



THE HONG KONG HOUSING AUTHORITY

Memorandum for the Building Committee

Proposed Master Layout Plan and Project Development Budget for Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3

PURPOSE

To seek Members' approval to the Proposed Master Layout Plan and Project Development Budget for the Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3.

BACKGROUND

2. The project is the second and third phases of the Redevelopment of Upper Ngau Tau Kok Estate and is a Group 1 housing development. Phase 1 has been completed in August 2002 and is the reception estate for Phases 2 & 3. Clearance of the existing blocks of Phases 2 & 3 will be completed in January 2003, and commencement of demolition works will be in the same month.
3. The development in Phases 2 & 3 is identified as possible reception site for Lower Ngau Tau Kok Estate Phase 2.
4. Past events relevant to the project are as follows-

Date	Event
27 February 2002	The Strategic Planning Committee (SPC) approved the revised Development Parameters, Conceptual Layout and Project Development Cost Ceilings (Paper No. SPC 11/2002).
20 September 2002	PDRC endorsed the proposed Master Layout Plan and Project Development Budget for submission to the Building Committee (BC) (Paper No. PDRC 33/02).

MASTER LAYOUT PLAN

5. The proposed Master Layout Plan of the Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3 follows generally the Development Parameters and Conceptual Layout with site-specific non-standard design approved by SPC in Paper No. SPC 11/2002. It comprises-

- (a) Six domestic blocks ranging from 38 to 48 storeys with three blocks on grade and three blocks on podium.
- (b) A single storey commercial centre on grade with roof garden integrated with landscape gardens at upper platforms.
- (c) One 1-2 storey carpark podium in Phase 3.
- (d) A single storey children and youth centre on grade with rooftop ballcourt linked to upper landscaped platforms.
- (e) Covered walkway system and landscaped podium.
- (f) Footbridge connection to Upper Ngau Tau Kok Estate Phase 1.
- (g) Slope improvement works and retaining structures.
- (h) Associated drainage and external works.

6. The footbridge at On Tak Road provides a grade-separated crossing to Upper Ngau Tau Kok Phase 1. Pedestrian access to On Tak Road from Phase 2 is provided near Block 4. Shuttle lift towers for the footbridge proposed in the approved Conceptual Layout has been deleted in view of the availability of alternative access and high cost of the lift towers and associated structures.

7. In view of the uncertainty in the development in Lower Ngau Tau Kok Estate (LNTK) at this stage, the construction of a footbridge connection to LNTK proposed in the approved Conceptual Layout is excised from this project. However, future connection to the footbridge is allowed in the design.

8. The development parameters of the Proposed Master Layout Plan are summarized below-

	SPC Approval (Paper No. SPC 11/2002)			Proposed Master Layout Plan			Remarks
Name	Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3						
Location	Kwun Tong						
Existing Land Use	Public Rental Housing						
Existing Zoning	Residential (Group A)						
Proposed Housing Type	Group 1 Housing Development with commercial, carparking And other ancillary facilities						
	Phase 2	Phase 3	Total	Phase 2	Phase 3	Total	
Gross Site Area (ha)	1.65	1.57	3.22	1.71	1.88 ⁽¹⁾	3.58	
Net Site Area (m ²) (Gross Site Area minus areas of slope, estate road and school)	16,341	14,707	31,048	15,629	13,134	28,763	Reduction due to adjusted estate road area(1,485m ²), slope area(1,955m ²), and school site(3,639m ²).

		SPC Approval (Paper No. SPC 11/2002)				Proposed Master Layout Plan				Remarks
Maximum Combined Plot Ratio for Phases 1, 2 and 3		7.5				7.5				
Maximum GFA for Phases 2 and 3 (m ²)		231, 905				213,046 ⁽²⁾				Reduction due to adjustment of site area.
Height Restriction		Main roof level up to 164.25mPD in Phase 2 and 173.75mPD in Phase 3				Main roof level up to 155.35mPD in Phase 2 and 163.80mPD in Phase 3				Main Roof levels have been agreed with Plan D.
Type of Block		Site Specific Design				Site Specific Design				
		Phase 2	Phase 3	Total		Phase 2	Phase 3	Total		
No. of Blocks		3	3	6		3	3	6		
Flat Mix	Flat Type	No.	No.	No.	%	No.	No.	No.	%	
	1P	881	788	1669	34	872	872	1744	35	
	2P	264	267	531	11	260	249	509	10	
	1B	865	758	1623	32	985	738	1723	35	
	2B	447	534	981	20	335	481	816	17	
	3B	0	174	174	3	0	158	158	3	
	Total	2457	2521	4978	100	2452	2498	4950	100	
Achieved domestic GFA (m ²)		231,905				213,045 ⁽³⁾				Reduction due to adjustment of site area
Achieved Plot Ratio (for Phases 1, 2 & 3)		7.5				7.5				
		Phase 2	Phase 3			Phase 2	Phase 3			
Car-parking Provisions ⁽⁴⁾ :										*Further reduction of carpark ratio based on District Profile of 1:18-1:21. **Due to reduction of flat numbers.
Private carparking		-	116 (1:16)			-	83 (1:18)*			
Commercial car-parking (1/200-300m ² GFA)		-	14			-	14			
LGV (1/100 flats)		-	21			-	20**			
Motorcycles (5-10% of private carparking)		-	2			-	10			
L/UL (domestic) (1 per block)		3	3			3	3			
L/UL (commercial) (1/200-300m ² GFA)		2	-			2	-			
Welfare Facilities										
Integrated Team for Children & Youth Services (1 no. / 20,000-30,000p)		-	1			-	1			SWD confirmed re-provision of existing NEC in other housing projects.
Neighbourhood Elderly Centre (NEC)		-	1			-	0			

	SPC Approval (Paper No. SPC 11/2002)		Proposed Master Layout Plan		Remarks
	Phase 2	Phase 3	Phase 2	Phase 3	
Retail Provisions	1,800 m ² IFA	-	1,830 m ² IFA	-	
Local Open Space Open space provision (1 m ² per person) Basketball courts (1 / 10,000p) Badminton courts (1 / 8,000p) Children's playground (400m ² / 5,000p) Table Tennis Table (1 / 7,500p)	1 m ² per person 2 1 1,300m ² 2		1 m ² per person 1 1 1,300m ² 2		1 basketball court is proposed due to high proportion of elderly population. Kowloon District Planning Committee has approved the change subject to support from local residents. Agreement from District Council will be sought in due course.
Other Facilities EMO (50-360m ² IFA) MAC Office (15-20m ² IFA for each block) Office for Cleansing Contractor (10-20m ² IFA) Maintenance Service/Store Room (50-100m ² IFA) Plant Nursery (30-80m ² IFA)	- 3 - - -	1 3 1 1 1	- 3 - - -	1 3 1 1 1	
Other Provisions ARCS (Combined system for Phases 2 and 3) Footbridge linking Phase 1 and Proposed Footbridge linking Lower Ngau Tau Kok Estate GMB lay-by Taxi lay-by	1 2 1 2		1 1 1 2		See explanation in paragraph 7.

Note 1. This includes an area of 3,639m² for the SKH Kei Hin Primary School which was excluded in the SPC submission, reason being that subsequent to SPC approval, Education Department has declined to take up the land for the school. This has no effect on the net site area and maximum allowable GFA.

Note 2. Maximum allowable GFA of Phases 2 & 3 is calculated by deducting the developed GFA of Phase 1 (107,327 m²) from the total allowable GFA for Phases 1, 2 & 3 (320,373 m²).

Note 3. GFA/Plot Ratio calculation has been taken into account of the GFA exemption for green features in Joint Practice Note No.2, i.e. non-structural precast external wall, etc. The actual extent of exemption from the precast external wall is subject to detailed design of the precast facades. Other major GFA exemptions included widened corridor and lift lobbies based on Joint Practice Note No. 1 and lift shaft area exemption based on PNAP No. 207.

Note 4. The further reduction in carpark ratio applies to all Phases 1, 2 and 3 of Upper Ngau Tau Kok Estate. There is a surplus of 95 private car and 12 LGV parking spaces already provided in Phase 1. This will cater for part of the PC and LGV parking demand for Phases 2 and 3.

----- 9. The Proposed Master Layout is shown in Part II of the **Annex**.
Conceptual Layout Plan approved by SPC is also attached in Part II of the
----- **Annex** for comparison and reference.

