For discussion **PWSC(2000-01)66**
on 22 November 2000

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 - DRAINAGE
Environmental Protection - Sewerage and sewage treatment
285DS - Improvement of sewage treatment facilities at the sites of Correctional Services Department

Members are invited to recommend to Finance Committee the upgrading of **285DS** to Category A at an estimated cost of $53.8 million in money-of-the-day prices.

PROBLEM

The existing sewage treatment facilities at the Cape Collinson Correctional Institution and Chimawan Drug Addiction Treatment Centre cannot provide effective sewage treatment. There is no standby power supply system at Ma Po Ping Prison and Tong Fuk Centre to ensure uninterrupted operation of the sewage treatment facilities in the event of power outage.

PROPOSAL

2. The Director of Drainage Services (DDS), with the support of the Secretary for Security, proposes to upgrade **285DS** to Category A at an estimated cost of $53.8 million in money-of-the-day (MOD) prices to improve the sewage treatment facilities at the above Correctional Services Department (CSD) institutions.

PROJECT SCOPE AND NATURE

3. The scope of **285DS** comprises the following improvement works -

/(a) .....

(a) at the **Cape Collinson Correctional Institution** -

(i) construction of a sewage treatment plant (STP) with UV disinfection system;

(ii) reconstruction of internal sewerage; and

(iii) construction of a sewage pumping system;

(b) at the **Chimawan Drug Addiction Treatment Centre** -

(i) construction of an STP with UV disinfection system; and

(ii) reconstruction of internal sewerage; and

(c) at the **Ma Po Ping Prison and Tong Fuk Centre** -

(i) installation of a standby power supply system; and

(ii) associated sewerage works.

The site plans showing the proposed works are at Enclosures 1 to 3.

JUSTIFICATION

Cape Collinson Correctional Institution (CCCI)

4. About 80 cubic metres (m^3) of sewage is generated at the CCCI every day; this is treated by four septic tanks and then discharged into the sea. Having been heavily used for 20 years, the tanks can no longer provide sewage treatment to the required effluent quality. We propose to construct an STP with UV disinfection to replace the septic tanks to enhance the quality of sewage treatment.

5. We will reconstruct the sewerage system in CCCI to collect all sewage generated to the new STP. This will include the construction of a sewage pumping system to lift the sewage generated from the low-lying area of the CCCI to the proposed STP.

Chimawan Drug Addiction Treatment Centre (CTC)

6. The septic tank at CTC has been in use for 20 years and can no longer treat the daily sewage output of $110m^3$ to the required effluent quality. We therefore propose to construct an STP with UV disinfection for proper treatment of the sewage before discharge into the sea.

/7. .....

7. We will also reconstruct the sewerage system in CTC to collect all sewage generated to the proposed STP.

Ma Po Ping Prison and Tong Fuk Centre (MPP & TFC)

8. The existing STP at MPP and TFC relies on a single electricity supply, whereas similar sewage treatment plants in other institutions have emergency power supply. It is therefore susceptible to system interruption in case of power failure, which will affect the quality of effluent discharged into the adjacent water course. We propose to install a standby power supply for the plant to ensure continuous sewage treatment in the event of a discontinuation of the main power supply.

Overall

9. Implementation of the above works would ensure reliability of the existing treatment facilities in the CSD's institutions and the compliance of the effluent standard required under the Water Pollution Control Ordinance. This is necessary to protect the marine environment.

FINANCIAL IMPLICATION

10. We estimate the capital costs of the proposed works to be $53.8 million in MOD prices (see paragraph 11 below), made up as follows -

		$ million	
(a)	**Cape Collinson Correctional Institution**		23.0
	(i) construction of a sewage treatment plant	17.9	
	(ii) reconstruction of internal sewerage and ancillary works including road works and landscaping works, etc.	1.7	
	(iii) construction of a sewage pumping system	3.4	

/(b) .....

			$ million		
(b)	**Chimawan Drug Addiction Treatment Centre**			20.0	
	(i)	construction of a sewage treatment plant	18.5		
	(ii)	reconstruction of internal sewerage and ancillary works including road works and landscaping works, etc.	1.5		
(c)	**Ma Po Ping Prison and Tong Fuk Centre**			2.6	
	(i)	installation of a standby power supply system	2.4		
	(ii)	associated sewerage works	0.2		
(d)	Environmental mitigation measures			0.4	
(e)	Contingencies			4.0	
		Sub-total		50.0	(in September 2000 prices)
(f)	Provision for price adjustment			3.8	
		Total		53.8	(in MOD prices)

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

Year	**$ million (Sept 2000)**	**Price adjustment factor**	**$ million (MOD)**
2001 - 2002	9.3	1.02550	9.5
2002 - 2003	15.8	1.05627	16.7

/2003 .....

