For discussion **PWSC(98-99)19**
on 7 October 1998

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
226EP - Primary school at Aldrich Bay reclamation, Shau Kei Wan
246EP - Primary school in Siu Sai Wan
248EP - Second primary school in area 31, Tin Shui Wai
253EP - Primary school in area 90B, Sha Tin
254EP - Primary school in area 100, Sha Tin

Members are invited to recommend to Finance Committee the upgrading of **226EP**, **246EP**, **248EP**, **253EP** and **254EP** to Category A at an estimated total cost of $605.3 million in money-of-the-day prices for the construction of five primary schools, one in Shau Kei Wan, one in Siu Sai Wan, one in Tin Shui Wai and two in Sha Tin.

PROBLEM

There are not enough primary schools to meet the increase in demand for new school places and to accelerate the implementation of whole-day primary schooling.

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support

/of .....

of the Secretary for Education and Manpower, proposes to upgrade the following projects to Category A at an estimated total cost of $605.3 million in money-of-the-day (MOD) prices -

			Project Estimate $ million (MOD)
(a)	**226EP** -	Primary school at Aldrich Bay reclamation	120.2
(b)	**246EP** -	Primary school in Siu Sai Wan	108.8
(c)	**248EP** -	Second primary school in area 31, Tin Shui Wai	107.9
(d)	**253EP** -	Primary school in area 90B, Sha Tin	131.0
(e)	**254EP** -	Primary school in area 100, Sha Tin	137.4
		Total	605.3

PROJECT SCOPE AND NATURE

3. The five primary schools will adopt the latest standard and schedule of accommodation for standard primary schools to be completed from the year 2000 (Year 2000 design). Each school will have -

(a) 30 classrooms;

(b) six special rooms, including a computer-assisted learning room and a language room;

(c) four remedial teaching rooms;

(d) a guidance activity/interview room;

/(e) .....

(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. To meet increase in demand for school places and to help achieve the policy target of enabling 60% of pupils in public sector primary schools to study on a whole-day basis by the commencement of the school year 2002/03, the Director of Education (D of E) has been making plans to build an additional 73 primary schools for completion by August 2002. As at September 1998, 24 of these schools have been upgraded to Category A and three have been completed.

5. Eastern District now has 27 public sector primary schools providing 562 classrooms. D of E forecasts that an additional 24 classrooms will be required to meet increase in demand for school places by the school year 2002/03 through the construction of **246EP**. In addition, **226EP** would enable an existing bi-sessional government primary school in the district to convert into whole-day operation.

6. Yuen Long District now has 45 public sector primary schools providing 674 classrooms. D of E forecasts that an additional 508 classrooms will be required to meet increase in demand for school places by the school year 2002/03. Nine primary schools projects providing 270 classrooms have already been upgraded to Category A and planned for completion from the school year

2001/02. **248EP** will further reduce the shortfall; the remaining shortfall will be met by other school projects which are being planned.

7. Sha Tin District now has 41 public sector primary schools providing 1 017 classrooms. Whilst D of E forecasts that no additional classrooms are required to meet increase in demand for school places by the school year 2002/03, **253EP** and **254EP,** together with one 30-classroom primary school project upgraded to Category A and planned for completion in the school year 2000/01, will enable existing bi-sessional primary schools in the district to convert into whole-day operation.

FINANCIAL IMPLICATIONS

8. We estimate the capital costs of **226EP**, **246EP**, **248EP**, **253EP** and **254EP** to be $120.2 million, $108.8 million, $107.9 million, $131 million and $137.4 million respectively in MOD prices (see paragraph 9 below), made up as follows -

		226EP	**246EP**	**248EP**	**253EP**	**254EP**	
				$ million			
(a)	Piling	17.7	14.6	11.7	23.1	29.8	
(b)	Building	49.1	49.0	49.1	49.2	49.1	
(c)	Building services	11.0	11.2	12.1	13.5	12.1	
(d)	Drainage and external works	9.0	6.9	8.5	9.0	8.5	
(e)	Furniture and equipment	4.2	-	-	4.2	4.2	
(f)	Contingencies	8.7	8.2	8.1	9.5	10.0	
	Sub-total	99.7	89.9	89.5	108.5	113.7	(at December 1997 prices)

/(g) .....

