**For discussion**
**on 22 July 1998**

**PWSC(98-99)3**

# ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

**HEAD 705 - CIVIL ENGINEERING**
**Civil Engineering - Land development**
**405CL - Pak Shek Kok reclamation for dumping, stage 3**

Members are invited to recommend to Finance Committee the upgrading of **405CL**, retitled "Pak Shek Kok reclamation for public filling, stage 3", to Category A at an estimated cost of $240.8 million in money-of-the-day prices.

## PROBLEM

We have to maintain a public filling outlet for the disposal of construction waste in the Northeast New Territories (NENT) and the formation of land for housing and other development by end-2000.

## PROPOSAL

2. The Director of Civil Engineering, with the support of the Secretary for Planning, Environment and Lands, proposes to upgrade **405CL** to Category A at an estimated cost of $240.8 million in money-of-the-day (MOD) prices to carry out the stage 3 works of the public filling area at Pak Shek Kok.

**/PROJECT .....**

## PROJECT SCOPE AND NATURE

3. Pak Shek Kok reclamation for public filling consists of three stages. The part of the project we now propose to upgrade to Category A is the last stage of the project which comprises -

(a) construction of a 700-metre long sloping seawall;

(b) reclamation of about 17 hectares of seabed;

(c) construction of drainage works including a 500-metre long box culvert; and

(d) environmental monitoring and implementation of necessary mitigation measures.

A site plan of the project is at Enclosure 1.

## JUSTIFICATION

4. As part of our overall strategy on public filling, we conducted a site search in 1992 to identify a site in NENT for the disposal of inert construction waste[1]. We eventually selected Pak Shek Kok because it was relatively remote from the surrounding residential development and therefore would have less environmental impact.

5. In April 1997, we commissioned consultants under **477CL** "Feasibility Study for Pak Shek Kok Development Area (PSKDA)" to carry out a detailed feasibility study for the development of PSKDA. The study recommended that the area should be used for the development of a science park, a territorial recreational area, a low-density residential area, open space and supporting infrastructure. The layout of the proposed land uses of PSKDA is at Enclosure 2.

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The study also identified an area to be formed in stage 3 of the reclamation as a suitable site for residential development. The Committee on Planning and Land

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[1] Inert construction waste is waste generated from the construction industry and comprises earth, broken rock, concrete and building debris (e.g. bricks and plaster). We need public filling areas for inert construction waste in order to reserve valuable sanitary landfill space for other types of waste.

Development at its meeting held on 13 November 1997 endorsed the conceptual development layout for the PSKDA.

6. We originally planned to start stage 3 of the reclamation in May 2001 for completion by 2004. However, in order to meet the land requirement for housing development, we need to reschedule the proposed stage 3 reclamation works to commence in December 1998. We will complete the reclamation of about 15 hectares of land to the north of the proposed drainage works by end-2000 to enable the construction of housing and supporting infrastructure in 2001-02, and complete the whole stage 3 reclamation including the remaining 2 hectares of land and associated drainage works by end-2002.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $240.8 million in MOD prices (see paragraph 8 below), made up as follows -

| | | **$ million** |
|---|---|---|
| (a) | Construction of a seawall | 33.8 |
| (b) | Reclamation works | 31.8 |
| (c) | Drainage works (temporary and permanent) | 74.3 |
| (d) | Environmental monitoring | 6.1 |
| (e) | Environmental mitigation measures | 2.6 |
| (f) | Consultants' fees to supervise and audit the environmental monitoring programme | 4.8 |
| (g) | Site staff cost | 21.6 |

(h) .....

**$ million**

| | | | |
|---|---|---|---|
| (h) Contingencies | | 14.1 | |
| | Sub-total | 189.1 | (at December 1997 prices) |
| (i) Inflation allowance | | 51.7 | |
| | Total | 240.8 | (in MOD prices) |

A breakdown by man months of the estimates for separate consultants to supervise and audit the environmental monitoring programme and to provide site supervision is at Enclosure 3.

