

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Education - Secondary

224ES - Secondary school at West Kowloon reclamation, Yau Ma Tei

225ES - Secondary school at Nga Ying Chau, Tsing Yi

226ES - Secondary school in area 90, Sha Tin

227ES - Secondary school in area 77, Sha Tin

228ES - Secondary school in Lok Wah Estate, Kwun Tong

229ES - Fourth secondary school in Siu Sai Wan

231ES - Secondary school at West Kowloon reclamation, Tai Kok Tsui

Members are invited to recommend to Finance Committee the upgrading of **224ES, 225ES, 226ES, 227ES, 228ES, 229ES** and **231ES** to Category A at an estimated total cost of \$933.3 million in money-of-the-day prices for the construction of seven secondary schools, one in Yau Ma Tei, one in Tsing Yi, two in Sha Tin, one in Kwun Tong, one in Siu Sai Wan and one in Tai Kok Tsui.

PROBLEM

There are not enough secondary schools to meet the increase in demand for new school places and to eliminate floating classes at secondary schools by the school year 2000/01.

/PROPOSAL

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower, proposes to upgrade the following projects to Category A at an estimated total cost of \$933.3 million in money-of-the-day (MOD) prices -

	Project estimate \$ million (MOD)
(a) 224ES Secondary school at West Kowloon reclamation, Yau Ma Tei	142.8
(b) 225ES Secondary school at Nga Ying Chau, Tsing Yi	117.0
(c) 226ES Secondary school in area 90, Sha Tin	155.4
(d) 227ES Secondary school in area 77, Sha Tin	124.6
(e) 228ES Secondary school in Lok Wah Estate, Kwun Tong	122.2
(f) 229ES Fourth secondary school in Siu Sai Wan	128.0
(g) 231ES Secondary school at West Kowloon reclamation, Tai Kok Tsui	143.3
Total	933.3

PROJECT SCOPE AND NATURE

3. The seven secondary schools will adopt the latest design and

/schedule

schedule of accommodation for standard secondary schools to be completed from year 2000 onwards (Year 2000 design). Each school will have -

- (a) 30 classrooms;
- (b) 16 special rooms, including a computer room, a computer-assisted learning room and a language room;
- (c) three remedial teaching rooms;
- (d) a guidance activity/interview room;
- (e) two interview rooms;
- (f) staff rooms and a staff common room;
- (g) a student activity centre;
- (h) a conference room;
- (i) a library;
- (j) an assembly hall;
- (k) a multi-purpose area; and
- (l) ancillary accommodation including a lift and relevant facilities for the handicapped.

JUSTIFICATION

4. D of E forecasts that to meet new demand and to eliminate floating classes, 725 additional secondary classes will be required in the territory by the school year 2000/01. This requirement for additional secondary classes will grow to 953 by the school year 2001/02. 19 secondary school projects planned for completion by or before the school year 2000/01 have been upgraded to Category A. The seven school projects proposed in this paper together with the 19 schools

/already

already upgraded to Category A will provide 752 classes. We plan to meet the projected shortfalls in future through further school construction projects.

FINANCIAL IMPLICATIONS

5. We estimate the capital cost of **224ES**, **225ES**, **226ES**, **227ES**, **228ES**, **229ES** and **231ES** to be \$142.8 million, \$117 million, \$155.4 million, \$124.6 million, \$122.2 million, \$128 million and \$143.3 million respectively in MOD prices (see paragraphs 6 and 7 below), made up as follows -

	224ES	225ES	226ES	227ES	228ES	229ES	231ES	
	\$ million							
(a) Slope improvement works	-	-	-	-	4.6	-	-	
(b) Piling	28.8	8.3	34.1	13.6	8.0	17.1	27.5	
(c) Building	55.1	55.2	55.2	55.2	55.2	55.1	55.2	
(d) Building services	13.9	15.3	15.4	15.5	14.9	14.9	15.4	
(e) Drainage and external works	9.6	8.9	11.9	9.8	9.4	9.3	9.6	
(f) Contingencies	10.7	8.8	11.7	9.4	9.2	9.6	10.8	
Sub-total	118.1	96.5	128.3	103.5	101.3	106.0	118.5	(at December 1997 prices)
(g) Inflation allowance	24.7	20.5	27.1	21.1	20.9	22.0	24.8	
Total	142.8	117.0	155.4	124.6	122.2	128.0	143.3	(in MOD prices)

The construction floor area for each of the seven schools is 12 115 square metres. The respective construction unit costs of the projects are shown at the Enclosure. D Arch S considers the estimated construction costs reasonable. A comparison of the standard cost of a secondary school with the project estimates for these projects is also at the Enclosure.

6. Subject to approval, we will phase the expenditure for **224ES**, **225ES**, **226ES** and **227ES** as follows -

Year	\$ million (Dec 1997)				Price adjustment factor	\$ million (MOD)			
	224ES	225ES	226ES	227ES		224ES	225ES	226ES	227ES
1998 - 99	0.5	0.5	1.5	0.5	1.06000	0.5	0.5	1.6	0.5
1999 - 2000	59.1	46.1	57.5	51.9	1.14878	67.9	53.0	66.1	59.6
2000 - 01	45.0	38.4	56.9	43.5	1.24642	56.1	47.9	70.9	54.2
2001 - 02	13.5	11.5	12.4	7.6	1.35237	18.3	15.6	16.8	10.3
	118.1	96.5	128.3	103.5		142.8	117.0	155.4	124.6

7. Subject to approval, we will phase the expenditure for **228ES**, **229ES** and **231ES** as follows -

Year	\$ million (Dec 1997)			Price adjustment factor	\$ million (MOD)		
	228ES	229ES	231ES		228ES	229ES	231ES
1998 - 99	0.5	0.5	0.5	1.06000	0.5	0.5	0.5
1999 - 2000	52.7	51.7	58.8	1.14878	60.5	59.4	67.5
2000 - 01	36.6	44.1	45.3	1.24642	45.6	55.0	56.5
2001 - 02	11.5	9.7	13.9	1.35237	15.6	13.1	18.8
	101.3	106.0	118.5		122.2	128.0	143.3

8. We derived the MOD estimates on the basis of Government's forecast of trend labour and construction prices for the period 1998 to 2002. We will tender the works under fixed price lump-sum contracts because we can clearly define the scope of works in advance, leaving little room for uncertainty.