(g)	Inflation allowance	20.5	18.9	18.4	22.5	23.7	
	Total	120.2	108.8	107.9	131.0	137.4	(in MOD prices)

The construction floor areas of the five projects are 10 526 square metres. The respective construction unit costs are shown at the Enclosure. D Arch S considers the estimated construction unit costs reasonable. A comparison of the standard cost of a primary school with the project estimates of these projects is also at the Enclosure.

9. Subject to approval, we will phase the expenditure for **226EP**, **246EP**, **248EP**, **253EP** and **254EP** as follows -

Year	**$ million (Dec 1997)**					**Price adjustment factor**	**$ million (MOD)**				
	226EP	**246EP**	**248EP**	**253EP**	**254EP**		**226EP**	**246EP**	**248EP**	**253EP**	**254EP**
1998 - 99	-	0.5	-	-	-	1.06000	-	0.5	-	-	-
1999 - 2000	51.7	40.8	44.9	54.8	55.5	1.14878	59.4	46.9	51.6	63.0	63.8
2000 - 01	38.5	40.3	37.8	43.8	48.0	1.24642	48.0	50.2	47.1	54.6	59.8
2001 - 02	9.5	8.3	6.8	9.9	10.2	1.35237	12.8	11.2	9.2	13.4	13.8
	99.7	89.2	89.5	108.5	113.7		120.2	108.8	107.9	131.0	137.4

10. 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.

11. We estimate the additional annually recurrent expenditure for each school to be $17.9 million.

/PUBLIC .....

PUBLIC CONSULTATION

12. We consulted the Community Building Committee of the Eastern Provisional District Board on **246EP** and **226EP** in July and December 1996 respectively, the Social Services and Publicity Committee of the Yuen Long Provisional District Board on **248EP** in September 1998 and the Education and Welfare Committee of the Sha Tin Provisional District Board on **253EP** and **254EP** in September 1998. Members of the respective Boards supported the projects.

ENVIRONMENTAL IMPLICATIONS

13. D Arch S completed and Director of Environmental Protection (DEP) vetted the Preliminary Environmental Reviews (PERs) for **226EP** in July 1998, **246EP** in May 1998 and **248EP**, **253EP** and **254EP** in March 1998. DEP recommends 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 Standard and Guidelines -

Project No.		Mitigation Measures	Estimated Cost $ million (at Dec 1997 prices)
226EP	(a)	construction of a 3-metre high solid boundary wall at the southern and western sides of the site boundary facing Road 9/2A and Road 9/4; and	0.4
	(b)	provision of insulated windows and air-conditioning to one special room on the 3/F at the western facade of the special room block.	0.3

/**246EP** .....

246EP	(a)	provision of insulated windows and air-conditioning to two special rooms on the 2/F at the north-eastern facade as well as two special rooms on the 2/F and 3/F at the south-western facade of the special room block.	0.4
248EP	(a)	construction of 3-metre high solid boundary walls along the northern boundary, eastern boundary and portion of the southern boundary of the school site; and	0.5
	(b)	provision of insulated windows and air conditioning to eight classrooms on the 3/F, 4/F, 5/F and 6/F at the north-eastern facade of the classroom block as well as four special rooms on the 2/F and 3/F at the southern and northern facades of the special room block.	1.4
253EP	(a)	construction of 3-metre high solid boundary walls at the southern and western sides of the site boundary facing Road C and Road B; and	0.5
	(b)	provision of insulated windows and air-conditioning to 14 classrooms from the 1/F to the 6/F at the southern facade of the classroom block as well as four special rooms on the 2/F and 3/F at the eastern facade of the special room block.	2.9

/**254EP** ....

254EP	(a)	provision of insulated windows and air-conditioning to four special rooms on the 2/F and 3/F at the western facade of the special room block.	1.4

14. We will control noise, dust and site run-off nuisances during construction through the implementation of appropriate mitigation measures in the relevant contracts.

LAND ACQUISITION

15. The five projects do not require land acquisition.

BACKGROUND INFORMATION

16. We upgraded **226EP** to Category B in July 1996, **246EP**, **248EP**, **253EP** and **254EP** in July 1998. We have completed site investigations for the five projects. We are in the process of preparing the detailed working drawings and tender documents using in-house staff resources.