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

| Year | $ million (Dec 1997) | Price adjustment factor | $ million (MOD) |
|---|---|---|---|
| 1998 - 99 | 13.0 | 1.06000 | 13.8 |
| 1999 - 2000 | 51.8 | 1.14878 | 59.5 |
| 2000 - 01 | 51.7 | 1.24642 | 64.4 |
| 2001 - 02 | 41.1 | 1.35237 | 55.6 |
| 2002 - 03 | 21.0 | 1.46732 | 30.8 |
| 2003 - 04 | 10.5 | 1.59204 | 16.7 |
| | 189.1 | | 240.8 |

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9. We have derived the MOD estimates on the basis of the Government's forecasts of trend labour and construction prices over the period 1998

to 2004. We will tender the works as a combined remeasurement and lump-sum contract. The remeasurement part of the contract will cover the seawall, drainage works and reclamation works as there is uncertainty over the exact amount of marine deposits that we will need to be removed. The lump-sum part of the contract will cover environmental monitoring and mitigation measures. The entire contract will provide for adjustments to the tender price due to inflation as the contract period will be more than 21 months.

10. We estimate the total annually recurrent expenditure to be $1.072 million.

**PUBLIC CONSULTATION**

11. We presented the project to the Sha Tin District Board and the Tai Po District Board on 12 and 26 April 1994 respectively. Both District Boards endorsed the project in principle and requested us to form working groups to monitor its development. We have already set up the working groups comprising members of both District Boards and representatives from Government departments. No major environmental issues have arisen as a result of the project since its commencement.

12. We gazetted the entire reclamation under the Foreshore and Seabed (Reclamations) Ordinance in August 1994. During the statutory objection period, we received one objection from the Chinese University of Hong Kong (the University). The University objected to the access arrangement through the University campus and expressed concern about the environmental implications of the project.

13. To address the University's concern, we have implemented environmental mitigation measures and provided a buffer zone on the reclamation site in order to preserve the University's environment. The University withdrew its objection in early March 1996 after we had agreed not to use an access road in the University campus. We have arranged to deliver the public filling materials to the site either by sea from Shatin Area 47B or by road from the construction access of the Tolo Highway widening project. The then Governor in Council authorized the project under the Ordinance on 8 March 1996.

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14. We also consulted the Sha Tin District Board and the Tai Po District Board on our proposals to set up a barging point at Shatin Area 47B and to use a

joint construction access with the Tolo Highway widening project on 4 February 1997 and 25 February 1997 respectively. Both District Boards agreed to the proposals.

15. We consulted the Tai Po Provisional District Board on the proposed change in reclamation sequence on 24 February 1998. The Provisional District Board did not raise any objection to the proposal.

## ENVIRONMENTAL IMPLICATIONS

16. In September 1993, we engaged consultants to carry out an Environmental Impact Assessment (EIA) study on the Pak Shek Kok reclamation project. On water quality impact, the EIA study recommended the implementation of mitigation measures to reduce the suspended solid concentrations in water caused by dredging and reclamation activities, namely, using a close sealed dredger, placing silt curtains around the project area and maintaining the seawall at a length to provide a distance of at least 100 metres from the active dredging and reclamation area. The EIA study also recommended other measures, including the use of silence powered mechanical equipment and the application of dust mitigation measures, to control the noise and air impacts during the operation of the project within the established environmental guidelines and standards.

17. We presented the findings and recommendations of the EIA report to the EIA Subcommittee of the Advisory Council on Environment (ACE) on 5 July 1994. Upon the recommendation of this Subcommittee, ACE endorsed the EIA report on 15 August 1994 subject to the condition that there should be an independent consultant to monitor the site environmental performance of the contractor.

18. In December 1997, we engaged consultants to carry out an environmental demonstration to assess whether the proposed change in reclamation sequence is environmentally acceptable. The consultants concluded that no environmental impacts more adverse than those originally estimated would arise due to the proposed change in reclamation sequence. The demonstration paper was endorsed by the Director of Environmental Protection.

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19. Prior to the commencement of the reclamation project, baseline monitoring was performed by the consultant of the Civil Engineering Department.

The results were used to establish the ambient conditions. With the mitigation measures implemented and the monitoring mechanism in place, no adverse environmental impact has been detected from the reclamation works carried out so far under stage 1 and stage 2 phase 1. There has been no adverse impact on the water quality due to the reclamation works at such sensitive receivers as the Tai Po Seawater Pumping Station, Shatin Seawater Pumping Station, Yim Tin Tsai Mariculture Zone and Marine Science Laboratory of the University in the Tolo Harbour. For stage 3, we will implement the recommended mitigation measures including the provision of wheel washing facilities, water bowsers[2], silt curtain around the seawater intake of the Marine Science Laboratory of the University, and landscaping works at an estimated cost of $2.6 million. The proposed reclamation works will not cause adverse water quality impact to sensitive receivers in the Tolo Harbour area. During the reclamation, the contractor will carry out the environmental monitoring at an estimated cost of $6.1 million which covers air, noise and water quality in accordance with an environmental management plan to monitor the environmental performance and to ensure that the mitigation measures are effective. We will also employ an independent consultant to supervise and audit the contractor's environmental monitoring programme in accordance with the recommendations of the EIA report endorsed by ACE at an estimated cost of $4.8 million. We have included the costs for implementing the recommended mitigation measures and environmental monitoring in the project estimate.

