For discussion
on 4 April 2001

PWSC(2001-02)4

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 - CIVIL ENGINEERING
Civil Engineering - Land development
660CL - Site formation, construction of associated infrastructures and provision of government, institution and community facilities for an international theme park on Lantau Island

Members are invited to recommend to Finance Committee –

(a) the upgrading of part of **660CL**, entitled "Infrastructure for Penny's Bay Development, Package 1 - Yam O Tuk fresh water service reservoir and associated works", to Category A at an estimated cost of $165.0 million in money-of-the-day prices; and

(b) the retention of the remainder of **660CL** in Category B.

PROBLEM

The existing fresh water supply infrastructure facilities are not adequate for supporting the development of Hong Kong Disneyland (HKD) at Penny's Bay on Lantau Island.

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PROPOSAL

2. The Director of Civil Engineering (DCE), with the support of the Secretary for Economic Services and with the agreement of the Director of Water Supplies (DWS), proposes to upgrade part of **660CL** to Category A at an estimated cost of $165.0 million in money-of-the-day (MOD) prices for the construction of Yam O Tuk fresh water service reservoir and associated works to serve the development of the HKD Phase 1 on Lantau Island.

PROJECT SCOPE AND NATURE

3. The part of **660CL** which we now propose to upgrade to Category A comprises -

(a) the construction of Yam O Tuk fresh water service reservoir with a capacity of 13 000 cubic metres;

(b) the construction of a maintenance access road about 1.1 kilometres long connecting the proposed service reservoir to an existing utility service road, namely Cheung Tung Road;

(c) the laying of about 500 metres of twin fresh water mains which are about 800 millimetres in diameter and 500 metres of washwater drain pipe[1] which are about 600 millimetres in diameter to link the proposed service reservoir to Cheung Tung Road;

(d) mechanical and electrical works in the proposed service reservoir; and

(e) environmental mitigation measures.

We intend to start the proposed works in August 2001 for completion in January 2004.

4. The remaining works in **660CL** include –

(a) dredging and reclamation works for 10 hectares of land at Yam O, and associated site supervision costs;

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[1] A washwater drain pipe is used to collect all treated washwater arising from the cleansing of the proposed fresh water service reservoir for discharge into the existing drainage culvert.

(b) construction of the associated infrastructure and government, institution and community facilities for HKD Phase 1, and associated site supervision costs;

(c) dredging and reclamation works for the remaining Penny's Bay Reclamation (80 hectares); and

(d) investigation, engineering design and construction for the remaining associated infrastructure.

We plan to start the remaining works in **660CL** in two phases for completion in October 2005 and December 2010 respectively.

JUSTIFICATION

5. HKD will be a major entertainment and tourist attraction. We anticipate an annual attendance of over five million in the first year of operation. There is no existing fresh water service reservoir in North Lantau and the existing water supply infrastructure in Penny's Bay is insufficient for this scale of project. The Government therefore needs to put in place additional facilities to ensure provision of adequate and reliable fresh water supply services for the area.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $165.0 million in MOD prices (see paragraph 7 below), made up as follows –

		$ million
(a)	Construction of Yam O Tuk fresh water service reservoir	56.2
(b)	Construction of access road	60.7
(c)	Mainlaying works and pipeworks	19.4
(d)	Mechanical and electrical works	1.1
(e)	Environmental mitigation measures	1.5

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			$ million	
(f)	Contingencies		13.9	
		Sub-total	152.8	(in September 2000 prices)
(g)	Provision for price adjustment		12.2	
		Total	165.0	(in MOD prices)

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

Year	**$ million (Sept 2000)**	**Price adjustment factor**	**$ million (MOD)**
2001 – 2002	10.8	1.02550	11.1
2002 – 2003	56.6	1.05627	59.8
2003 – 2004	56.6	1.08795	61.6
2004 – 2005	24.5	1.12059	27.5
2005 – 2006	4.3	1.15421	5.0
	152.8		165.0

8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period from 2001 to 2006. We will tender the civil engineering works under a standard re-measurement contract because the extent of site formation for the service reservoir and the access road may vary with the actual ground conditions. The contract will provide for price adjustments as the contract period will exceed 21 months. For the mechanical and electrical works, we will purchase mechanical and electrical equipment through supplies contracts for installation by in-house staff and term contractors.

9. We estimate the annually recurrent expenditure arising from the project to be $198,000.

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10. The project by itself would lead to an increase in water charges by a maximum of 0.06% in real terms by 2006[2].