17. We plan to start the construction works for the projects in March 1999 for completion in August 2000.

Education and Manpower Bureau
September 1998

(PWSC0010/WIN1)

Enclosure to PWSC(98-99)19

A comparison of the standard cost of a 30-classroom primary school project with the estimated costs of the proposed school projects

	Standard cost*	226EP	246EP	248EP	253EP	254EP	
	($ million at Dec 1997 prices)						
(a) Piling	9.7	17.7	14.6	11.7	23.1	29.8	(See note A)
(b) Building	49.0	49.1	49.0	49.1	49.2	49.1	(See note B)
(c) Building services	10.8	11.0	11.2	12.1	13.5	12.1	(See note C)
(d) Drainage and external works	8.0	9.0	6.9	8.5	9.0	8.5	(See note D)
(e) Furniture and equipment	-	4.2	-	-	4.2	4.2	(See note E)
(f) Contingencies	7.8	8.7	8.2	8.1	9.5	10.0	
Total	85.3	99.7	89.9	89.5	108.5	113.7	
(g) Construction floor area	10 526m^2	10 526m^2	10 526m^2	10 526m^2	10 526m^2	10 526m^2	
(h) Construction unit cost [(b)+(c)]÷(g)}	$5,681/$m^2$	$5,710$m^2$	$5,719/$m^2$	$5,814/$m^2$	$5,957$m^2$	$5,814/$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 the handing-over of the project site for school construction.

3. Piling cost is based on the use of 112 number 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 30-classroom primary school site area of 6 200 square metres built on an average level site 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. Piling costs for the proposed schools are adjusted to suit individual site conditions and are based on the use of the following -

	226EP	**246EP**	**248EP**	**253EP**	**254EP**
Type	Steel H-pile	Bored pile	Steel H-pile	Steel H-pile	Steel H-pile
Number	230	31	128	148	155
Depth (metres)	48	30	38	65	80

B. For **226EP**, **248EP**, **253EP** and **254EP**, the building costs are higher because of the provision of insulated windows as a noise mitigation measure.

C. The building services costs for the five schools are higher because of the provision of air-conditioning as a noise mitigation measure.

D. (i) For **226EP,** the cost for drainage and external works is higher because of the construction of 3-metre high solid boundary walls at the southern and eastern sides of the site as well as the provision of ductile iron drain pipes with flexible joint for reclamation site.

(ii) For **246EP,** the cost for drainage and external works is lower because the site area (5 011m^2) is smaller than that of the standard school.

(iii) For **248EP**, the cost for drainage and external works is higher because of the construction of 3-metre high solid boundary wall along the northern boundary, eastern boundary and portion of the southern boundary of the school site.

(iv) For **253EP**, the cost for drainage and external works is higher because of the construction of a 3-metre high solid boundary wall at the south-western side of the site as well as the provision of ductile iron pipes and flexible joints for reclamation site.

(v) For **254EP**, the cost of drainage and external works is higher because of the provision of ductile iron drain pipes and flexible joints for reclamation site.

E. For **226EP**, $4.2 million is required for the cost of furniture and equipment for the school to be operated as a government primary school converted into whole day operation. For **253EP** and **254EP**, $4.2 million is required for each school for the cost of furniture and equipment as the two schools will be allocated to existing bi-sessional schools for conversion to whole-day operation.

新筲箕灣避風塘
NEW SHAU KEI WAN
TYPHOON SHELTER

三十米闊渠務專用範圍
30M WIDE DRAINAGE RESERVE

30.00m D.R.

BOUNDARY LINE

102M

擬建小學
PROPOSED PRIMARY SCHOOL

行人出入口
PEDESTRIAN ENTRANCE

緊急車輛通道 EVA

十米闊渠務專用範圍
10M WIDE DRAINAGE RESERVE

61M

3.5 13.8 3.5

R10

101.5M

車輛出入口
INGRESS/EGRESS POINT

ROAD 9/2A 新路

10.5

CONSTRUCTION OF A 3M HIGH SOILD BOUNDARY WALL AT THE SOUTHERN & WESTERN SIDES OF THE SITE BOUNDARY FACING ROAD 9/2A AND 9/4.
在地盤之南面與西面向路9/2A及9/4興建一幅3米高實心圍牆

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 1 SPECIAL ROOM ON 3/F AT THE WESTERN FACADE OF THE SPECIAL ROOM BLOCK.
在特別室大樓向西面3樓之一間特別教學室安裝隔音玻璃窗和空氣調節