/9.

9. We estimate the additional annually recurrent expenditure for each school to be \$36.6 million.

PUBLIC CONSULTATION

10. We consulted the Community Building Committee of the Yau Tsim Mong Provisional District Board on **224ES** and **231ES** in August 1998; the Community Affairs Committee of the Kwai Tsing Provisional District Board on **225ES** in August 1998; the Education and Welfare Committee of the Sha Tin Provisional District Board on **226ES** and **227ES** in September 1998; the Social Services Committee of the Kwun Tung Provisional District Board on **228ES** in July 1998 and the Community Building Committee of the Eastern Provisional District Board on **229ES** in July 1998. Members supported the projects.

ENVIRONMENTAL IMPLICATIONS

11. The consultants engaged by D Arch S completed the Preliminary Environmental Reviews (PERs) on **224ES** in February 1998, **225ES** and **226ES** in March 1998, **227ES** in April 1998 and **228ES**, **229ES** and **231ES** in May 1998. The Director of Environment Protection vetted the PERs and concluded that no Environmental Impact Assessment was necessary for any of the seven projects. We will implement the following environmental mitigation measures to keep the road traffic noise impact on the proposed schools within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

Project No.	Mitigation measures	Estimated cost \$ million (at Dec 1997 prices)
224ES	(a) provision of insulated windows and air-conditioning to five classrooms on the 1/F to the 5/F and one special room on the 6/F at the eastern facade of the classroom block.	0.7

/225ES

225ES	(a) construction of a 3-metre high solid boundary wall along the eastern side of the emergency vehicular access excluding the ingress/egress point.	0.3
	(b) provision of insulated windows and air-conditioning to 11 rooms on the 1/F to the 6/F at the southern, western and northern facades of the special room block.	2.2
226ES	(a) provision of insulated windows and air-conditioning to 11 special rooms on the 1/F to the 6/F at the south-eastern facade and south-western facade of the special room block.	2.3
227ES	(a) construction of a 3-metre high solid boundary wall along the western side of the site; and	0.6
	(b) provision of insulated windows and air-conditioning to ten special rooms on the 1/F to the 6/F at the south-western and northern facades of the special room block.	2.4

/228ES

228ES	(a) provision of insulated windows and air-conditioning to 13 classrooms on the 1/F to the 5/F, one remedial teaching room and one special room on the 6/F at the northern facade of the classroom block.	1.8
229ES	(a) construction of 3-metre high solid boundary walls at the north-eastern and south-western sides of the site; and (b) provision of insulated windows and air-conditioning to four classrooms on the 2/F to the 5/F and two special rooms on the 6/F and 7/F at the south-eastern facade of the classroom block as well as five special rooms on the 2/F to the 6/F at the north-eastern facade of the special room block.	0.2 1.7
231ES	(a) provision of insulated windows and air-conditioning to 11 special rooms on the 1/F to the 6/F and one remedial teaching room on the 7/F at the north-western, north-eastern and south-eastern facades of the special room block.	2.3

We have included the cost of these mitigation measures in the project estimates.

12. We will control noise, dust and site run-off nuisances during construction in accordance with established standards and guidelines through the implementation of mitigation measures under the relevant contracts.

LAND ACQUISITION

13. None of the seven projects require land acquisition.

BACKGROUND INFORMATION

14. We upgraded **224ES, 225ES, 226ES, 227ES, 228ES, 229ES** and **231ES** to Category B in September 1998.

15. D Arch S has completed site investigations for the seven projects. We are finalising the working drawings and tender documents for these projects using in-house staff resources. We plan to start the construction works for these projects in January 1999 for completion in August 2000.

Education and Manpower Bureau
September 1998

(KK330)

**A comparison of the standard cost of a secondary school project
with the estimated costs of the proposed school projects**

	Standard cost*	224ES	225ES	226ES	227ES	228ES	229ES	231ES	
									\$ million (at December 1997 prices)
(a) slope improvement works	-	-	-	-	-	4.6	-	-	(see note A)
(b) Piling	12.0	28.8	8.3	34.1	13.6	8.0	17.1	27.5	(see note B)
(c) Building	55.0	55.1	55.2	55.2	55.2	55.2	55.1	55.2	(see note C)
(d) Building services	13.3	13.9	15.3	15.4	15.5	14.9	14.9	15.4	(see note D)
(e) Drainage and external works	9.1	9.6	8.9	11.9	9.8	9.4	9.3	9.6	(see note E)
(f) contingencies	8.9	10.7	8.8	11.7	9.4	9.2	9.6	10.8	
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	
	98.3	118.1	96.5	128.3	103.5	101.3	106.0	118.5	
(g) Construction floor area	12 115m ²	12 115m	12 115m	12 115m	12 115m	12 115m	12 115m ²	12 115m ²	
(h) Construction unit cost {[(c)+(d)] (g)}	\$5,638/m ²	\$5,695/m	\$5,819/m	\$5,827m	\$5,836/m ²	\$5,786/m ²	\$5,778/m ²	\$5,827/m ²	

*** Assumptions for standard cost**

1. The estimation is based on the assumption that the school site is uncomplicated and without abnormal environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and solid boundary walls to mitigate noise impacts on the school.
2. No site formation works/geotechnical works are required as they are normally carried out by other government departments under a separate engineering vote before handing-over of the project site to the Architectural Services Department for school construction.
3. Piling cost is based on 138 numbers of steel H-piles at an average depth of 30 metres, on the assumption that percussive piling is permissible. It also includes costs for pile caps, strap beams and testing. No allowance is reserved for the effect of negative skin friction due to fill on reclaimed land.

4. Cost for drainage and external works is for a standard secondary school built on an average level site of 6 950 square metres without complicated geotechnical conditions, utility diversions, etc. (i.e. a greenfield site).
5. No consultancy services are required.
6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring body of an aided school.
7. The standard cost for comparison purpose is subject to review regularly. We will review, and revise if necessary, the standard cost which should be adopted for future projects.