## LAND ACQUISITION

20. This project does not require land acquisition.

## BACKGROUND INFORMATION

21. In June 1996, we upgraded part of **405CL** to Category A, as **466CL** "Pak Shek Kok reclamation for dumping, stage I" for the stage 1 works with an approved project estimate of $206.7 million. We commenced the stage 1 works in October 1996 for completion in August 1998.

/22. .....

22. In June 1997, we upgraded another part of **405CL** to Category A, as **483CL** "Pak Shek Kok reclamation for dumping, stage II" for the stage 2 works with an approved project estimate of $246.8 million. We will carry out the stage 2

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[2] Water bowsers are vehicles equipped with water tanks for spraying water on site to suppress dust generation.

works in two phases. We commenced phase 1 of the stage 2 works in February 1998 for completion in August 2000. We originally planned to start phase 2 of the stage 2 works in September 1999 for completion in May 2001. Owing to the requirement to bring forward the stage 3 works, we now plan to carry out phase 2 of the stage 2 works after completion of the stage 3 works and we will complete the whole project by 2004 as originally scheduled.

23. We have completed the detailed design, working drawings and tender documents for the stage 3 works using in-house staff.

24. We plan to start the stage 3 works as soon as practicable after funding has been approved in any case not later than December 1998. This phase of the project will take some 48 months inclusive from start to finish. We aim to complete the works by December 2002.

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Planning, Environment and Lands Bureau
July 1998

(KK321)

**Enclosure 3 to PWSC(98-99)3**

## 405CL - Pak Shek Kok reclamation for dumping, stage 3

### Breakdown of estimates for consultants' fees

| Consultants' staff costs | | | Estimated man months | Average MPS* salary point | Multiplier factor | Estimated fee ($ million) |
|---|---|---|---|---|---|---|
| Environmental consultant | | | | | | |
| (a) | Supervise and audit the environmental monitoring programme | Professional | 16 | 40 | 3.0 | 2.84 |
| | | Technical | 32 | 16 | 3.0 | 1.91 |
| Engineering consultant | | | | | | |
| (b) | Site staff | Technical | 518 | 16 | 2.1 | 21.60 |
| | | | | | **Total consultants' staff costs** | 26.35 |