PUBLIC CONSULTATION

11. We consulted the Tsuen Wan District Council on the proposed works in October 2000. Members had no objection to the proposal. On 26 February 2001, we consulted the Legislative Council Panel on Economic Services and Members supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

12. We completed an Environmental Impact Assessment (EIA) in March 2000 for the Northshore Lantau Development Feasibility Study, which covered the proposed works. The EIA report predicted that the proposed works would not have any insurmountable environmental issue. The EIA was endorsed with conditions by the Advisory Council on the Environment on 17 April 2000 and approved by the Director of Environmental Protection on 28 April 2000 under the EIA Ordinance.

13. We will control noise, dust and site run-off during construction to within established standards and guidelines by incorporating standard environmental pollution control clauses in the civil engineering works contract. The cost of implementing these mitigation measures[3] is estimated to be $1.5 million. We will also implement landscaping and visual mitigation measures including planting over 100 000 shrubs and 10 000 trees seedling in the project. The cost of implementing all of the above environmental mitigation measures is estimated to be $3.7 million and we have included the cost in the overall project estimate.

14. The service reservoir scheme has been laid out with a view to minimising the amount of construction and demolition (C&D) materials generated during construction while accommodating the constraints presented by the geotechnically-difficult ground conditions and visual considerations. We have

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[2] The water charges are calculated on the assumption that the demand remains static during the period from 2001 to 2006 and the amount of government subsidy to the waterworks operations is to be contained at the present level.

[3] The standard pollution control measures include wheel washing facilities, de-silting traps, the use of silenced plant and other procedures as recommended in the Environmental Protection Department's Recommended Pollution Control Clauses.

considered the level, orientation and dimensions of the service reservoir and the alignment of the access road in the planning and design stages so as to reduce the generation of C&D materials as far as possible.

15. We estimate that the project will generate about 200 000 cubic metres (m^3) of C&D materials. Of these, about 10 000 m^3 (5%) will be reused on site, 180 000 m^3 (90%) will be reused as fill in public filling areas[4] and 10 000 m^3 (5%) will be disposed of at landfills. We will require the contractor to submit a waste management plan to the engineer for approval. The waste management plan will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will require the contractor to reuse the excavated material as filling material on site to minimize the disposal of public fill at public filling facilities. To further minimize the generation of C&D materials, we will require the contractor to use non-timber formwork and recyclable material for temporary works. We will control the disposal of public fill and C&D waste at designated public filling facilities and landfills respectively through a trip-ticket system. The contractor will be required to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

LAND ACQUISITION

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

BACKGROUND INFORMATION

17. We upgraded **660CL** in Category B in November 1999. On 17 December 1999, the Finance Committee approved the upgrading of part of **660CL** to Category A as **662CL** entitled "Reclamation of Penny's Bay Stage 1 works, design of site formation at Yam O and design of associated infrastructure and government, institution and community facilities for the development of Hong Kong Disneyland Phase 1 on Lantau Island" at an estimated cost of $6,923.9 million in MOD prices, which included funds for site investigations for the Yam O Tuk fresh water service reservoir, a fresh water pipeline from Yam O Tuk to HKD Phase 1 and a salt water supply system from Tai Ho to HKD Phase 1.

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[4] A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Deposition of public fill in a public filling area requires a license issued by the Director of Civil Engineering.