SITE CONTEXT

10. The site is located halfway between Kowloon Bay and Kwun Tong. It is within 500m from both the Kowloon Bay and the Ngau Tau Kok MTR Stations. It is at a prominent location and can be seen from most of the adjacent roads and railway, such as Kwun Tong Road, Ngau Tau Kok Road and the MTR Kwun Tong Line. The site is also situated at the foot of the Kowloon Peak with a large area of green habitat to the north-east.

----- 11. The site is bounded by Ngau Tau Kok Road to the south-west, On Shin Road to the south and On Tak Road to the north-east. The site location and analysis of site potentials and constraints are shown in Part IA of the **Annex**.

DESIGN CONCEPT

----- 12. The design theme is '**Painting a Sustainable Community**', which responds to the government policy for sustainable development. Design considerations are proposed to enhance the three major aspects of a sustainable community, namely economical sustainability, social sustainability and environmental sustainability. The major design considerations as illustrated in Part I of the **Annex** are elaborated below-

Economical Sustainability

----- 13. Economical sustainability is achieved through the following means as illustrated in Part IA of the **Annex** -

(a) Maximize Site Potential

The maximum allowed combined plot ratio of 7.5 for Phases 1, 2 and 3 is achieved.

The zig-zag form of the domestic blocks maximizes the building frontage and view towards Kowloon Bay to the south-west and the distant mountain to the north-east. Self over-looking is minimized.

(b) Address Site Constraints

The zig-zag block layout enables set back and orientation of domestic units away from the traffic noise sources as much as possible. Supplemented by the carpark podium and noise barrier as noise mitigation measures, a traffic noise compliance rate of 81% is achieved.

The site is under the purview of the draft Urban Design Guidelines for Hong Kong. Generally, a 20% building-free zone below the ridgeline is maintained as viewed from the vantage points at Quarry Bay Park to the satisfaction of the Planning Department.

To harmonize with the topography of the site, a terraced landscape design is adopted. This minimizes the extent of cut and fill.

(c) Enhance Cost Efficiency

Cost efficiency is enhanced by minimizing the block type and by having 18 to 20 flats per floor. An efficiency ratio of 73.5% to 76.7% is achieved. Structural optimization was carried out to ensure efficient design.

By enhancing environmental comfort as illustrated in Part IC of the **Annex**, saving in cost for artificial lighting and air-conditioning can be achieved.

Social Sustainability

14. Social sustainability is enhanced by addressing to the following essential aspects as illustrated in Part IB of the **Annex** -

(a) Give identity

Identity to the development is created through its unique articulated built form and variation in building height. This adds interest to the skyline and enriches the townscape.

The plaza in Phase 2 serves as a landmark and focus for the community. The plaza serves as a 'forecourt' to the tenants' home and provides a transition from the public plaza to the semi-public spaces at the upper landscape platforms. Unique terraced landscape design further gives identity to the development.

The flats on each floor are separated into two smaller zones with individual lift lobby and access corridor. This reduces the scale and enhances the sense of belonging amongst a smaller number of households.

(b) Community-building

The plaza serves as a venue for community activities and social interaction. Retail and welfare facilities are located around it to encourage interaction of people. On the upper platforms, seating areas and areas for leisure walk are created for people to gather and to chat with their neighbours.

To regenerate the old neighbourhood, selected features in the existing Estate like wall murals, old façades, shop fronts and sign boards etc. are proposed to be preserved for display. Community participation and involvement in shaping their own living environment through activities like heritage preservation and community art are proposed.

(c) Enhance Accessibility

Convenient and barrier free access to public transportation, and nearby retail and welfare facilities is provided. The access to such facilities for Phase 1 tenants is also enhanced by means of a footbridge. The design has allowed for a connection to a proposed footbridge to Lower Ngau Tau Kok.

(d) Comfortable Home and Flexible Layout

A comfortable living environment is provided by natural ventilation and daylight to the domestic flats. Thermal and wind comfort at external areas are also enhanced.

Usability of flat units is improved by minimizing the number of door openings to the living/dining area. Drying racks are located away from the kitchen exhausts with recessed external exposure. All flat units are designed to Universal Design requirements.

Structural free flat interior allows the flexibility to meet different internal layout requirements of tenants.

Environmental Sustainability

15. By enhancing environmental performances of the design, an “excellent” rating with 79% scoring is achieved in a preliminary HKBEAM assessment. The major design considerations illustrated in Part IC of the **Annex** are summarized below—

(a) Improve Environmental Comfort

The domestic blocks are laid out to capture the prevailing east and south-west summer breeze, and to shield off the open spaces from the cold north-east winter wind. The wind corridor created between the two groups of domestic blocks enhances ventilation in the entire development. Thermal comfort at external areas is enhanced by extensive tree planting.

Cross ventilation at the re-entrants on every floor enhances penetration of summer breeze through the blocks. This greatly improves natural ventilation and thermal comfort in the flats.

Domestic flats in the zig-zag blocks are orientated away from direct east and west to reduce solar heat gain, whilst the number of flats facing south is maximized.

(b) Bring Nature to the Community

The site is connected to a nearby large green habitat at Jordan Valley through a green belt. An eco-garden is proposed along the slope at On Tak Road with a suitable environment for native flora and fauna species. It serves as an environmental education to promote the civic consciousness of tenants towards conservation of nature. An executive report of the proposed eco-garden is given in Part IIA of the **Annex**.

Greenery from the eco-garden is further extended to other areas of the estate through extensive tree planting and by preserving a number of existing mature trees along Ngau Tau Kok Road to create a green environment.

(c) Enhance Buildability and Reduce Waste

The non-standard blocks are designed with modular flats and rotational symmetry. The number of façade type is minimized. The structural frame of the domestic blocks is designed with flexibility to allow possible precast bathroom and kitchen units in the future.

Other measures to improve buildability and to reduce construction waste are as follows-

Planning & Design	Precasting & Prefabrication	Modular design
		Precast facades and staircases
		Semi-precast slabs
		Prefabricated external elements, e.g. noise barrier, footbridge, covered walkway
		Proprietary doorset and panel walls
	Sprayed plaster	
	PFA option for sub-structure	
	PFA option for superstructure	
	Balance cut and fill	
Construction and Site Management	Waste management plan	
	Non-timber hoarding	
	Metal formwork & metal false work	
	On-site sorting of construction material	
	Recycled building material	
	Trip-ticket for waste disposal	
	On-site water conservation	

PROJECT DEVELOPMENT BUDGET

16. Based on the proposed Master Layout Plan, the total Project Development Budget at June 02 price level is estimated to be HK\$924.634M for Phase 2 and \$1,104.270M for Phase 3, with details shown in Part IV of the Annex. Breakdown of the proposed Project Development Budget is as follows-

Cost Heads	Works Elements	\$M		
		Phase 2	Phase 3	Total
(a) Site Development Costs	Site Formation	-	-	-
	Demolition	12.436	13.990	26.426
	Sub-total	12.436	13.990	26.426
(b) Construction Costs	Foundation (including caps)	139.954	229.988	369.942
	Building	603.956	659.745	1,263.701
	Soft Landscape & Others	1.706	1.602	3.308
	Sub-total	745.616	891.335	1,636.951
(c) Other Project Costs [2.5% on (a) + (b)]	Civil engineering and geotechnical studies, site investigation, material testing, etc.	18.951	22.633	41.584
(d) Total Site Development and Construction Cost [(a) + (b) + (c)]		777.003	927.958	1,704.961
(e) Project Management Cost [19% of (d)]	Professional services and overheads and consultant fees etc.	147.631	176.312	323.943
(f) Project Development Budget [(d) + (e)]		924.634	1,104.270	2,028.904

17. The costs based on the proposed Master Layout Plan in comparison with that to the Approved Project Development Cost Ceiling and the June 2002 Construction Cost Yardstick are as follows-

		(a)	(b1)	(b2)	(c)	(d1)	(d2)
Upper Ngau Tau Kok Estate Phases 2&3		Proposed Project Development Cost	Approved Project Development Cost Ceiling (Paper No. SPC 11/2002)	Updated Project Development Cost Ceiling (Based on June 2002 Cost Yardstick)	Proposed Project Unit Construction Cost adjusted to tender-in date	June 2002 Construction Cost Yardstick for Group 1 non-standard design	June 2002 Construction Cost Yardstick for Group 1 non-standard design adjusted to tender-in date
		(\$/m ² CFA)	(\$/m ² CFA)	(\$/m ² CFA)	(\$/m ² CFA)	(\$/m ² CFA)	(\$/m ² CFA)
Phase 2	Domestic (non-standard)	7,474	8,442	8,097	6,181	6,116	6,092
	Commercial Centre	12,810	16,064	14,308	10,664	9,469	9,429
Phase 3	Domestic (non-standard)	7,487	8,650	8,125	6,191	6,116	6,092
	Private Car Parking	7,008	8,372	8,358	5,788	5,746	5,724
	LGV Parking	7,440	8,944	8,923	6,151	6,109	6,086
	Welfare facilities	10,028	18,360	11,986	8,326	-	-

Note 1. For comparison with the Construction Cost Yardsticks, demolition and project management costs have been excluded from the Unit Construction Cost.