* MPS = Master Pay Scale

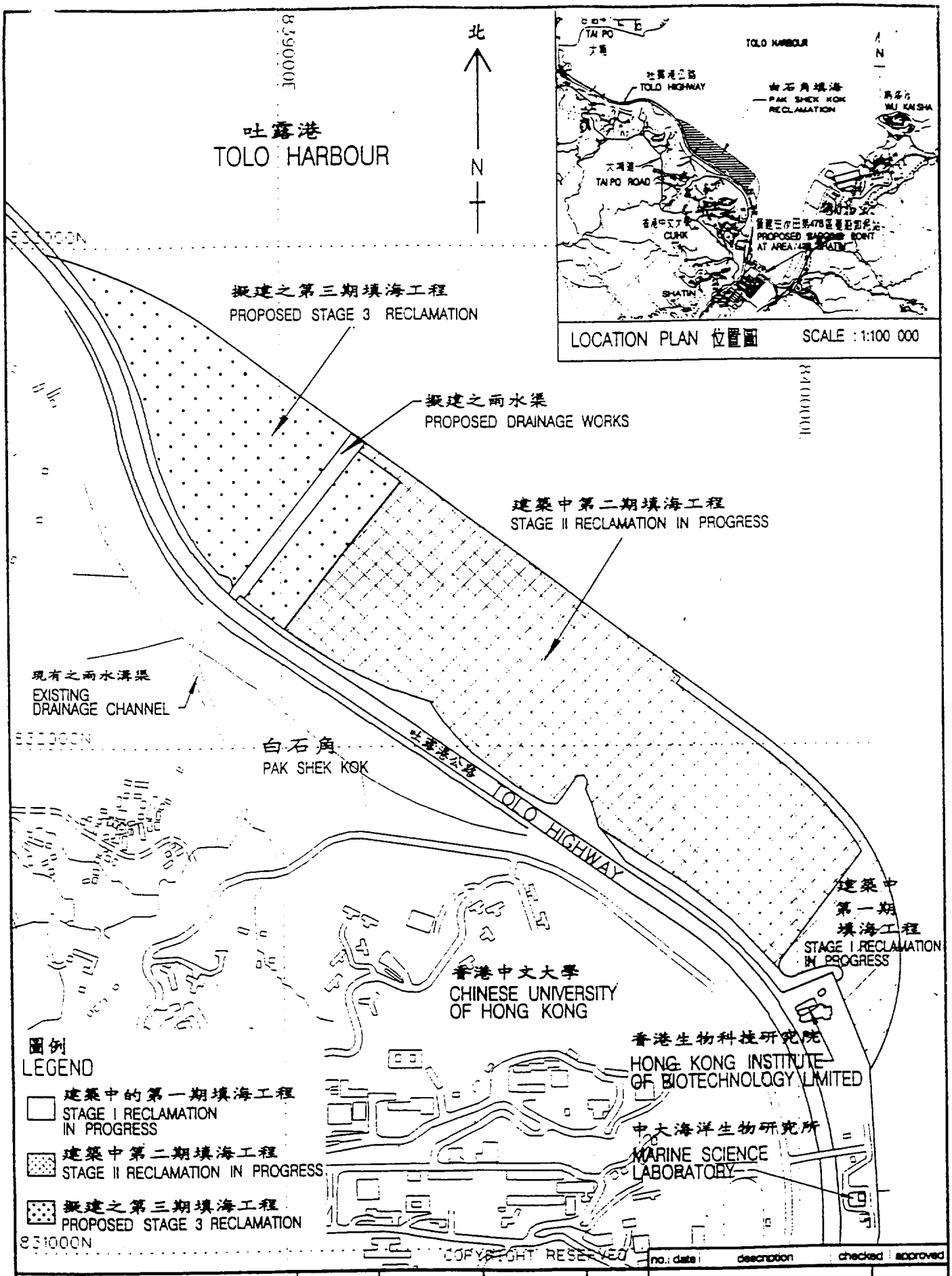
### Notes

1. A multiplier of 3 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. (At 1.4.97, MPS pt. 40 = $59,210 p.m. and MPS pt. 16 = $19,860 p.m.)

2. A multiplier factor of 2.1 is applied in the case of site staff supplied by the consultants. Civil Engineering Department will provide professional input for site supervision during the construction phase but will need to employ engineering consultants to provide technical site staff support during this period. The estimated cost is $21.6 million.

3. The figures given above are based on estimates prepared by the Director of Civil Engineering. We will only know the actual man months and actual fees when we have selected the consultants through the usual competitive lump-sum fee bid system.

(KK321)




圖例
LEGEND

- 建築中的第一期填海工程 STAGE I RECLAMATION IN PROGRESS
- 建築中第二期填海工程 STAGE II RECLAMATION IN PROGRESS
- 擬建之第三期填海工程 PROPOSED STAGE 3 RECLAMATION



| no. | date | description | checked | approved |
|---|---|---|---|---|

title
白石角公眾填土區的
填海工程第三階段
PAK SHEK KOK
RECLAMATION
FOR PUBLIC FILLING,
STAGE 3

| | name | initial | date |
|---|---|---|---|
| drawn | K.H. TONG | | 27.5.98 |
| checked | K.F. CHEUNG | | 27.5.98 |
| approved | M.C. LAW | | 28.5.98 |
| office | PROJECT MANAGEMENT BRANCH CIVIL ENGINEERING OFFICE | | |