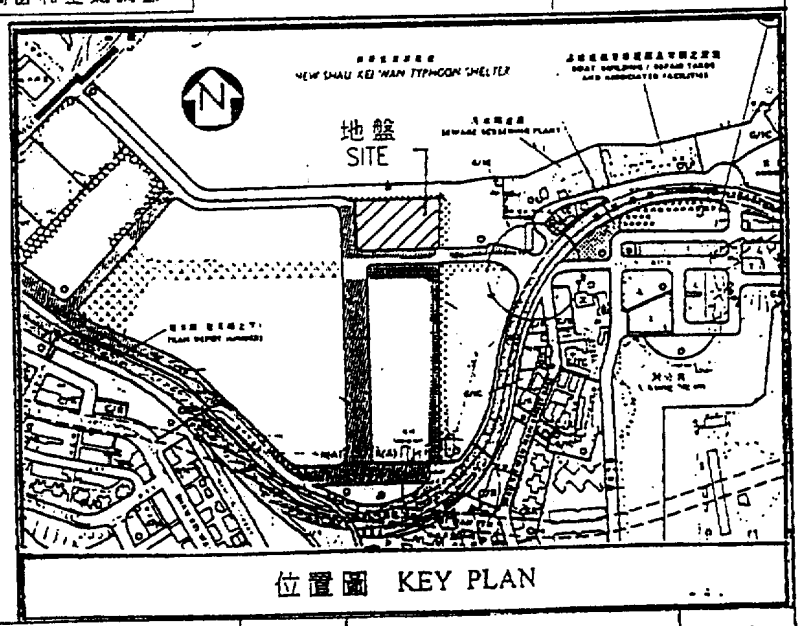
私人參建計劃
PRIVATE SECTOR PARTICIPATION SCHEME

公共租住屋邨
PUBLIC RENTAL HOUSING CUM HOS

ROAD 9/4

3.5 15.5

新路



位置圖 KEY PLAN

title (226 EP) 筲箕灣愛秩序灣填海區之一所小學 PRIMARY SCHOOL IN ALDRICH BAY RECLAMATION, SHAUKEIWAN	drawn by M.F. WONG	date 3.9.98	drawing no. AB/5355/XE101	scale 1 : 1000
	approved JUANA CHAN	date 3.9.98	ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

CAD Ref. 5355/XE101--1:1000

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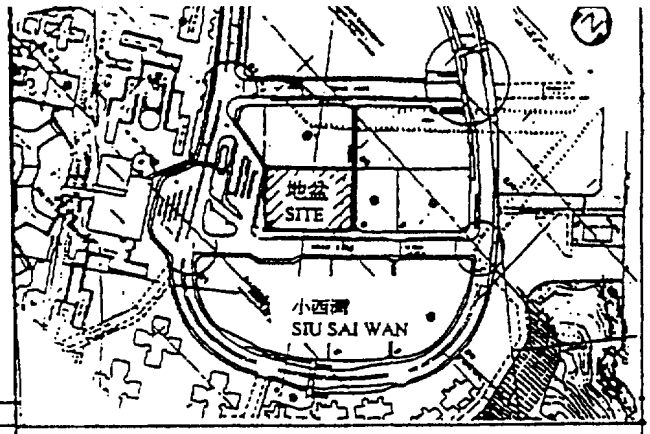


位置圖
LOCATION PLAN N.T.S.

小西灣邨
SIU SAI WAN ESTATE

SIU SAI WAN ROAD

居者有其屋計劃
HOS / PSPS

ROAD 22/3

休閒空間
OPEN AMENITY SPACE

擬建中學
PROPOSED SECONDARY SCHOOL

小西灣路

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 2 SPECIAL ROOMS ON 2/F AT THE NORTH-EASTERN FACADE AS WELL AS 2 SPECIAL ROOMS ON 2/F & 3/F AT THE SOUTH-WESTERN FACADE OF THE SPECIAL ROOM BLOCK.
在特別室大樓向東北面2樓之兩間特別教學室及西南面2樓與3樓之兩間特別教學室安裝隔音玻璃窗和空氣調節