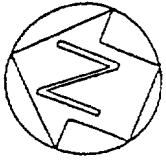
Notes

- A. For **228ES**, the school platform is located below an existing slope which will be allocated to the Education Department. As a consequence of the school development, the Geotechnical Engineering Office of the Civil Engineering Department requires additional slope stabilisation measures to be carried out at an estimated cost of \$4.6 million. These measures, comprise mainly of a grid of soil nails, are required to meet the current standard for slope safety and must be in place prior to the occupation of the school.
- B. Piling costs for the proposed schools are adjusted to suit individual site conditions and are based on the use of the following -

	224ES	225ES	226ES	227ES	228ES	229ES	231ES
Type	Steel H-pile	Steel H-pile	Steel H-pile	Steel H-pile	Steel H-pile	Bored pile	Steel H-pile
Number	172	169	182	148	138	32	198
Depth (metres)	58	17	65	32	20	30	48

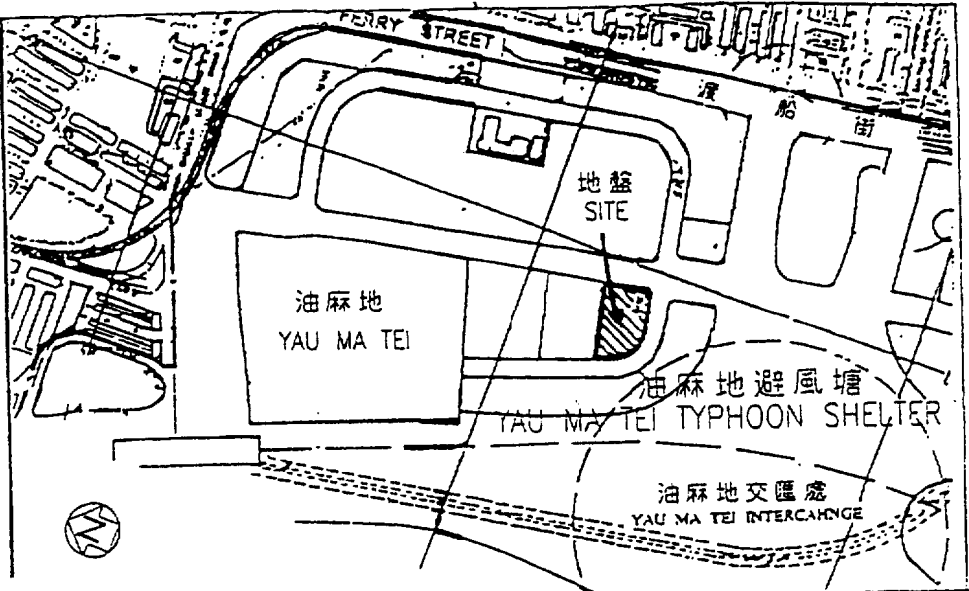
- C. The building costs for all the seven schools are higher because of the provision of insulated windows as a noise mitigation measure.
- D. The building services costs for all the seven schools are higher because of the provision of air-conditioning as a noise mitigation measure.
- E. (i) For **224ES** and **231ES**, the cost for drainage and external works are higher due to the provision of ductile iron drain pipes and drainage superflex joints in reclamation.

- (ii) For **225ES**, the site area (6 200m²) is smaller than that of the standard school. The cost for drainage and external works, although lower than the standard cost, has, in fact, included the construction cost for the provision of a 3-metre solid boundary wall along the eastern side of the emergency vehicular access excluding ingress/egress point as a noise mitigation measure.
 - (iii) For **226ES**, the site area (5 630m²) is smaller than that of the standard school. The cost for drainage and external works is however higher because of the use of ductile iron drain pipes with flexible connections for reclaimed site. In addition, allowance is also made for pre-consolidation of the site for anticipated settlement of the reclaimed site.
 - (iv) For **227ES**, the cost for drainage and external works is higher because of the provision of ductile iron drain pipes with flexible connections for reclaimed site as well as the provision of a solid boundary wall along western side of the site as a noise mitigation measure.
 - (v) For **228ES**, the costs for drainage and external works is higher because there is an existing watermain within the site adjacent to Chun Wah Road which need to be diverted in order not to obstruct the construction works.
 - (vi) For **229ES**, the cost for drainage and external works is higher because of the provision of 3-metre high solid boundary walls at the north-eastern and south-western sides of the site as a noise mitigation measure.
- F. As the new schools will be operated as aided schools, individual sponsoring bodies will bear the costs of furniture and equipment, estimated at \$9.2 million for each school.



