

**For information**

**Legislative Council Panel on Planning, Lands and Works**

**92CD – Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – remaining works**

**PURPOSE**

This paper briefs Members on the Administration's proposal to upgrade **92CD** "Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – remaining works" to Category A, at an estimated cost of about \$186.2 million in money-of-the-day (MOD) prices, for the drainage improvement works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen in Yuen Long.

**PROJECT SCOPE**

2. The scope of the project **92CD** comprises the construction of–
  - (a) about 110 metres (m) drainage channel of width ranging from 3.5 m to 14 m, about 70 m twin-cell box culvert with internal cell dimensions of 3.0 m wide by 2.2 m high and provision of ancillary works in Cheung Po;
  - (b) about 700 m drainage channel of width ranging from 5 m to 18 m, about 400 m twin-cell box culvert with internal cell dimensions ranging from 2.5 m wide by 3.2 m high to 3.7 m wide by 2.2 m high and provision of ancillary works in Ma On Kong;
  - (c) about 800 m drainage channel of width ranging from 2.5 m to 6 m, about 40 m single-cell box culvert with internal cell dimensions of 2.5 m wide by 2.0 m high and provision of ancillary works in Yuen Kong San Tsuen; and
  - (d) about 150 m drainage channel 2.5 m wide and provision of ancillary works in Tin Sam Tsuen.

We plan to commence construction in early 2008 for completion in early 2011. A site plan and typical sections showing the proposed works are at **Enclosure 1**.

## JUSTIFICATION

3. Owing to the inadequate capacity of existing streamcourses, the low-lying areas of Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen are susceptible to flooding during heavy rainstorms. Moreover, changes in land use in the areas over the years have resulted in tracts of natural ground being replaced by impermeable pavings. Rainwater can no longer dissipate naturally through ground infiltration as in the past. This has led to an increase in surface run-off and aggravated the extent of flooding in the areas.

4. To alleviate the problem, we propose to carry out drainage improvement works as mentioned in paragraph 2 above. Upon completion of the proposed works, the risk of flooding during heavy rainstorm in the areas concerned will be reduced. The drainage system at Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen will then withstand rainstorms with a return period<sup>1</sup> of one in 50 years.

## FINANCIAL IMPLICATIONS

5. We estimate the capital cost of the proposed works to be about \$186.2 million (in MOD prices), made up as follows—

	<b>\$ million</b>
(a) Drainage improvement works and ancillary works in -	148.0
(i) Cheung Po	13.6
(ii) Ma On Kong	93.0
(iii) Yuen Kong San Tsuen	35.0
(iv) Tin Sam Tsuen	6.4
(b) Environmental mitigation measures	4.1
(c) Consultants' fees for -	17.2
(i) contract administration	2.1
(ii) site supervision	15.1

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<sup>1</sup> "Return period" is the average number of years during which a certain severity of flooding will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe flooding.

	<b>\$ million</b>
(d) Contingencies	16.9
Total :	<hr/> 186.2 (in MOD prices)

6. We estimate the annual recurrent expenditure arising from this project to be about \$733,000.

## **PUBLIC CONSULTATION**

7. We consulted the Kam Tin Rural Committee, the Town Planning and Development Committee under the Yuen Long District Council and the Pat Heung Rural Committee on 30 April, 14 and 17 July 2004 respectively. All supported the implementation of the proposed works. We further conducted forums in the concerned villages including Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen explaining the details of the proposed works to the villagers and they supported the proposed works.

8. We gazetted the proposed scheme under the Roads (Works, Use and Compensation) Ordinance on 17 November 2005, and the amendment scheme on 21 July 2006 to address some environmental requirements for the Ma On Kong drainage channel. We received three objections to the proposed scheme and no objection to the amendment scheme. After our clarifications, two of the objectors withdrew their objections unconditionally. The remaining objector requested resumption of some of the residual portions of his lots and provision of a vehicular access to these lots. After lengthy negotiations, the objector sold his lots to a new owner but declined to indicate whether he would withdraw his objection or not. The objection was therefore considered unresolved. After considering the objection, the Chief Executive in Council authorized the works without modifications on 30 January 2007.

## **ENVIRONMENTAL IMPLICATIONS**

9. The proposed drainage improvement works in Ma On Kong and Tin Sam Tsuen are designated projects whereas the proposed works in Cheung Po and Yuen Kong San Tsuen are not designated projects under the Environmental Impact Assessment (EIA) Ordinance. We completed an Environmental Impact Assessment for the proposed works in Ma On Kong and obtained an environmental permit on 13 February 2007. We prepared under the EIA Ordinance a Project Profile for the proposed works in Tin Sam Tsuen for permission to apply directly for an environmental permit and obtained an

environmental permit on 22 November 2005. The Project Profile also addressed the environmental impacts arising from the proposed works in Yuen Kong San Tsuen. We also completed an Environmental Study (ES) covering the proposed works in Cheung Po. The EIA, the Project Profile and the ES concluded that the environmental impacts arising from the proposed works could be mitigated within established standards and guidelines with full implementation of the recommended mitigation measures. We will implement the mitigation measures as recommended.