Year	$ million (Sept 2000)	Price adjustment factor	$ million (MOD)
2003 - 2004	14.9	1.08795	16.2
2004 - 2005	5.6	1.12059	6.3
2005 - 2006	4.4	1.15421	5.1
	50.0		53.8

12. We have derived the MOD estimates on the basis of the Government's latest forecasts of trend labour and construction prices for the period 2001 to 2006. We will tender the civil works under a re-measurement contract because the quantities of earthworks and alignment of sewers may vary to suit the actual ground conditions. We will tender the electrical and mechanical works under a standard fixed price lump sum contract because we can clearly define the scope of the works in question.

13. We estimate the annually additional recurrent expenditure arising from this project to be $1.03 million. As the recurrent cost is specifically for the operation and maintenance of institutional sewerage facilities, there will be no impact on the assessment of sewage charges paid by the public.

PUBLIC CONSULTATION

14. As the project is restricted to improvement works within the boundaries of the CSD premises, and the sites concerned are isolated and not readily accessible by the general public, we consider public consultation unnecessary.

ENVIRONMENTAL IMPLICATION

15. The project, when completed, will improve the quality of the surrounding waterbody. We shall implement standard pollution control measures to minimize short-term environmental impacts during construction following established standards and guidelines. Measures such as water spraying to reduce emission of fugitive dust and the use of silenced construction plant to reduce noise generation will be implemented during construction. We estimate the cost of implementing the standard pollution control measures to be $400,000 in September 2000 prices. We have included this cost in the overall project estimate.

/16. .....

16. We estimate that about 2 300m^3 of construction and demolition (C&D) materials will be generated by the project. Of these, about 200m^3 (8.7%) will be reused on site, 2 000m^3 of inert C&D materials (87.0%) will be reused as fill in public filling areas[1] and 100m^3 of C&D wastes (4.3%) will be disposed of at landfills. We have considered in the planning and design stages ways of reducing the generation of C&D materials as far as possible. We will require the contractor to implement the necessary measures to minimise the generation of C&D materials and to reuse C&D materials as fill material as far as possible. We will control the disposal of public fill and C&D waste to designated public filling facility and landfills respectively through a trip-ticket system. We will record the disposal, reuse, and recycling of C&D materials for monitoring purposes.

LAND ACQUISITION

17. The project does not require land acquisition.

BACKGROUND INFORMATION

18. We upgraded **285DS** to Category B in May 2000. We plan to start the proposed works in May 2001 for completion by April 2003.

19. We have completed the detailed design of the project and will supervise the construction works using in-house resources.

20. We estimate that the proposed works will create some 25 new jobs during the construction stage. These will comprise five professional/technical staff and 20 labourers, totalling 550 man-months.

Security Bureau
November 2000

(PWSC0316/Win13)