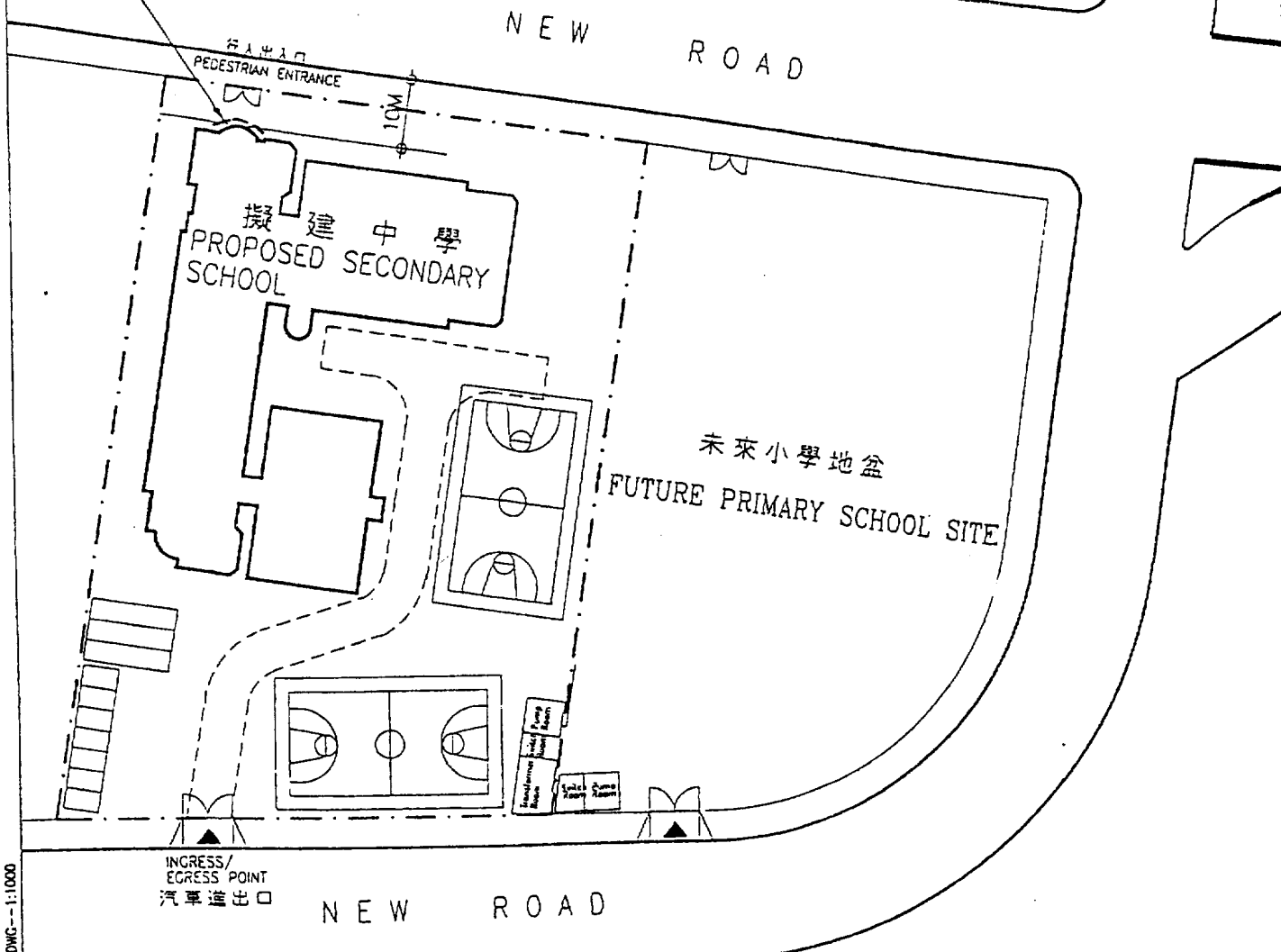
屋邨發展

HOUSING DEVELOPMENT




PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 5 CLASSROOMS ON 1/F TO 5/F AND 1 SPECIAL ROOM ON 6/F AT THE EASTERN FACADE OF THE CLASSROOM BLOCK.
 在課室大樓向東面由1樓至5之五間課室及6樓之一間特別教學室安裝隔音玻璃窗和空氣調節

位置圖 LOCATION PLAN 1 : 10 000



CAD Ref.: R:\PPT\5979\XB101.DWG--1:1000

title 224ES 九龍油麻地西九龍填海區 擬建一間中學 PROPOSED SECONDARY SCHOOL AT WEST KOWLOON RECLAMATION, YAU MA TEI, KOWLOON	drawn by M.F. WONG	date 3.7.98	drawing no. AB/5979/XB101	scale 1:1000
	approved SUZANNA CHAN	date 3.7.98	 ARCHITECTURAL SERVICES DEPARTMENT A4 210 x 297	
office ARCHITECTURAL BRANCH				



PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 11 SPECIAL ROOMS ON 1/F TO 6/F AT THE SOUTHERN, WESTERN & NORTHERN FACADE OF THE SPECIAL ROOM BLOCK.
 在特別室大樓向南面、西面及北面由1樓至6樓之十一間特別教室安裝隔窗玻璃窗和空氣調節

TYTL112

CHING NGA COURT
青雅苑

車輛出入口
INGRESS
EGRESS
POINT

TYTL129

PLAYGROUND
遊樂場

VO149

FOOTBALL FIELD
足球場

E.V.A. 消防車通道

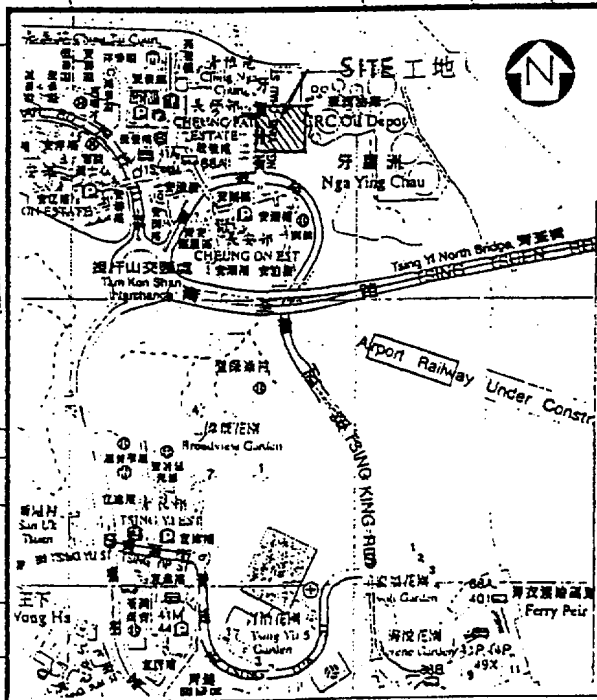
PROPOSED
SECONDARY SCHOOL
擬建中學

CONSTRUCTION OF A 3M HIGH SOLID BOUNDARY WALL ALONG THE EASTERN SIDE OF EMERGENCY VEHICULAR ACCESS EXCLUDING INGRESS/EGRESS POINT
 在消防車通道之東面(車輛出入口除外)興建一幅3米高實心圍牆。