83 500

巴士站
BUS TERMINAL

擬建小學
PROPOSED PRIMARY SCHOOL

EVA

政府用地
G

60 000

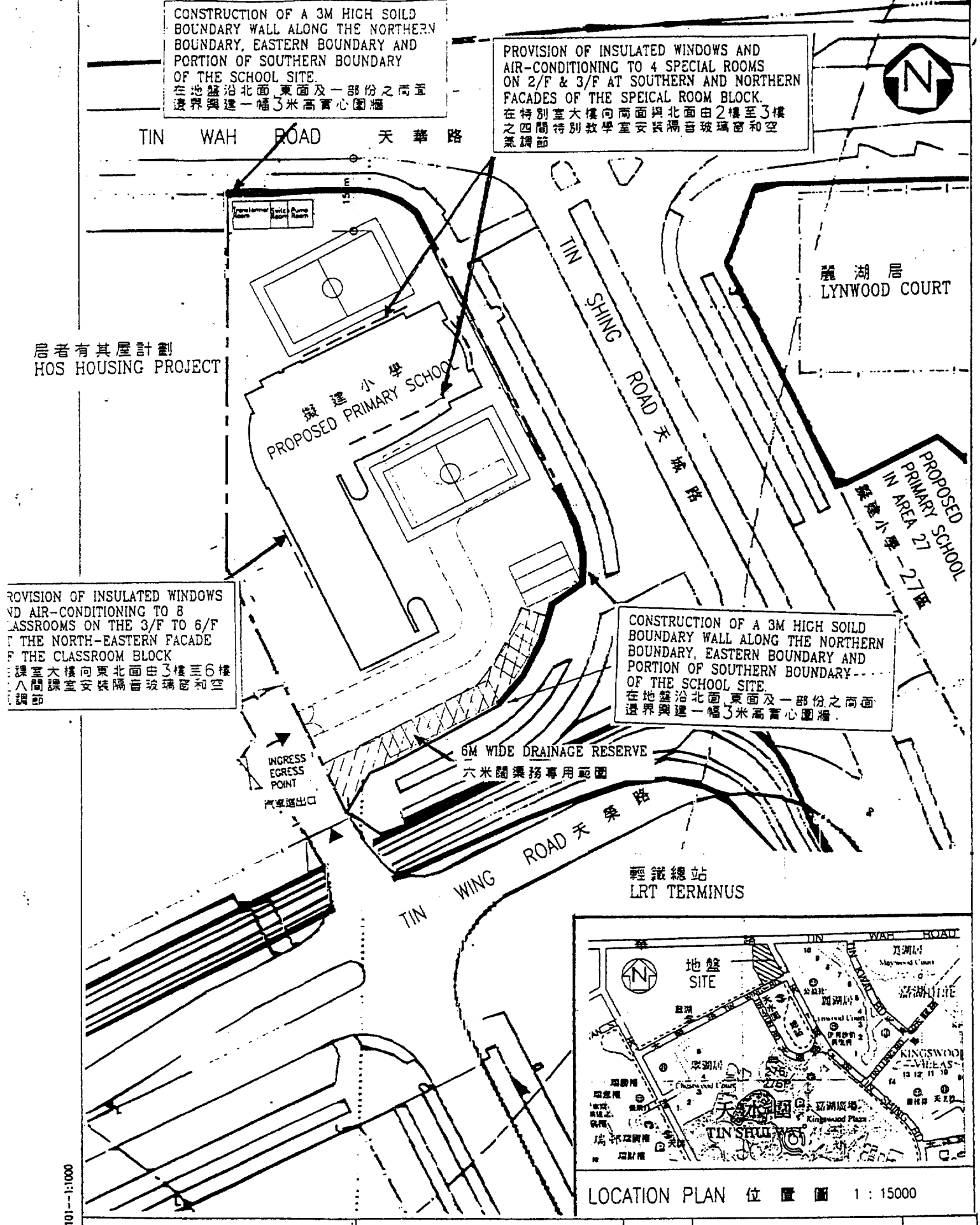
行人出入口
PEDESTRIAN ENTRANCE

車輛出入口
INGRESS/EGRESS POINT

ROAD 22/2

富怡花園
CHEERFUL GARDEN

title: 246EP 小西灣一間小學 PRIMARY SCHOOL IN SIU SAI WAN	drawn by: M.F.WONG	date: 2.7.98	drawing no.: AB/5826/XC101	scale: 1 : 1000
	approved: JUANA CHAN	date: 2.7.98		
	office: ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT	