Note 2. Construction Cost Yardsticks are derived from June 2002 Development Cost Yardsticks in Paper No. SPC 23/2002 for Group 1 Non-standard Design with the foundation cost based on actual preliminary design.

Note 3. Proposed Project Unit Construction Cost for Private Car and LGV parking is based on a Normal Scheme design (2-storey freestanding carpark building). The Construction Cost Yardstick for freestanding carpark building are used for comparison.

18. The Proposed Project Development Cost of domestic, private car parking and LGV parking are all within the respective Project Development Cost Ceilings approved by SPC (Paper No. SPC 11/2002 refers) and updated to June 2002 price level.

19. The proposed Unit Construction Cost for domestic portion is 1.46% over the Construction Cost Yardstick of Group 1 non-standard design in Phase 2 and 1.63% in Phase 3 for reasons as follows-

		% over Yardstick	
		Phase 2	Phase 3
(i)	Noise Barriers and window A/C units	0.96	0.96
(ii)	Carpark podium as noise mitigation measure	-	0.17
(iii)	Footbridge and associated structures for Upper Ngau Tau Kok Phase 1	0.5	0.5
Total		1.46	1.63

20. The proposed Unit Construction Cost for commercial centre is 13.1% over the June 2002 Construction Cost Yardstick due to its single storey construction.

21. The proposed unit construction cost for private car parking is 1.12% over June 2002 Construction Cost Yardstick while that for LGV Parking is 1.07% over the yardstick.

AVAILABILITY OF FUNDS

22. Based on the Site Development and Construction Cost, the estimated yearly expenditure for the project is as follows-

	Estimated Expenditure (\$M)				
	Pre-2002/03	2002/03	2003/04	Post 2003/04	Total
Phase 2	0.040	2.477	53.868	720.618	777.003
Phase 3	0.040	2.787	83.516	841.615	927.958

23. Funds of HK\$15.957M and HK\$4.487M for Phase 2 and Phase 3 respectively have been allowed for 2002/03 under Paper No. FC 10/2002. Funding in the subsequent years will be revised in the coming capital budget submission to Finance Committee.

DEVELOPMENT PROGRAMME

24. The key dates for the development programme as shown in Part III of the **Annex** are as follows-

		Phase 2	Phase 3
(a) Master Layout Plan	PDRC	9/02	9/02
(b) Master Layout Plan	BC	12/02	12/02
(c) Detailed Design	DDRP	7/03	7/03
(d) Demolition	Tender Invitation	11/02	11/02
	Commencement	2/03	2/03
	Completion	11/03	11/03
(e) Piling	Tender Invitation	12/03	10/03
	Commencement	4/04	2/04
	Completion	5/05	3/05
(f) Building	Tender Invitation	1/05	11/04
	Commencement	5/05	3/05
	Completion	4/08*	4/08*

Note* A longer period is required for the building construction due to blocks taller than 40 storeys with refuge floor, podium construction in Phase 3 and the comparatively extensive external works with retaining structures.

RECOMMENDATION

25. It is recommended that the Proposed Master Layout Plan and Project Development Budget of HK\$924.634M and HK\$1,104.270M for the Redevelopment of Upper Ngau Tau Kok Estate Phase 2 and Phase 3 respectively as described above and in the **Annex** to this paper be approved.

DISCUSSION

26. At the meeting of the Building Committee to be held on 19 December 2002, Members will be invited to approve the recommendation in paragraph 25 above.

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File Ref. : HD(AR) 7/717/2&3
Date : 16 December 2002

**Proposed Master Layout Plan and
Project Development Budget for the
Redevelopment of Upper Ngau Tau Kok Estate Phases 2&3**

**BC Submission
December 2002**

Part I Painting a Sustainable Community

Part IA Economical Sustainability

Part IB Social Sustainability

Part IC Environmental Sustainability

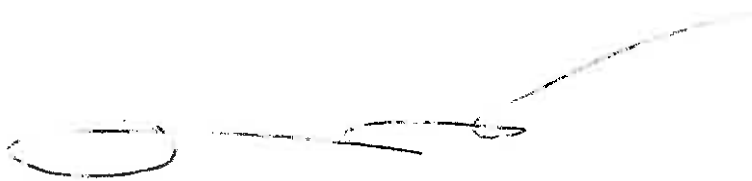
Part II Master Layout

Part IIA Technical summary of Eco-garden

Part III Project Development Programme

Part IV Project Development Budget

**THIS DOCUMENT HAS BEEN REVIEWED
AND APPROVED FOR ADEQUACY**



SIGNED: John C Y Ng (CA/3)

Date : 21 November 2002

**Proposed Master Layout Plan and
Project Development Budget for the
Redevelopment of Upper Ngau Tau Kok Phases 2&3**

Part I Painting a Sustainability Community

Part IA Economical Sustainability

Part IB Social Sustainability

Part IC Environmental Sustainability

Part II Master Layout

Drawing No.

Block Plan (Concept Plan Approved by SPC)	KL33/2&3/SITE/A/B1B/SK-01/H
Site Layout Plan	KL33/2&3/SITE/A/PR-06/B
Floor Plans At Level 6.0 & 11.5	KL33/2&3/SITE/A/PR-08/B
Floor Plans At Level 11.50, 15.50 & 19.50	KL33/2&3/SITE/A/PR-09/B
Floor Plan At Level 23.30	KL33/2&3/SITE/A/PR-10/B
Domestic Block Layout Plan	KL33/2&3/SITE/A/PR-11/B
Section A-A	KL33/2&3/SITE/A/PR-12/A
Section B-B and C-C	KL33/2&3/SITE/A/PR-13/A
Elevation	KL33/2&3/SITE/A/PR-14/A
Typical Floor Plan of Block 1&2	KL33/2&3/SITE/A/PR-15/B
Typical Floor Plan of Block 3	KL33/2&3/SITE/A/PR-16/B
Typical Floor Plan of Block 4	KL33/2&3/SITE/A/PR-17/B
Typical Floor Plan of Block 5	KL33/2&3/SITE/A/PR-18/B
Typical Floor Plan of Block 6	KL33/2&3/SITE/A/PR-19/B
Comparison of Proposed Design and Standard Block	KL33/2&3/SITE/A/PR-20/A
Typical Flat Modules Layout	KL33/2&3/SITE/A/PR-21/B
Master Landscape Plan	KL33/2&3/SITE/L/PR-01/A

Part IIA Technical Summary of Eco-garden

Executive Summary of Eco-garden

Part III Project Development Programme

Part IV Project Development Budget

Painting a Sustainable Community

An aerial photograph of a dense urban area, likely Hong Kong, showing a mix of high-rise buildings and green spaces. Overlaid on the image is a 3D architectural rendering of a proposed redevelopment project. The rendering shows several tall, modern apartment buildings with glass facades, arranged in a cluster. In the center of the cluster is a large, circular green space with a winding path and some smaller structures. The project is situated next to a major highway with multiple lanes and a bridge. The surrounding city is filled with various types of buildings, including older residential blocks and newer commercial structures. The overall scene depicts a sustainable urban development integrated into an existing city environment.