CHEUNG FAT ESTATE
長發邨

居者有其屋計劃
HOS DEVELOPMENT

ST.
NGA YING CHAU ST.
牙鷹洲街



LOCATION PLAN 位置圖 1:15 000

TSING KING ROAD 青敬路

title 225ES

青衣牙鷹洲一所中學
SECONDARY SCHOOL IN
NGA YING CHAU, TSING YI

drawn by M.F. WONG

approved WILSON LAM

office ARCHITECTURAL BRANCH

date 2.7.98

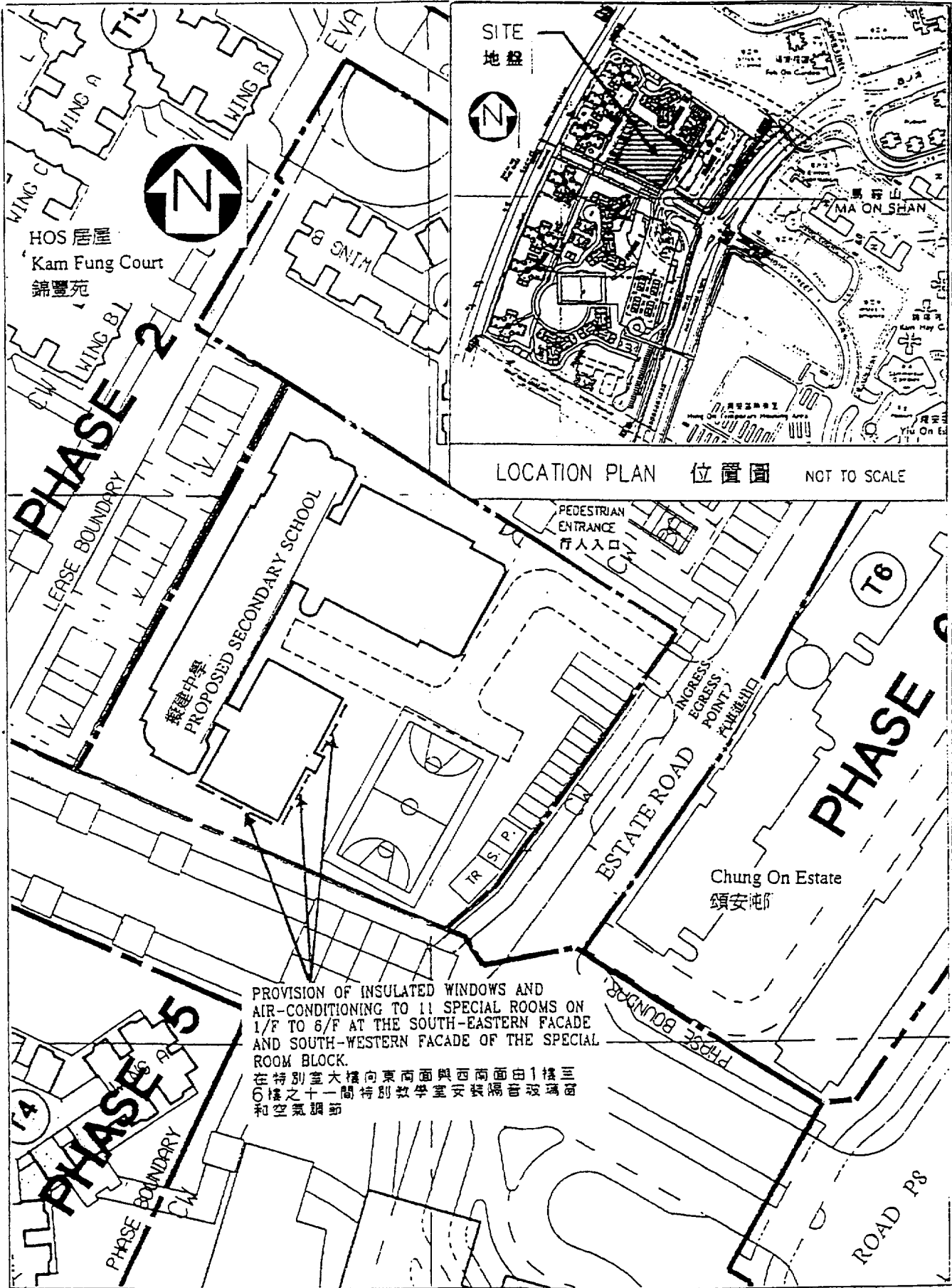
date 2.7.98

drawing no. AB/5806/XD101



ARCHITECTURAL
SERVICES
DEPARTMENT

scale 1:1000



title 226ES
 SECONDARY SCHOOL
 AT AREA 90, SHATIN
 沙田九十區一間中學

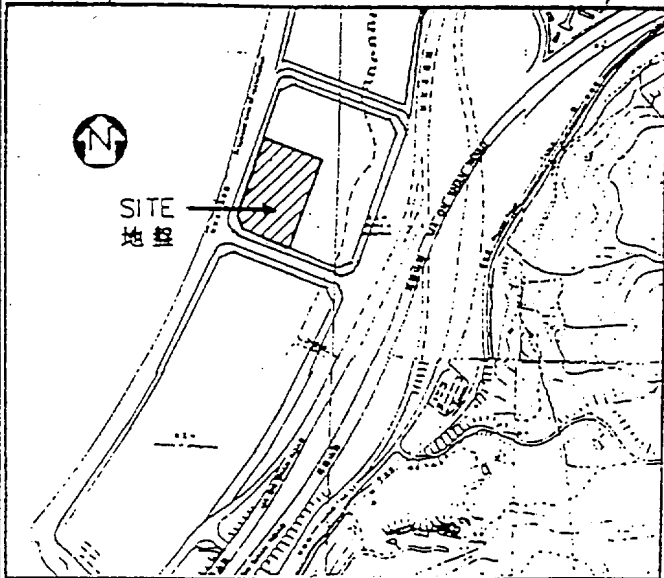
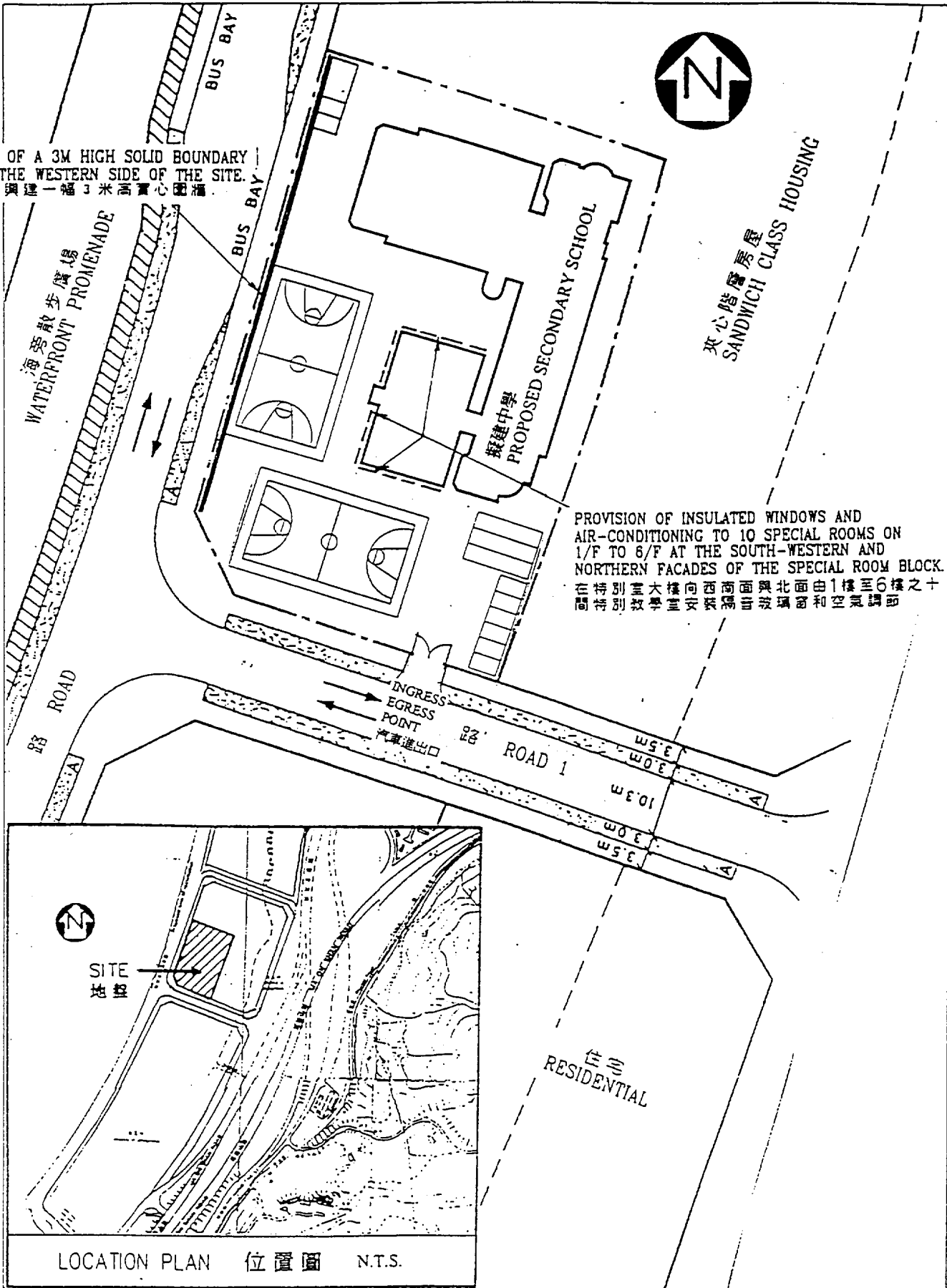
drawn by	M.F. WONG	date	3.7.98