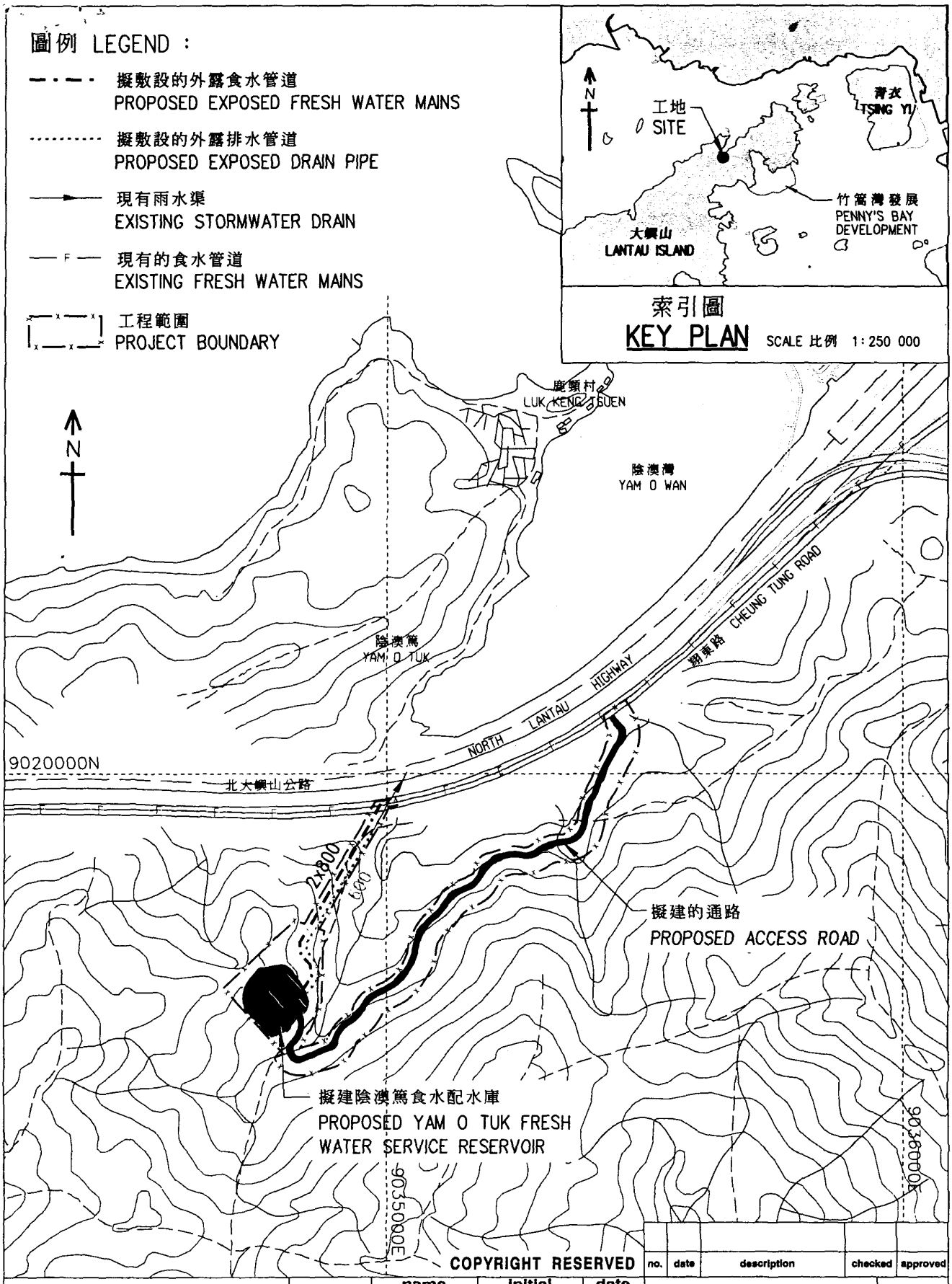
18. We completed the site investigations for the fresh water service reservoir and associated pipelines in July 2000. Regarding the salt water supply system from Tai Ho to HKD Phase 1, site investigations will be completed by phases. We will put forward a separate submission to the PWSC in May 2001 for funding the construction of part of the salt water supply system along with other infrastructure at Penny's Bay.

19. The proposed fresh water service reservoir will be capable of servicing a fully developed HKD Phase 1. The design of the reservoir and the site itself will be formed in such a way that there will be scope for expansion of the reservoir to meet any additional demand for fresh water arising from a potential HKD Phase 2.

20. The Director of Water Supplies has substantially completed the detailed design for the proposed works using in-house staff resources.

21. We estimate that the proposed works will create some 115 new jobs comprising 15 professional/technical staff and 100 labourers, totalling 3 105 man-months during the construction period.

Tourism Commission
Economic Services Bureau
March 2001



no.	date	description	checked	approved

	name	initial	date
designed			
drawn	K.L. CHEUNG	SIGNED	27.11.00
checked	C.C. NG	SIGNED	28.11.00
approved	W.L. CHAN	SIGNED	28.11.00
office	專責事務處 SPECIAL DUTIES OFFICE		

title 圖目
竹篙灣發展計劃的基礎設施，第一組
- 陰澳篤食水配水庫及相關工程
INFRASTRUCTURE FOR PENNY'S BAY DEVELOPMENT, PACKAGE 1
- YAM O TUK FRESH WATER SERVICE RESERVOIR AND ASSOCIATED WORKS

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scale 比例 1:10 000

CIVIL ENGINEERING DEPARTMENT
HONG KONG

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