LOCATION PLAN 位置圖 1 : 15000

title (248EP) 天水圍第31區第二所小學 SECOND PRIMARY SCHOOL IN AREA 31, TIN SHUI WAI	drawn by M.F. WONG	date 3.9.98	drawing no. AB/5987/XC101
	approved D.P.H. CHAN	date 3.9.98	scale 1:1000
	office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT

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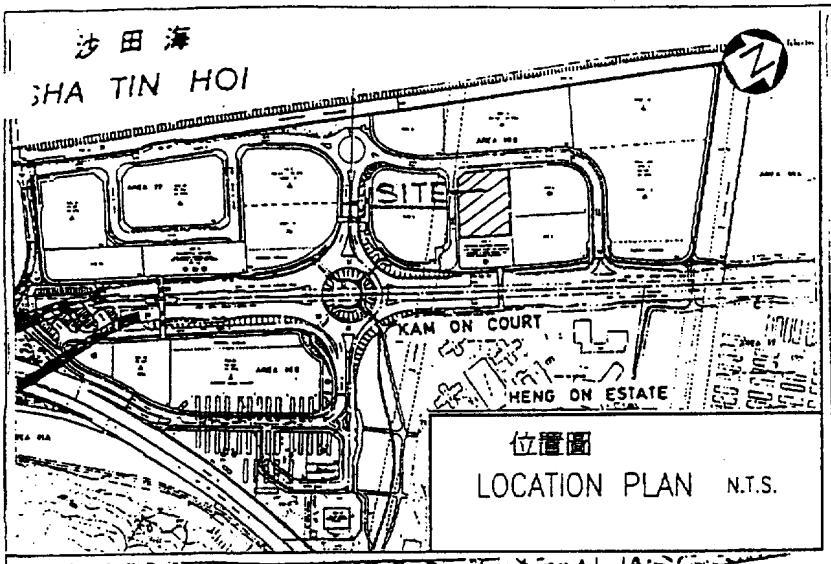
沙田海
SHA TIN HOI



位置圖
LOCATION PLAN N.T.S.

AREA 90B

住宅用地
RESIDENTIAL

CONSTRUCTION OF A 3M HIGH SOLID BOUNDARY WALL ALONG THE WESTERN SIDE OF THE SITE.
在地盤沿西面興建一幅3米高實心圍牆.

BUS BAY
巴士站

ROAD B

行人出入口
PEDESTRIAN ENTRANCE

休憩用地
DISTRICT OPEN SPACE

未來中學地盆
FUTURE SECONDARY SCHOOL SITE

3.5m 7.3m 3.5m

INGRESS EGRESS POINT
汽車進出口

ROAD C

PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 14 CLASSROOMS FROM 1/F TO 6/F AT THE SOUTHERN FACADE OF THE CLASSROOM BLOCK.
在課室大樓向南面由1樓至6樓之十四間課室安裝隔音玻璃窗和空氣調節

CONSTRUCTION OF A 3M HIGH SOLID BOUNDARY WALL ALONG THE SOUTHERN SIDE OF THE SITE.
在地盤沿南面興建一幅3米高實心圍牆.

擬建小學
PROPOSED PRIMARY SCHOOL

政府用地
G

SITE 7
衛生福利大樓
HEALTH & WELFARE BUILDING
(TO INCLUDE CLINIC, DAY NURSERY, CHILDREN & YOUTH CENTRE AND OTHER WELFARE FACILITIES)