approved	JUANA CHAN	date	3.7.98
office	ARCHITECTURAL BRANCH		

drawing no.	scale
AB/5982/XB102	1:1000



ARCHITECTURAL
 SERVICES
 DEPARTMENT

INSTRUCTION OF A 3M HIGH SOLID BOUNDARY
 ALONG THE WESTERN SIDE OF THE SITE.
 沿西面興建一幢3米高實心圍牆。



LOCATION PLAN 位置圖 N.T.S.

C19 Ref. 5812XA101--1:1000

title
 227ES
 SECONDARY SCHOOL
 AT AREA 77, SHATIN
 沙田七十七區一間中學

drawn by
 M.F. WONG

date
 6-7-93

proj. arch.
 SUZANNA CHAN

date
 6-7-93

office
 ARCHITECTURAL BRANCH

drawing no.
 AB/5812/XB101

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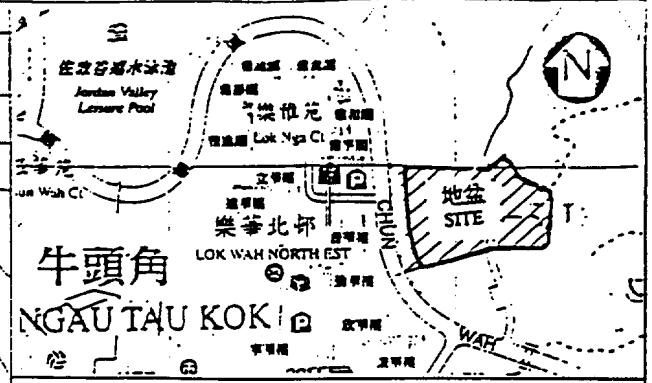