10. For short term impacts during construction, we will control noise, dust, and site run-off within the standards and guidelines through implementation of mitigation measures in the works contract, such as the use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying to reduce emission of fugitive dust, and temporary drains to dispose site run-off.

11. We have considered the drainage alignments in conjunction with the invert levels and existing ground conditions in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, we will require the contractor to reuse inert C&D materials on site or in other suitable construction sites as far as possible, in order to minimise the disposal of C&D materials to public fill reception facilities<sup>2</sup>. We will encourage the contractors to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimise the generation of construction waste.

12. We will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill and C&D waste to public fill reception facilities and landfills respectively through a trip-ticket system. We will require the contractor 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.

13. We estimate that the project will generate about 181 900 tonnes of C&D materials. Of these, we will reuse about 19 700 tonnes (11%) on site, deliver about 153 200 tonnes (84%) to public fill reception facilities for subsequent reuse and dispose of about 9 000 tonnes (5%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$5.3 million for this project (based on a unit

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<sup>2</sup> Public filling reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonnes at landfill<sup>3</sup>).

14. We estimate that the project will generate about 25 000 tonnes of uncontaminated mud and about 5 000 tonnes of contaminated mud to be excavated from the watercourses. We will deliver the uncontaminated mud by barges to the marine disposal areas and the contaminated mud by barges to the contaminated mud disposal area at the East Sha Chau.

## **BACKGROUND INFORMATION**

15. We commissioned **83CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage master plan study” in January 1996 to assess the adequacy of the existing drainage systems and tributaries in the areas. The final study was completed in December 1998 and has identified a series of drainage improvement works.

16. In September 1998, we included **92CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1” in Category B.

17. In March 1999, we upgraded part of **92CD** to Category A as **96CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1 – consultants’ fees and site investigations”, at an estimated cost of \$20.6 million in MOD prices, for engaging consultants to carry out impact assessments, site investigations and detailed design for the stage 1 drainage improvement works.

18. In June 2001, we upgraded part of **92CD** to Category A as **114CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 1 – Yuen Long and Tin Shui Wai” at an estimated cost of \$210.7 million in MOD prices. We started the works in December 2001 and completed them in November 2005.

19. In June 2003, we upgraded part of **92CD** to Category A as **133CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2A – Kam Tin and Ngau Tam Mei” at an estimated cost of \$139.3 million in MOD prices. We started the works in June 2004 and completed them in June 2007.

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<sup>3</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.

20. In January 2007, we upgraded part of **92CD** to Category A as **149CD** “Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai drainage improvements, stage 1, phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai” at an estimated cost of \$155.6 million in MOD prices. We started the works in March 2007 for completion in December 2009.

21. Of the 359 trees within the project boundary, our latest estimate is that 188 trees will be preserved. The proposed works will involve the removal of 171 common trees including 93 trees to be felled and 78 trees to be replanted within the project site. All trees to be removed are not important trees<sup>4</sup>. We will incorporate planting proposal as part of the project, including estimated quantities of 749 trees and 28 500 m<sup>2</sup> of grassed area.

22. We estimate that the proposed works will create about 105 jobs (85 for labourers and another 20 for professional/technical staff) providing a total employment of 3 050 man-months.

## **WAY FORWARD**

23. Members are invited to support our proposal for upgrading of **92CD** for consideration by the Public Works Subcommittee in October 2007 and for funding approval by the Finance Committee in November 2007.

**Development Bureau**  
**July 2007**

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<sup>4</sup> “Important trees” refer 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 over 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 event;
- (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.