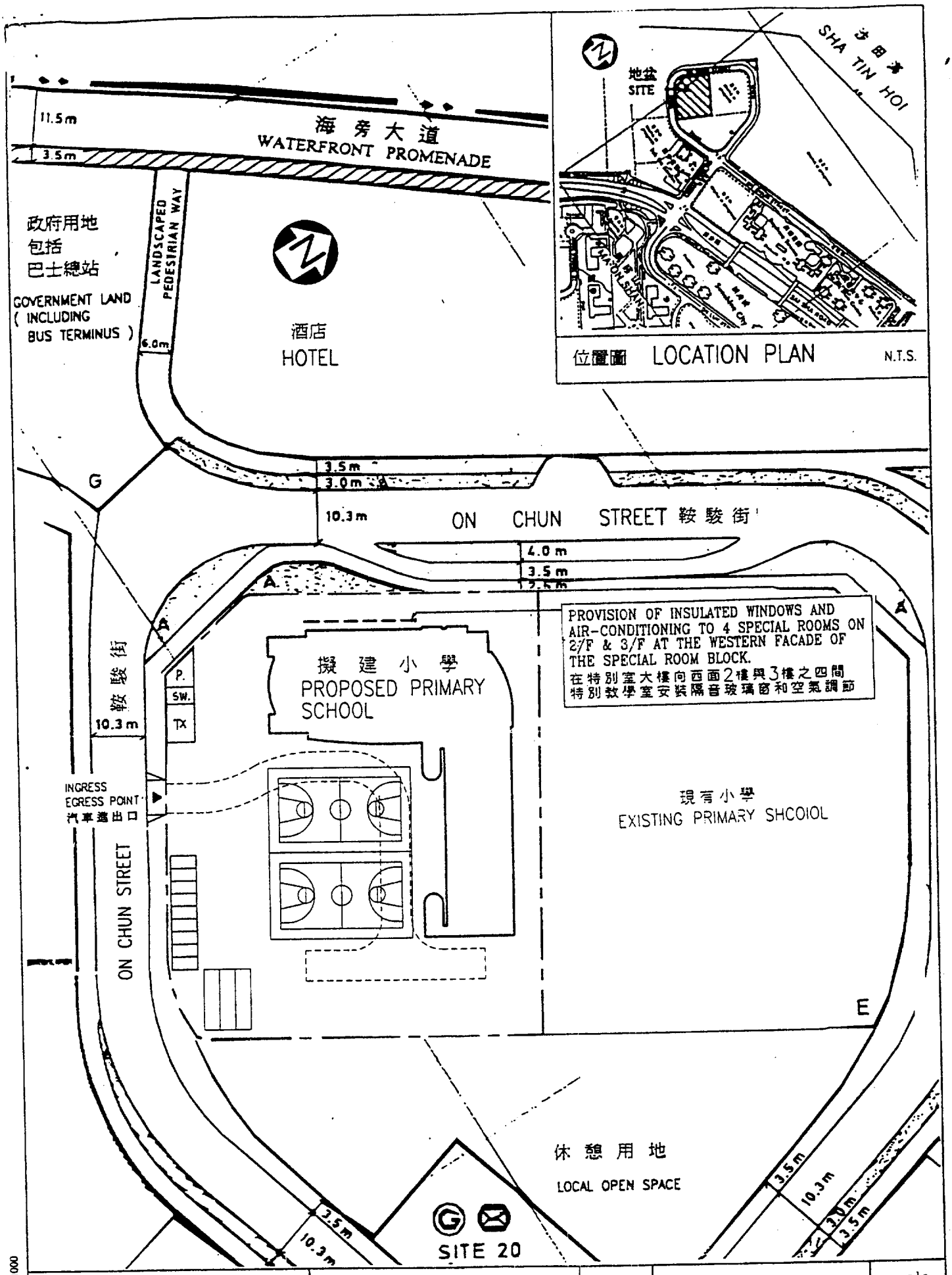
PROVISION OF INSULATED WINDOWS AND AIR-CONDITIONING TO 4 SPECIAL ROOMS ON 2/F & 3/F AT THE EASTERN FACADE OF THE SPECIAL ROOM BLOCK.
在特別室大樓向東面2樓與3樓之四間特別教學室安裝隔音玻璃窗和空氣調節

3.6m
3.25m BUS BAY
11.0m 巴士站

ROAD B1

title (253EP) 沙田第90B區一所小學 PRIMARY SCHOOL IN AREA 90B, SHATIN	drawn by M.F. WONG	date 5.8.98	drawing no. AB/5975/XC101
	approved JUANA CHAN	date 5.8.98	scale 1 : 1000
	office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT

CAD Ref. 5335/P0101--1:1



title (254EP) 沙田第100區一所小學 PRIMARY SCHOOL IN AREA 100, SHATIN	drawn by M.F. WONG	date 5.8.98	drawing no. AB/5976/XC101	scale 1 : 1000
	approved JUANA CHAN	date 5.8.98	ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

CAD Ref. 5976/XC101--1:1000

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