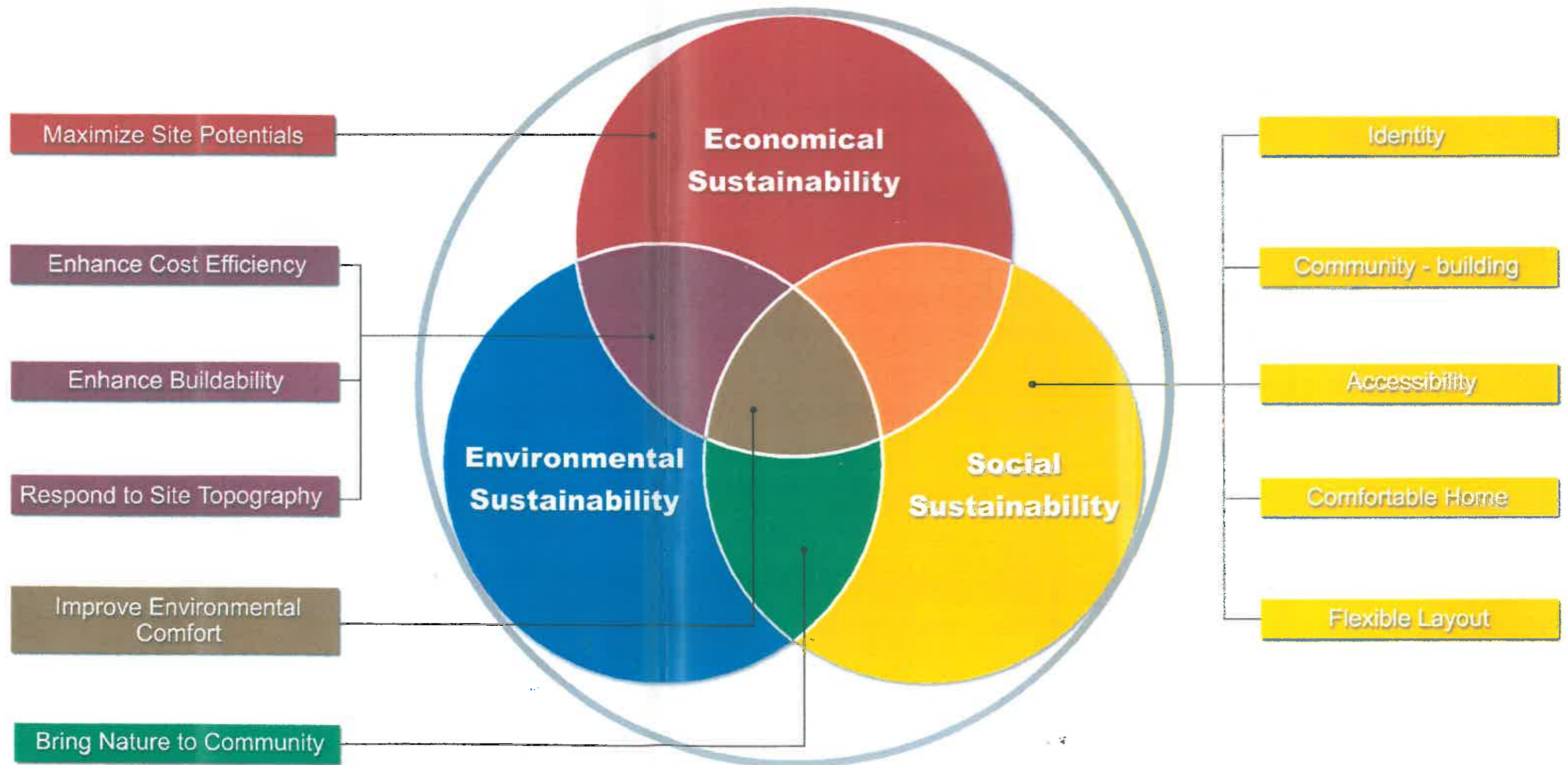
- Economically Sustainable

- Socially Sustainable

- Environmentally Sustainable

Proposed Master Layout Plan and Project Development Budget for
Redevelopment of Upper Ngau Tau Kok Estate Phases 2&3
Building Committee (BC) Submission
December, 2002

A Sustainable Community



address development constraints

address development constraints



Development Potentials

- Allowable combined plot ratio of 7.5 for Ph.1,2 & 3 achieved
- Maximize building frontage and view
- Large green habitat in adjacent hillside and playgrounds

- Maximize building frontage and view

- Large green habitat in adjacent hillside and playgrounds

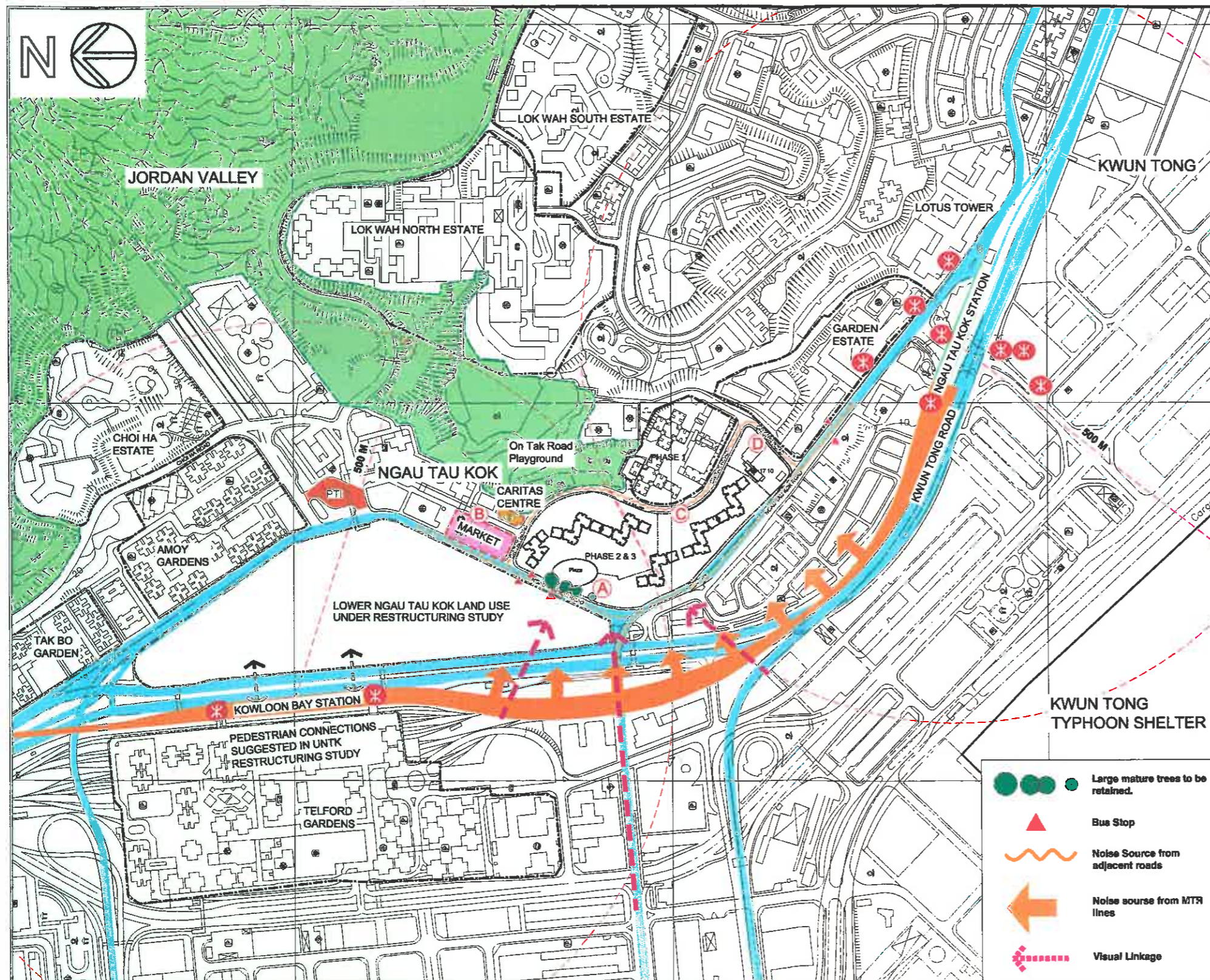


- Prominent location when viewed from adjacent roads, flyover and MTR line



Maximize Site Potentials

address development constraints



Development Potentials



- Existing large and mature trees along Ngau Tau Kok Road. (A)



- Neaby market and welfare facilities. (B)

Development Constraints



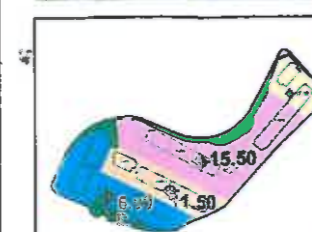
- Existing slope along On Tak Road to be improved. (C)



- Existing Kei Hin Primary School to be retained. (D)