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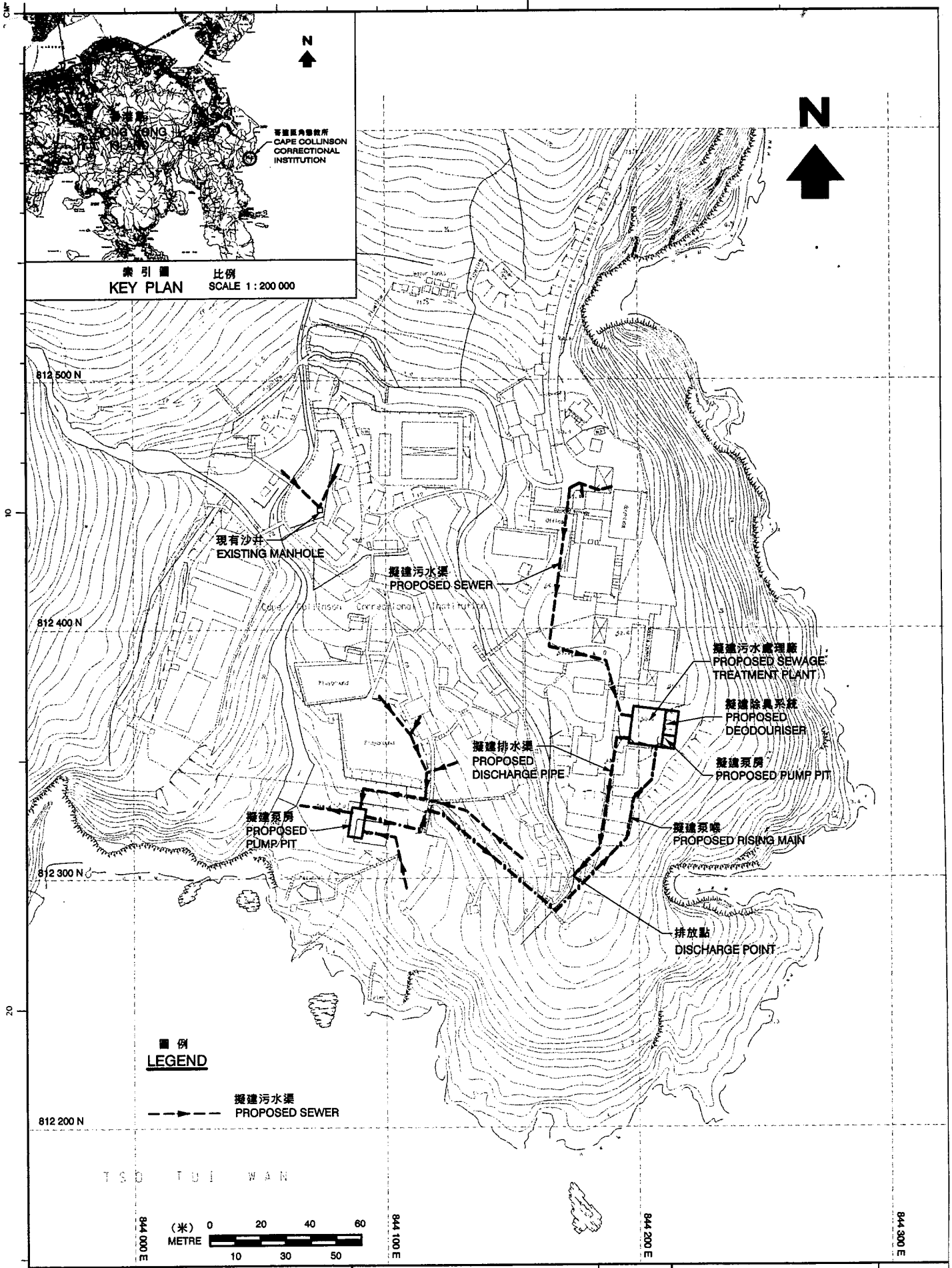
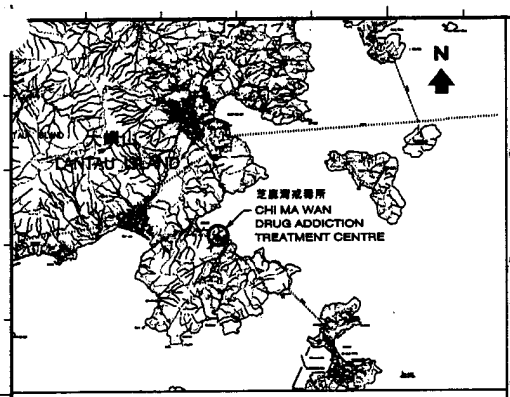
[1] A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.



圖則名稱 drawing title 哥連臣角懲教所 污水系統改善工程 SEWERAGE IMPROVEMENT TO CAPE COLLINSON CORRECTIONAL INSTITUTION	繪畫 drawn H. K. LI	日期 date 10.08.00	圖則編號 drawing no. DDN / 285DS / 1825
	核對 checked	日期 date	比例 scale AS SHOWN
	批核 approved K.M. CHAU	日期 date 18.08.00	保留版權 COPYRIGHT RESERVED
	部門 office 污水工程部 SEWERAGE PROJECTS DIVISION		香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION



索引圖 KEY PLAN　比例 SCALE 1 : 200 000

擬建污水處理廠
PROPOSED SEWAGE
TREATMENT PLANT

擬建除臭系統
PROPOSED
DEODOURISER

擬建泵房
PROPOSED
PUMP PIT

擬建污水渠
PROROSED SEWER

現有化糞池
EXISTING
SEPTIC TANK

811 100 N

811 000 N

817 900 E

818 000 E

(米) METRE 0 10 20 30 40 50 60

圖則名稱 drawing title 芝麻灣戒毒所 污水系統改善工程 SEWERAGE IMPROVEMENT TO CHI MA WAN DRUG ADDICTION TREATMENT CENTRE	繪畫 drawn E.L. H.K. LI	日期 date 10.08.00	圖則編號 drawing no. DDN / 285DS / 1826	比例 scale AS SHOWN
	核對 checked	日期 date		
	批核 approved K.M. CHAU	日期 date 18.08.00		
	部門 office 污水工程部 SEWERAGE PROJECTS DIVISION			

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
HONG KONG
SPECIAL ADMINISTRATIVE REGION