3 CM

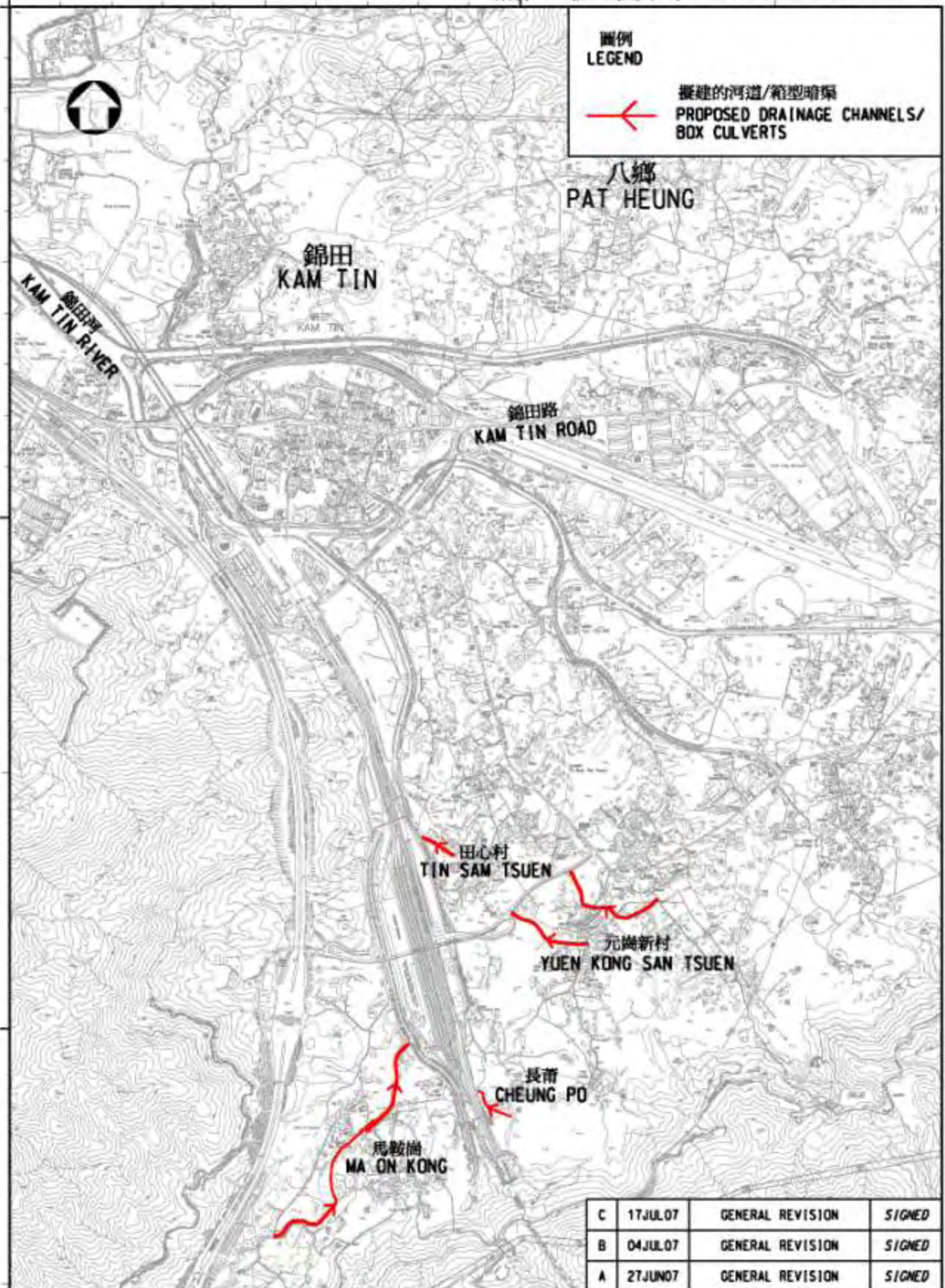
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圖例  
LEGEND

 擬建的河道/箱型暗渠  
PROPOSED DRAINAGE CHANNELS/  
BOX CULVERTS



C	17JUL07	GENERAL REVISION	SIGNED
B	04JUL07	GENERAL REVISION	SIGNED
A	27JUN07	GENERAL REVISION	SIGNED

圖則名稱 drawing title

工務計劃項目第92CD號  
元朗、錦田、牛潭尾及天水圍雨水排放系統改善計劃  
第1階段第2B期-餘下工程  
PWP ITEM No. 92CD  
YUEN LONG, KAM TIN, NGAU TAM MEI AND  
TIN SHUI WAI DRAINAGE IMPROVEMENTS,  
STAGE 1, PHASE 2B-REMAINING WORKS

繪製 drawn SIGNED C.K.LAM

核對 checked SIGNED C.N.CHEUNG

批核 approved SIGNED K.C.LO

部門 office 工程管理部  
PROJECT MANAGEMENT DIVISION

日期 date  
21MAY07  
日期 date  
08JUN07  
日期 date  
08JUN07

圖則編號 drawing no.  
DPM/92CD/0011C

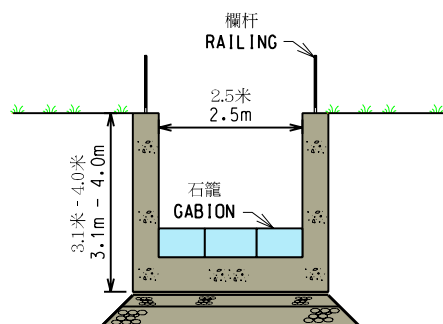
比例 scale  
N. T. S.