- High traffic noise from adjacent road, flyover and MTR lines

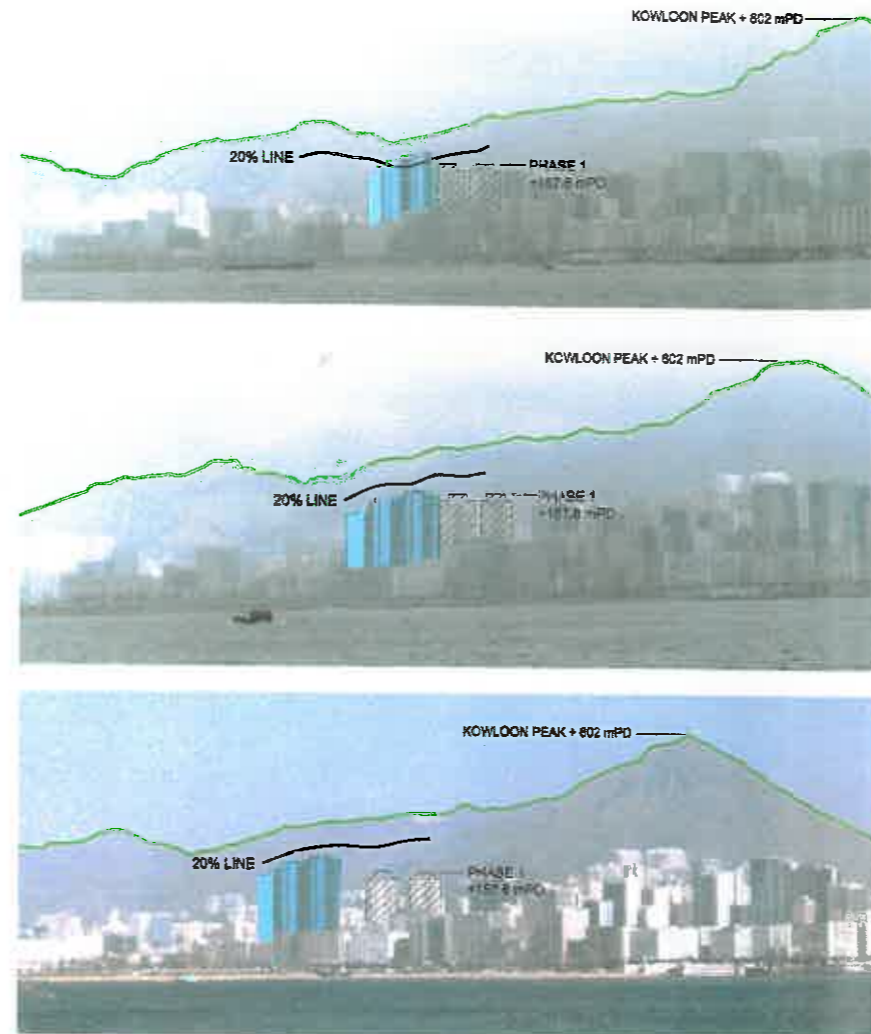
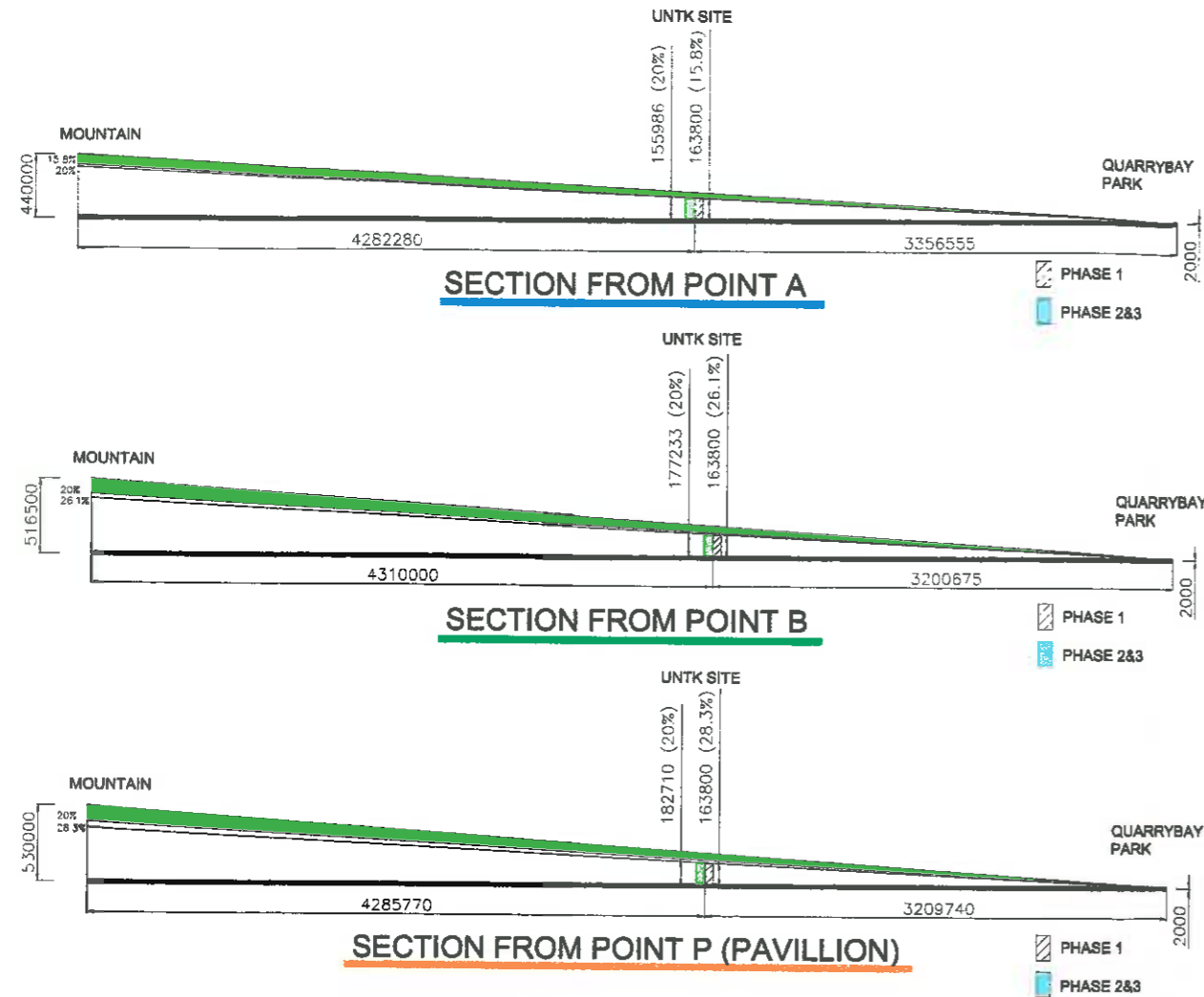


- 3 existing platforms at different levels.

ECONOMICAL SUSTAINABILITY

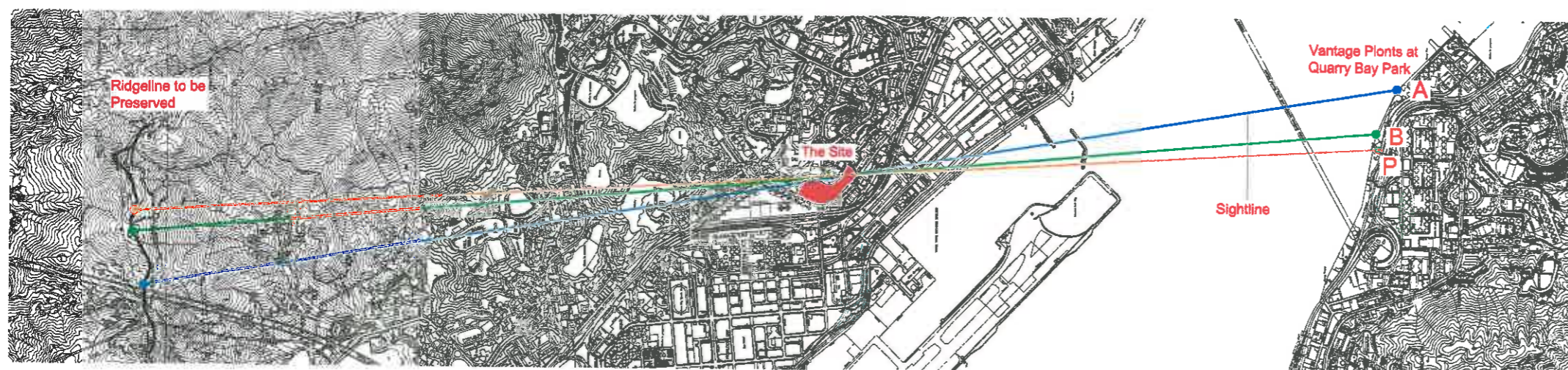
Maximize Site Potentials

address development constraints



Development Constraints

- Comply requirement of Urban Design Guideline
(Maintain 20% building-free zone below ridgeline except with slight intrusion at far end of Quarry Bay Park (Point A) with the agreement of Planning Department.)