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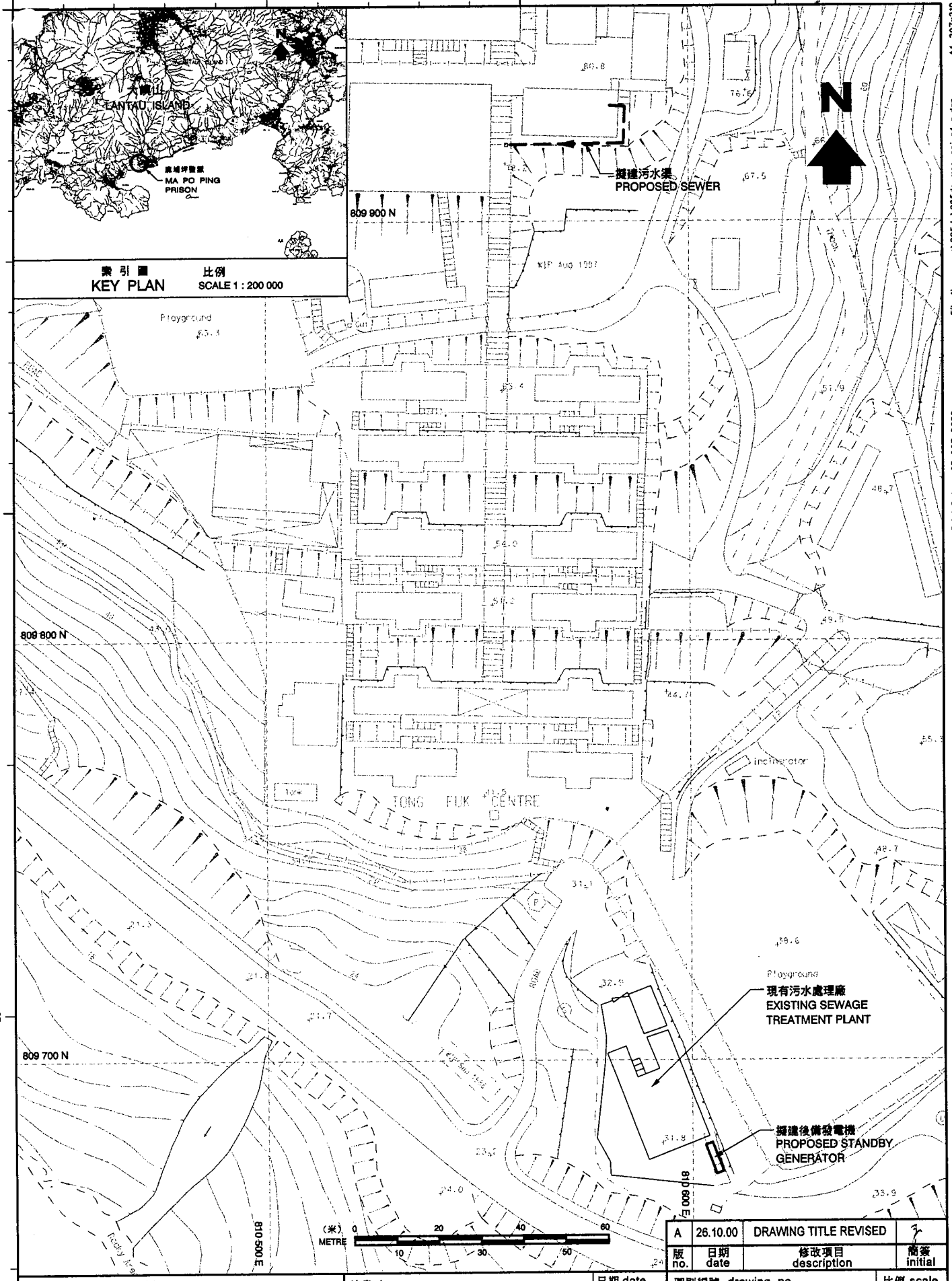

版 no.	日期 date	修改項目 description	簡簽 initial
A	26.10.00	DRAWING TITLE REVISED	

圖則名稱 drawing title

麻埔坪監獄及塘福中心污水系統改善工程

SEWERAGE IMPROVEMENT TO MA PO PING PRISON AND TONG FUK CENTRE

繪畫 drawn	SIGNED	H. K. LI	日期 date 10.08.00
核對 checked			日期 date
批核 approved	SIGNED	K.M. CHAU	日期 date 18.08.00

部門 office 污水工程部
SEWERAGE PROJECTS DIVISION

圖則編號 drawing no. DDN/285DS/1827A

比例 scale AS SHOWN

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DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

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