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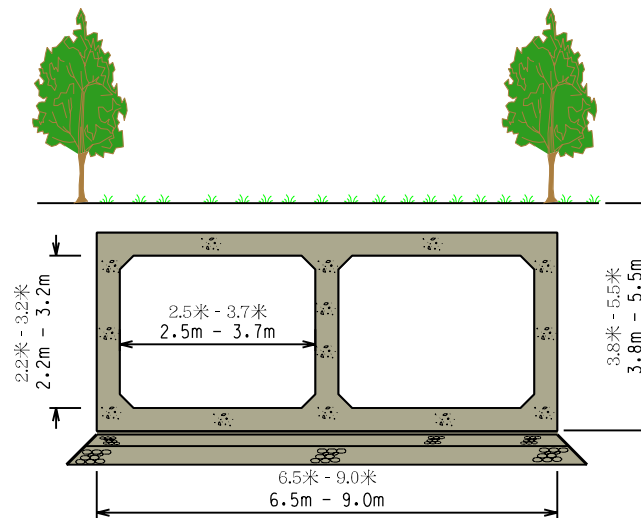


香港特別行政區政府渠務署  
DRAINAGE SERVICES DEPARTMENT  
GOVERNMENT OF THE  
HONG KONG  
SPECIAL ADMINISTRATIVE REGION

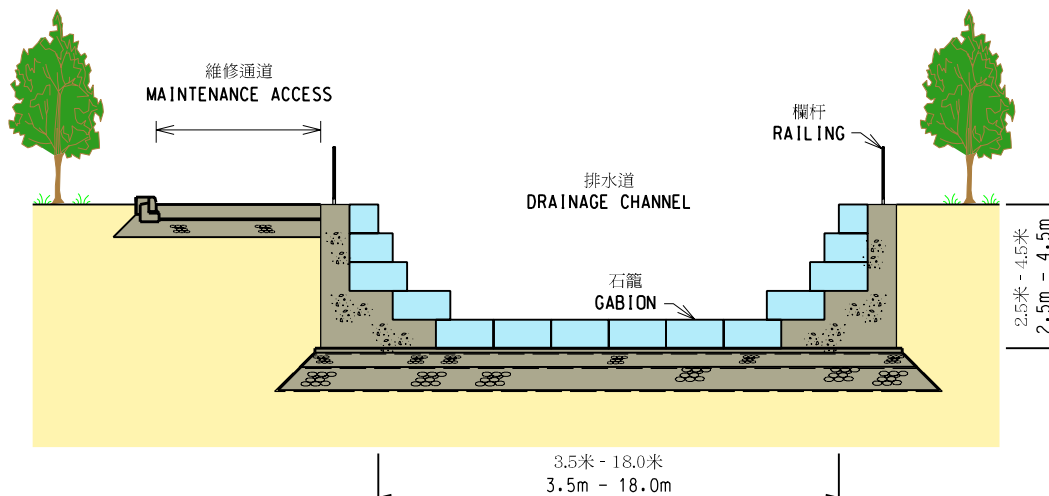
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 B: ind-410 B  
 M: 01/06/07



長方型排水道的典型橫切面  
TYPICAL CROSS SECTION OF RECTANGULAR CHANNEL



箱型暗渠的典型橫切面  
TYPICAL CROSS SECTION OF BOX CULVERT



梯型排水道的典型橫切面  
TYPICAL CROSS SECTION OF TRAPEZOIDAL CHANNEL

B	17JUL07	GENERAL REVISION	SIGNED
A	04JUL07	GENERAL REVISION	SIGNED

圖則名稱 drawing title

工務計劃項目第92CD號  
元朗、錦田、牛潭尾及天水圍雨水排放系統改善計劃第1階段第2B期 - 餘下工程  
PWP ITEM No.92CD  
YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI  
DRAINAGE IMPROVEMENTS, STAGE 1, PHASE 2B-REMAINING WORKS

繪畫 drawn	SIGNED C.K.LAM	日期 date	21MAY07
核對 checked	SIGNED C.N.CHEUNG	日期 date	08JUN07
批核 approved	SIGNED K.C.LO	日期 date	08JUN07
部門 office	工程管理部 PROJECT MANAGEMENT DIVISION		

圖則編號 drawing no.	比例 scale
DPM/92CD/0012B	N. T. S.

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