ECONOMICAL SUSTAINABILITY

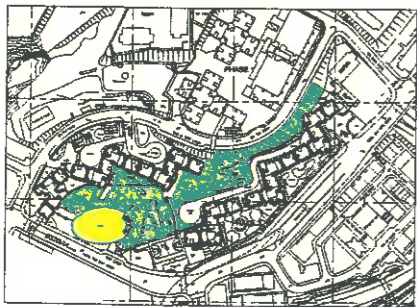
Identity

Layout and Built Form



- Articulated built form with terraced roofscape.

Landscape Design



- Plaza as local landmark and focus of the community.
- Plaza as a forecourt and transition from public to semi-public areas.
- Terraced landscape design in response to site topography.

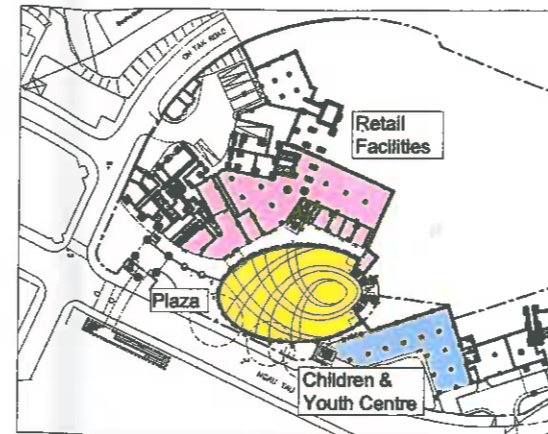
Typical Floor



- 2 separate zones to enhance sense of belonging with a smaller number of households.

Community-building

Enhance Social Interaction



- Retail and welfare facilities at plaza facilitate active social interaction.



- Open plaza as venue for communal activities.



- Various spaces at landscape area for different activities and age groups.

Recall Old Neighborhood



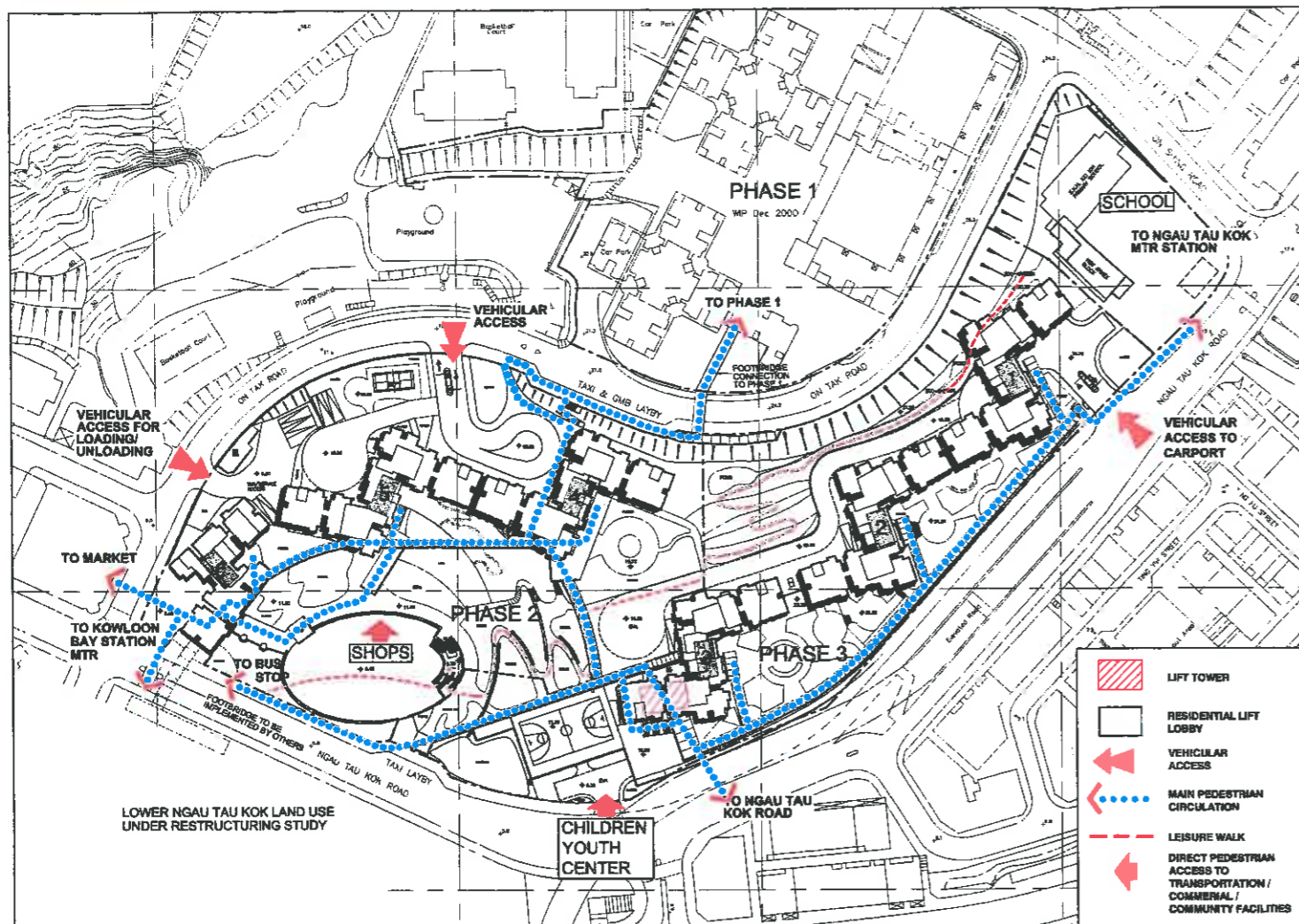
- Artifacts and heritage elements in the old estate, e.g. wall murals, old facades, shop fronts and signboards are to be preserved for display. (A)

Foster Community Participation



- Tenants shaping their own environment through community art installation. (B)
- Eco-garden for educational purpose. (C)

Enhance Accessibility



Convenient and Direct Access

NGAU TAU KOK MTR STATION



KOWLOON BAY MTR STATION



NEARBY MARKET



- Pedestrian access to public transportation, shops, schools and nearby community facilities.

Barrier Free Access

LIFT TOWER



COVERED RAMP ACCESS



- Barrier-free access provided by ramp and shuttle lifts.

Access to Phase 1

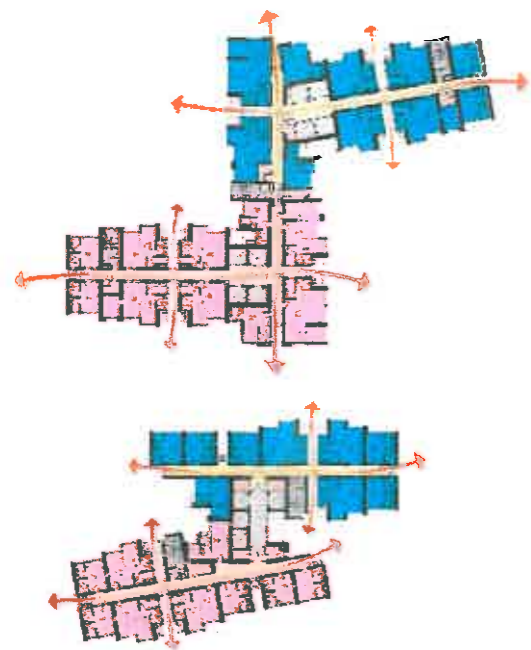
PHASE 1



- Footbridge provides grade-separated road crossing facilities for Phase 1.

SOCIAL SUSTAINABILITY

Comfortable Home



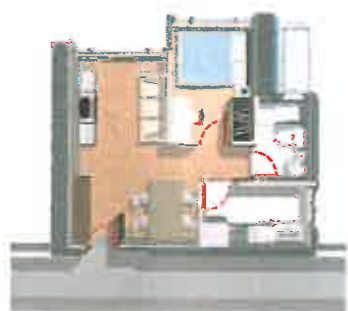
Environmental Comfort

- Enhance natural ventilation and daylight provision in lift lobbies, corridors and domestic flats.

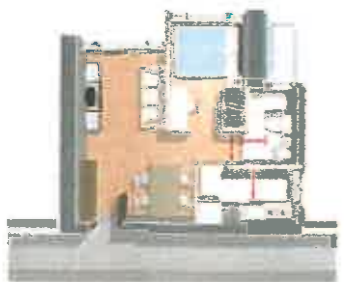


Usable Layout

- Drying rack located away from kitchen exhaust with recessed external exposure.



- Minimize door openings towards living / dining areas.