ARCHITECTURAL
 SERVICES
 DEPARTMENT

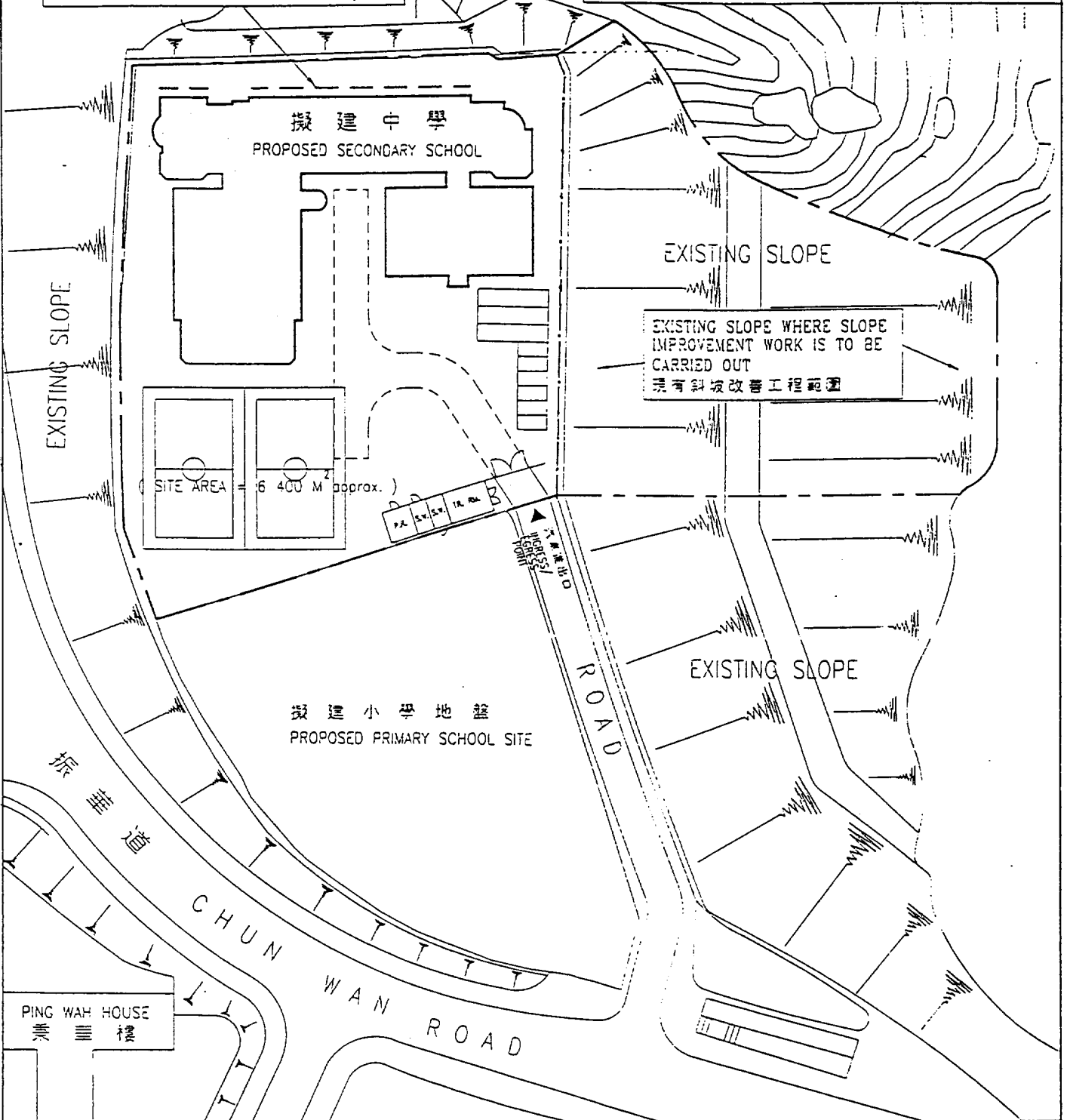


PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING FOR 13 CLASSROOMS FROM 1/F TO 5/F, 1 REMEDIAL TEACHING ROOM AND 1 SPECIAL ROOM ON 6/F AT THE NORTHERN FACADE OF THE CLASSROOM BLOCK


在課室大樓北面由1樓至5樓之十三間課室及6樓之一間輔導教學室與一間特別教室裝設隔音玻璃窗和空氣調節



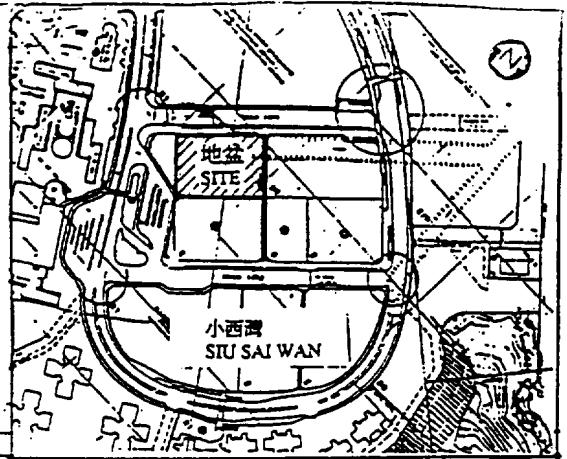
LOCATION PLAN 位置圖 SCALE N.T.S.



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title (228ES) 觀塘樂華邨之一所中學 SECONDARY SCHOOL AT LOK WAH EST. KWUN TONG	drawn by M.F. WONG	date 26.3.98	drawing no. AB/5827/XF101	scale 1:1000
	approved WILSON LAM	date 26.3.98		
office ARCHITECTURAL BRANCH			 ARCHITECTURAL SERVICES DEPARTMENT	

富欣花園
HARMONY GARDEN



位置圖
LOCATION PLAN N.T.S.

小西灣邨
SIU SAI WAN ESTATE

SIU SAI WAN ROAD

ROAD 22/3

INGRESS
EGRESS
POINT
汽車進出口

行人出入口
PEDESTRIAN
ENTRANCE

CONSTRUCTION OF A 3M
HIGH SOLID BOUNDARY
WALL AT THE
NORTH-EASTERN SIDE
OF THE SITE.
在地區沿東北面興建
一幢3米高實心圍牆

CONSTRUCTION OF A 3M HIGH
SOLID BOUNDARY WALL AT
THE SOUTH-WESTERN SIDE
OF THE SITE.
在地區沿西南面興建
一幢3米高實心圍牆

葵建中學
PROPOSED SECONDARY SCHOOL

70.000

83.500

PROVISION OF INSULATED WINDOWS AND
AIR-CONDITIONING TO 4 CLASSROOMS ON
2/F TO 5/F AND 2 SPECIAL ROOMS ON 6/F
AND 7/F AT THE SOUTH-EASTERN FACADE
OF CLASSROOM BLOCK.

在課室大樓向東南面由2樓至5樓之四間課室
及6樓與7樓之兩間特別教學室安裝隔音玻璃
窗和空氣調節

PROVISION OF INSULATED WINDOWS AND
AIR-CONDITIONING TO 5 SPECIAL ROOMS
ON 2/F TO 6/F AT THE NORTH-EASTERN
FACADE OF THE SPECIAL ROOM BLOCK.

