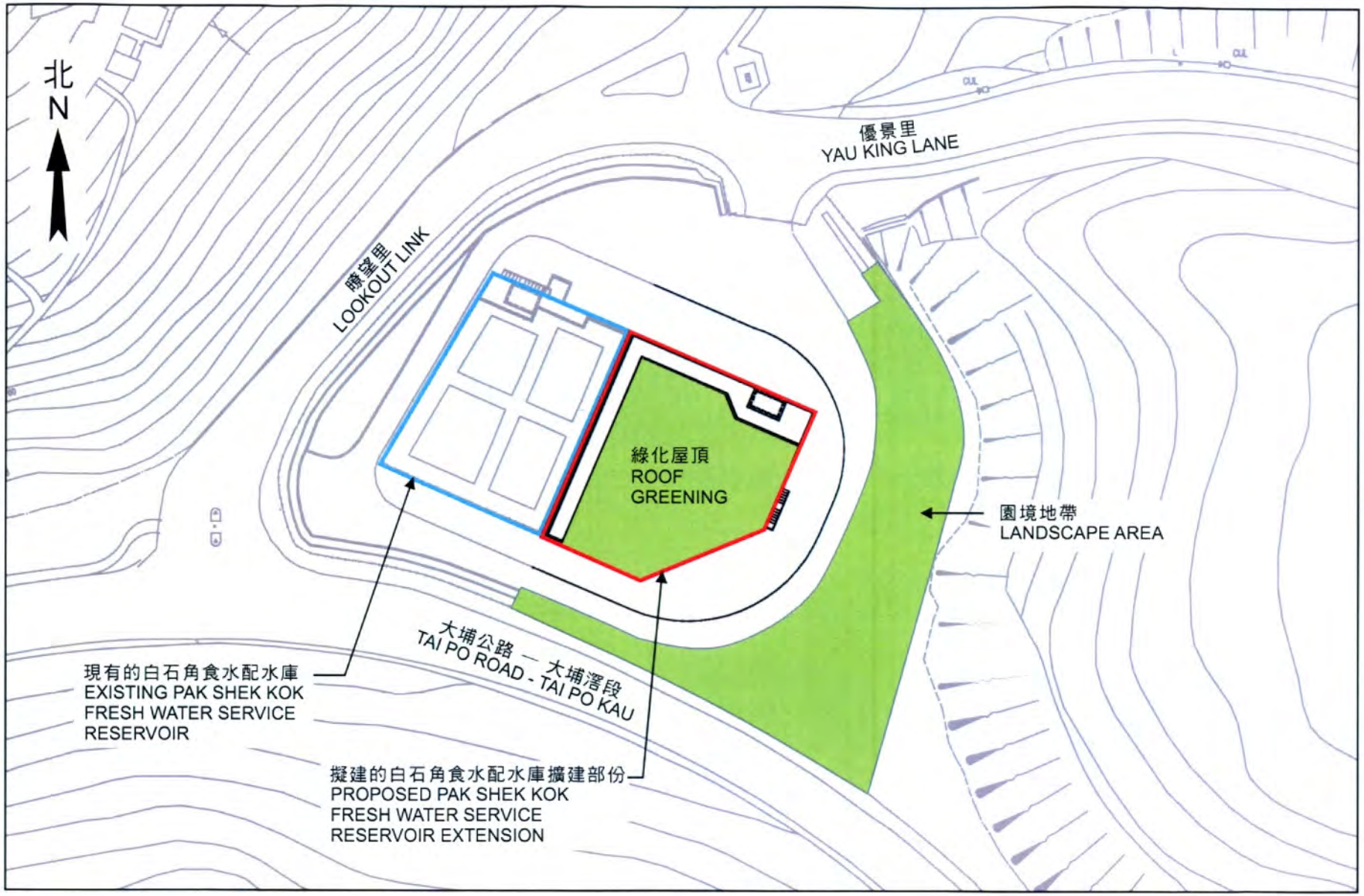
(甲級工程)
(CAT 'A' Submission)

水務署
WATER SUPPLIES DEPARTMENT

草圖編號 SKETCH NO. SK 62011 / 017

Ref. 62011-017.CDR

附件 — Enclosure 1



核准 APPROVED
總工程師/設計 CE / Des
6 / 5 / 2011

（甲級工程）
(CAT 'A' Submission)

工務計劃項目第96WC號 — 大埔白石角填海區供水計劃 - 第2階段
擬建的白石角食水配水庫擴建部份(平面圖)
P.W.P. Item No. 96WC — Water supply to Pak Shek Kok reclamation area, Tai Po - stage 2
Proposed Pak Shek Kok fresh water service reservoir extension (Layout plan)

水 務 署
WATER SUPPLIES DEPARTMENT

草圖編號 SKETCH NO. SK 62011 / 018

Ref. 62011-018.CDR

附件二 Enclosure 2

VIEW 'A'

核准 APPROVED
總工程師/設計 CE / Des
6 / 12 / 2011

（甲級工程）
(CAT 'A' Submission)

工務計劃項目第96WC號 — 大埔白石角填海區供水計劃 - 第2階段
擬建的白石角食水配水庫擴建部份（集成照片）
P.W.P. Item No. 96WC — Water supply to Pak Shek Kok reclamation area, Tai Po - stage 2
Proposed Pak Shek Kok fresh water service reservoir extension (Photomontage)

水務署
WATER SUPPLIES DEPARTMENT

草圖編號 SKETCH NO. SK 62011 / 019

Ref. 62011-019.CDR

附件三 Enclosure 3