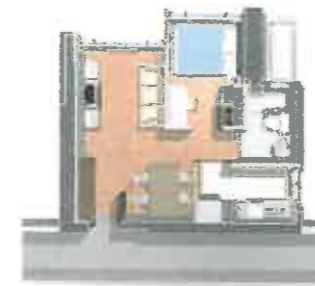
- Fulfill Universal Design requirements.

750mm Clear

Flexible Layout

Structural Free Space

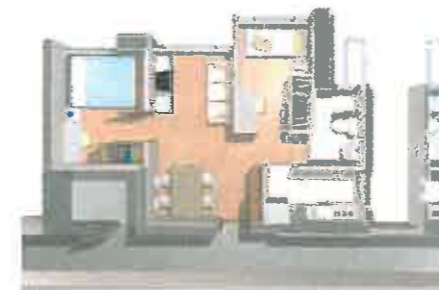
- To suit different internal layout requirements of tenants.



1B Flat



1P/2P Flat



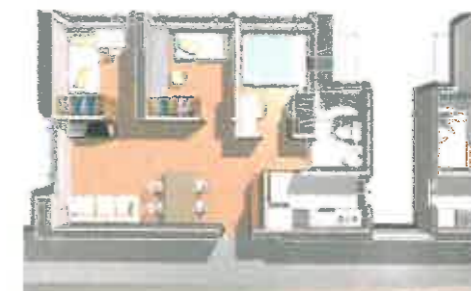
2B Flat



2B Flat
(alternative layout)



3B Flat



3B Flat
(alternative layout)

SOCIAL SUSTAINABILITY

Improve Environmental Comfort

Identify Local Wind Climate by wind tunnel test



Windrose from Kai Tak weather station of Hong Kong Observatory

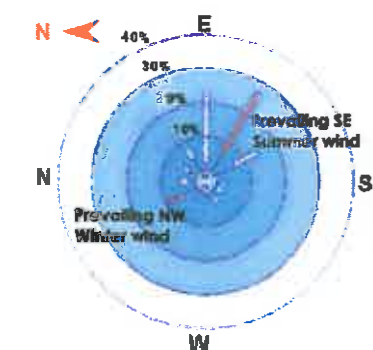


Figure 1



- Kai Tak Weather Station is the nearest available station to the site.

Due to the surrounding hilly topography and highrise development (figure 1), windrose from the nearest Kai Tai Weather Station does not provide accurate information on the micro-wind climate of site.

Wind Tunnel Test was carried out to determine the actual micro-wind climate (figures 2, 3 & 4)



Figure 4

Enhance Thermal Comfort by Improving Ventilation and Minimizing Solar Heat Gain

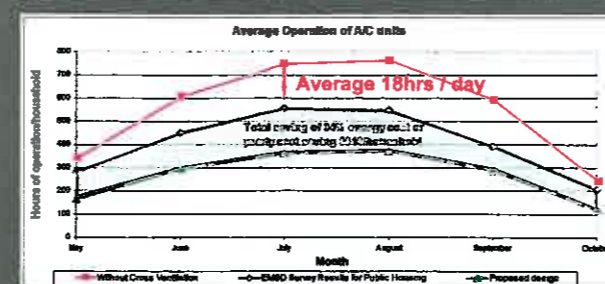
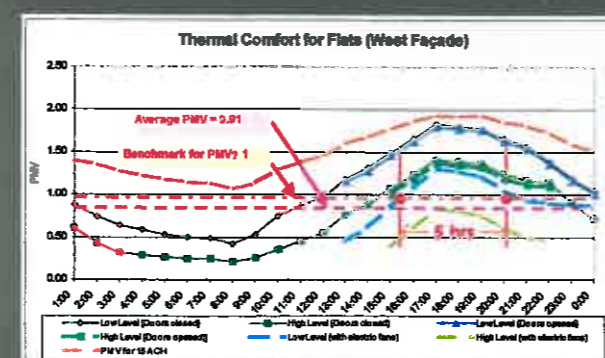
- Flats facing WEST - reduce daily A/C operation in summer from 18hrs to 5 hrs
- Flats facing EAST - A/C operation to achieve thermal comfort is not required for a whole day
- Save 34% annual A/C energy or \$510/flat/year

Average Ventilation Rate = 13.6 ACH (Air change per hour)

Average Solar Heat Gain = 6.6 w/m²

Benchmark:

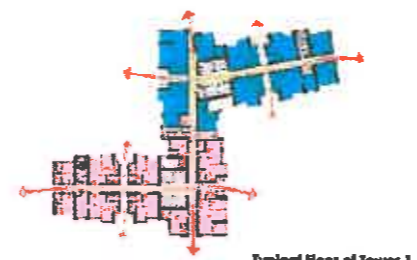
- min. ventilation rate to meet health requirement = 1.5 ACH
- thermal comfort level < 1PMV
- solar heat gain as per HK-BEAM scoring requirement < 12 w/m²



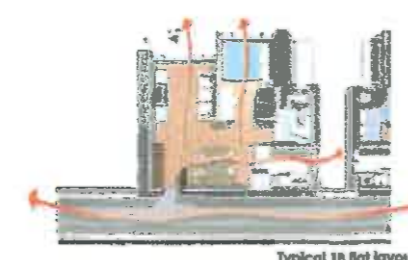
Notes:

Analysis with assumption that windows, internal doors and entrance door of flats are opened.

- Ventilated re-entrant and corridor improve natural ventilation of flat units by enhancing cross ventilation through bathroom / kitchen windows and entrance doors.

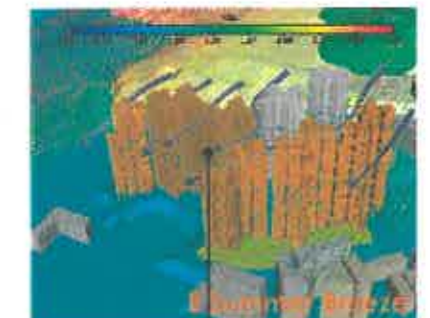


Typical Floor of Tower 1-5

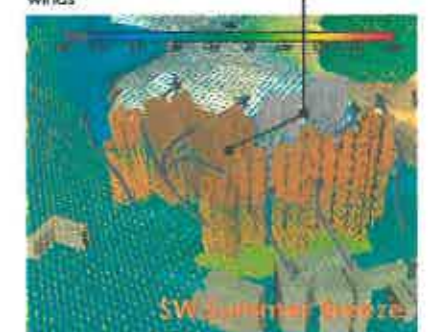


Typical 18 flat layout

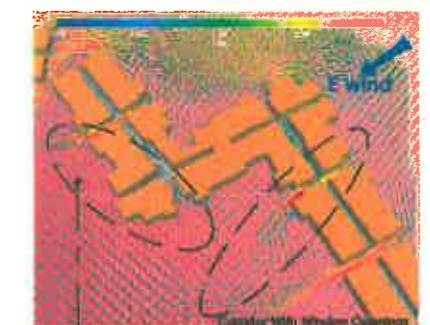
- Block layout to capture prevailing SUMMER wind



Flats orientated towards prevailing E and SW summer winds



- Ventilated corridors enhance cross ventilation in flats



window openings at corridors enhance cross ventilation, minimize stagnant zones and increase permeability of building blocks