drawing no. PMB 44

scale 1:10 000

CIVIL ENGINEERING DEPARTMENT
HONG KONG

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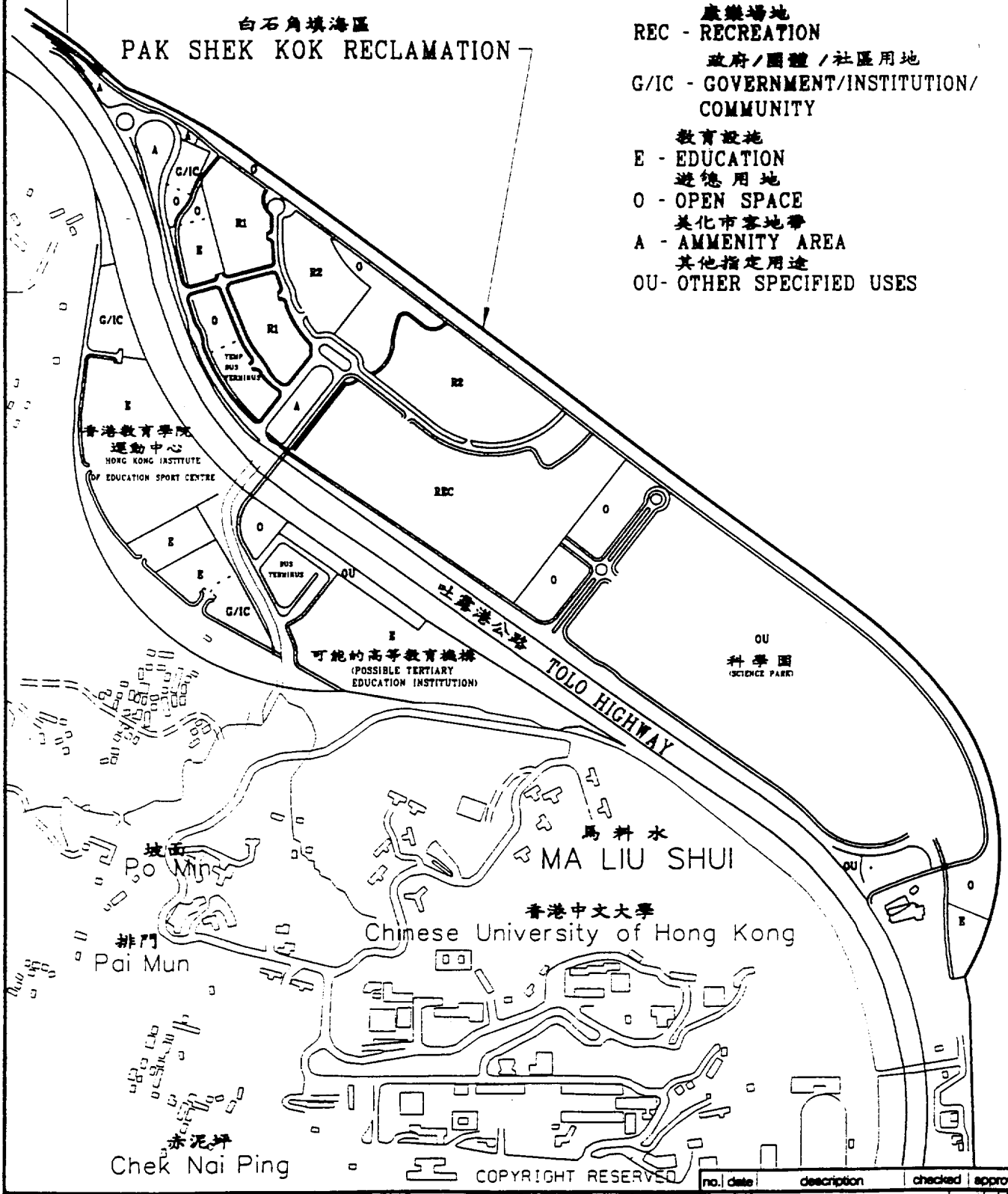
吐露港
TOLO HARBOUR

白石角填海區
PAK SHEK KOK RECLAMATION

註釋
Note :

土地用途明細表
1. SCHEDULE OF LAND USES

住宅用地 1區
R1 - RESIDENTAL - ZONE 1
住宅用地 2區
R2 - RESIDENTAL - ZONE 2
康樂場地
REC - RECREATION
政府/團體/社區用地
G/IC - GOVERNMENT/INSTITUTION/COMMUNITY
教育設施
E - EDUCATION
遊憩用地
O - OPEN SPACE
美化市容地帶
A - AMMENITY AREA
其他指定用途
OU- OTHER SPECIFIED USES



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| | name | initial | date |
|---|---|---|---|
| drawn | K.H. TONG | | 24.6.98 |
| checked | K.F. CHEUNG | | 25.6.98 |
| approved | M.C. LAW | | 25.6.98 |
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title 圖則名稱

白石角發展區
PAK SHEK KOK DEVELOPMENT AREA
擬議的土地用途
PROPOSED LAND USES

drawing no. 圖號
PMB 46

比例 scale
1 : 10 000

CIVIL ENGINEERING DEPARTMENT HONG KONG 香港土木工程署



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