在特別室大樓向東北面由2樓至6樓之五間
特別教學室安裝隔音玻璃窗和空氣調節

葵建小學地段
PROPOSED PRIMARY SCHOOL SITE

ROAD 22/2

富怡花園
CHEERFUL GARDEN

title 229ES

小西灣一所第四間中學
FOURTH SECONDARY
SCHOOL IN SIU SAI WAN

drawn by M.F. WONG

date 2.7.98

approved JUANA CHAN

date 2.7.98

office ARCHITECTURAL
BRANCH

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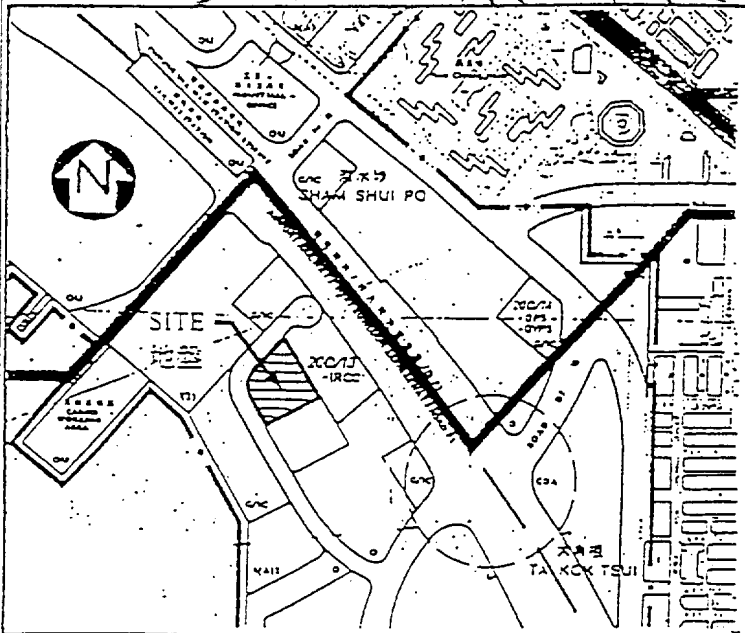
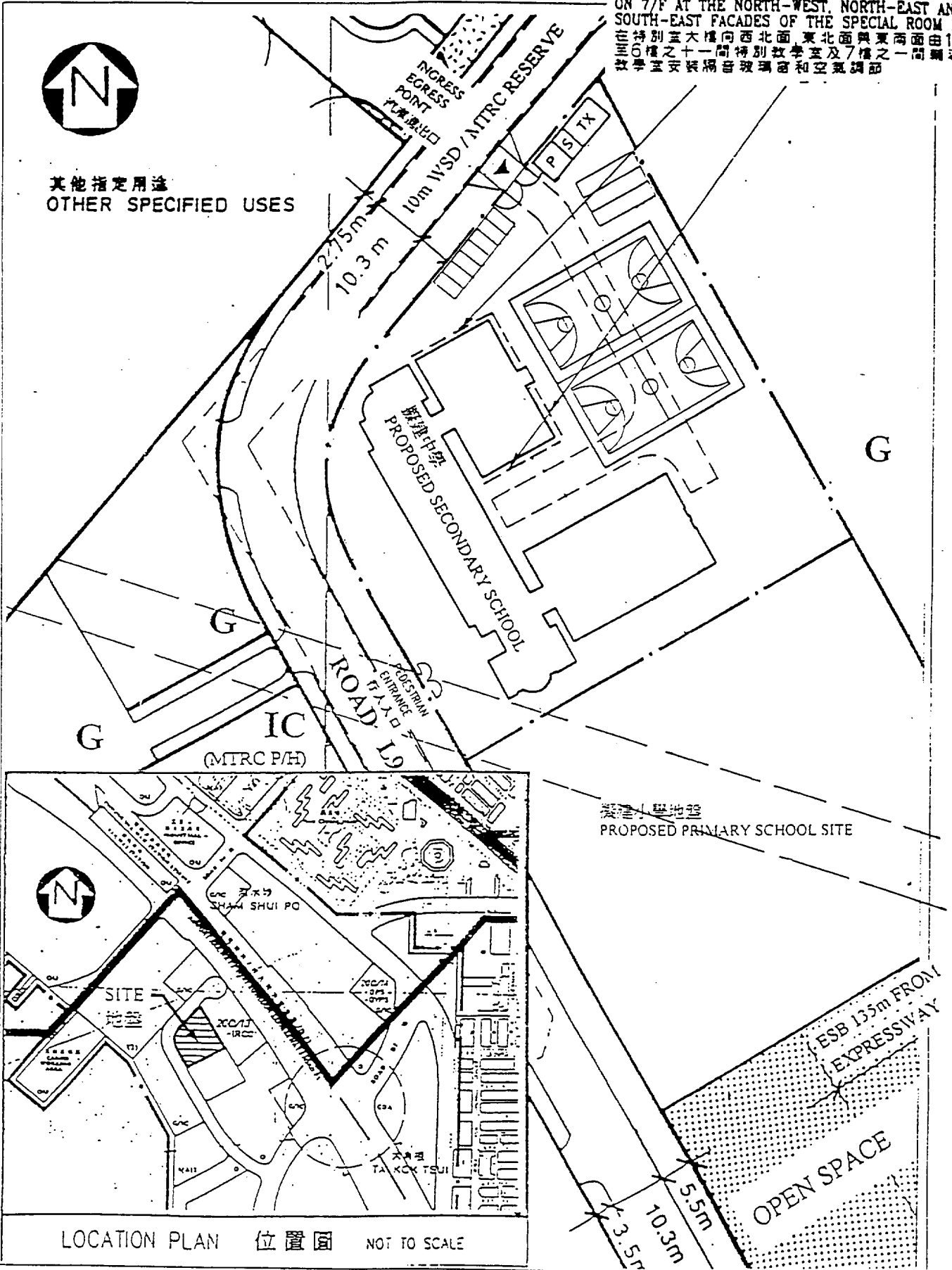


ARCHITECTURAL
SERVICES
DEPARTMENT

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING FOR 11 SPECIAL ROOMS ON 1/F TO 6/F AND 1 REMEDIAL TEACHING ROOM ON 7/F AT THE NORTH-WEST, NORTH-EAST AND SOUTH-EAST FACADES OF THE SPECIAL ROOM BLOCK
 特別室大樓向西北面、東北面與東南面由1樓至6樓之十一間特別教學室及7樓之一間輔導教學室安裝隔音玻璃窗和空氣調節



其他指定用途
 OTHER SPECIFIED USES



LOCATION PLAN 位置圖 NOT TO SCALE

title 231ES

九龍大角咀西九龍填海區
 擬建一間中學
 PROPOSED SECONDARY SCHOOL AT
 WEST KOWLOON RECLAMATION,
 TAI KOK TSUI, KOWLOON

drawn by M. F. WONG

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