Improve Environmental Comfort

Maximize Daylight in Flat

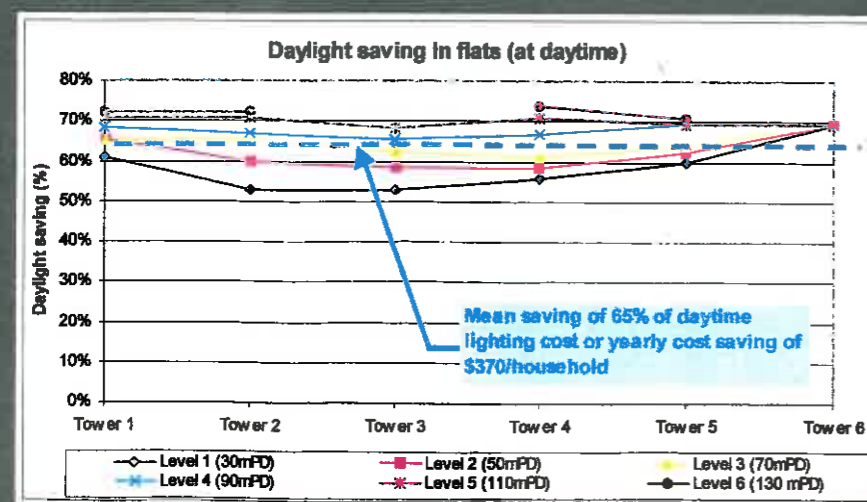
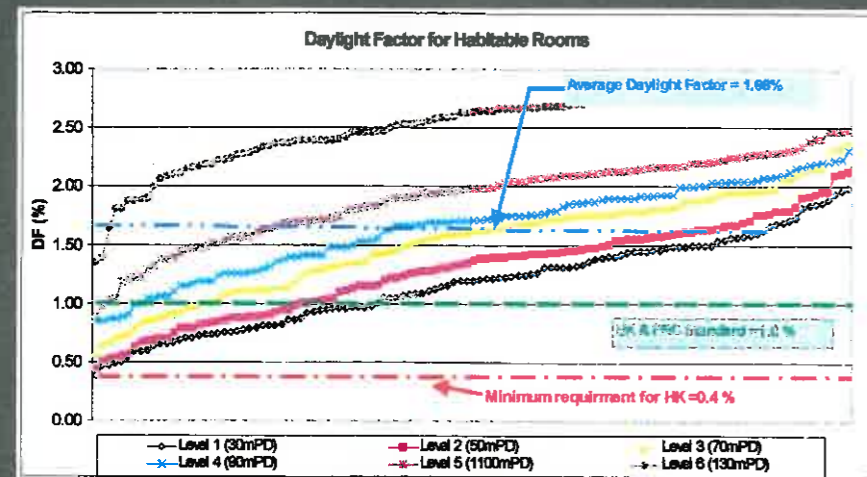
- 100% of flats above benchmark (min. 0.4% Daylight Factor (DF))
- Average DF = 1.66% > UK and PRC standard (1.0%)
- Save 65% annual artificial lighting energy / or \$370/flat/year

Benchmark:

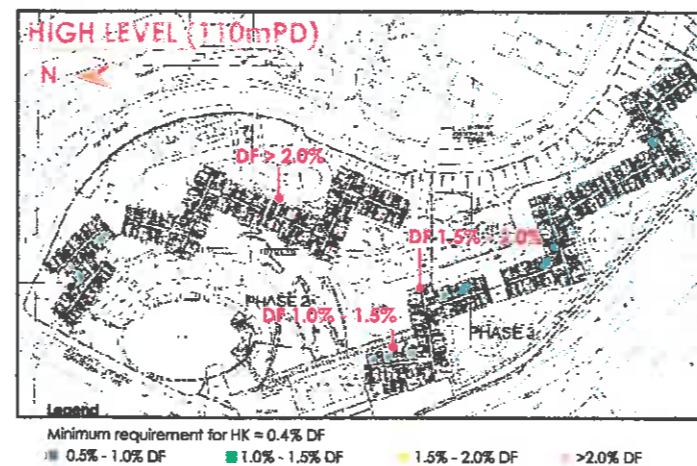
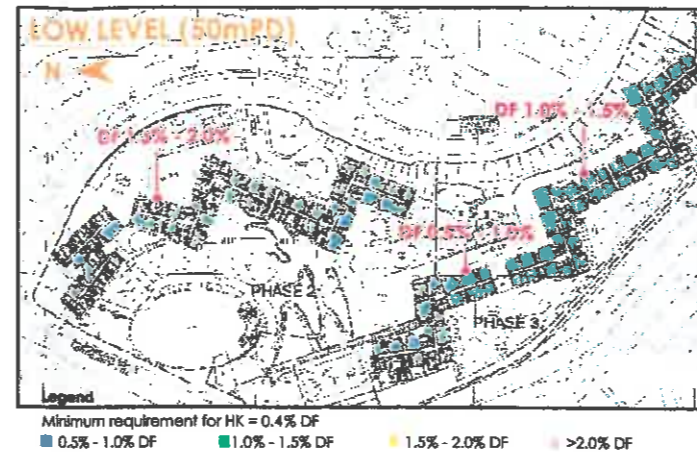
min. DF of habitable rooms = 0.4% (survey result of recent review of SD Regulations)

Note:

overcast sky condition is assumed (faded cloudy day in which the sun is invisible and only skylight can be seen)



- Daylight provision is enhanced by minimizing overlooking.



Maximize Daylight in Corridor

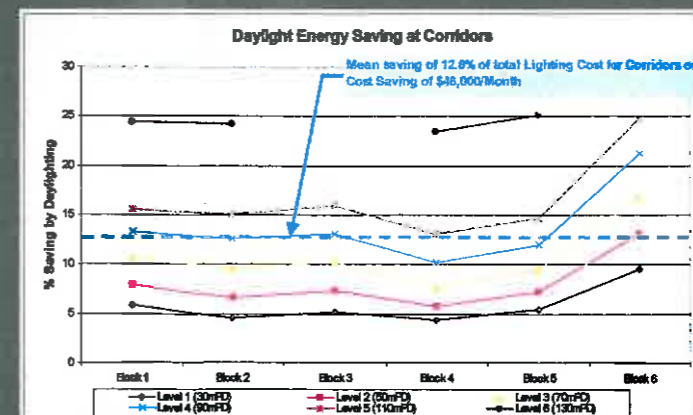
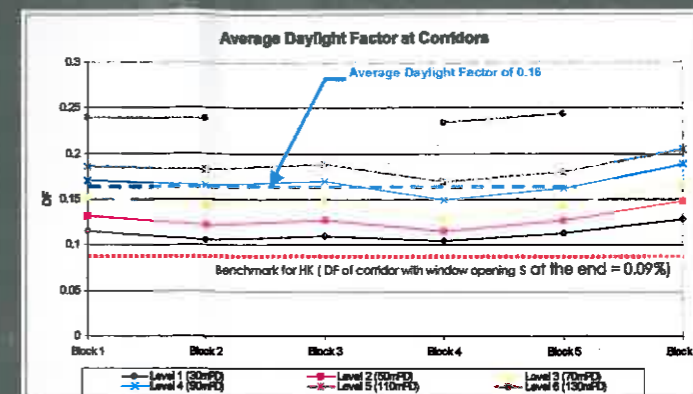
- Average Daylight Factor = 0.16%
- Save 12.5% annual artificial lighting energy or \$46,000/month/all blocks

Benchmark:

DF of corridor with window openings at the end = 0.09%

Note:

overcast sky condition is assumed (faded cloudy day in which the sun is invisible and only skylight can be seen)



- Window openings at corridors enhance daylight provision.

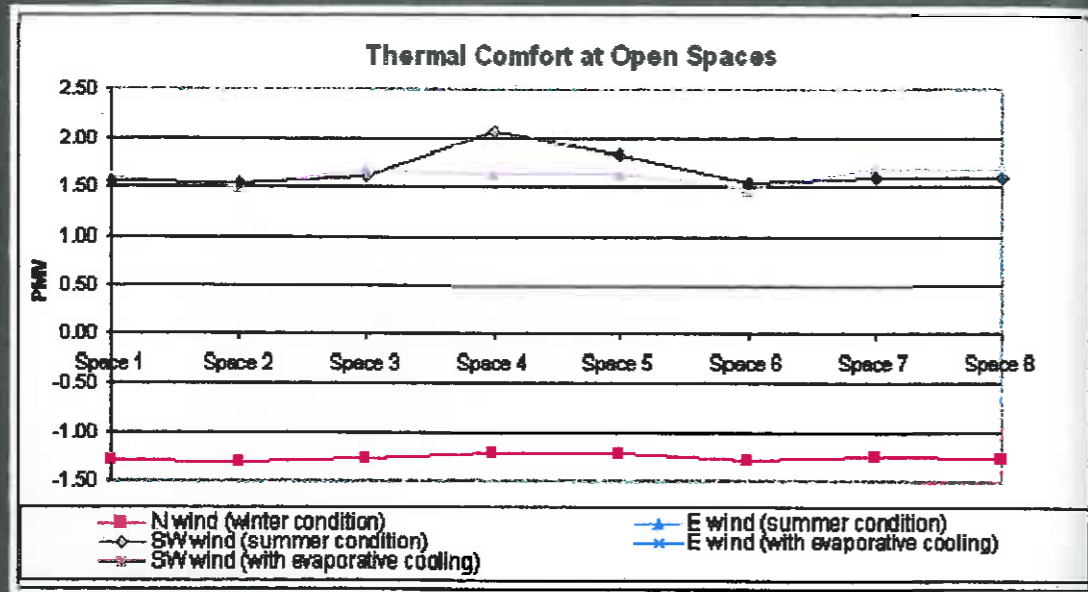


ENVIRONMENTAL SUSTAINABILITY

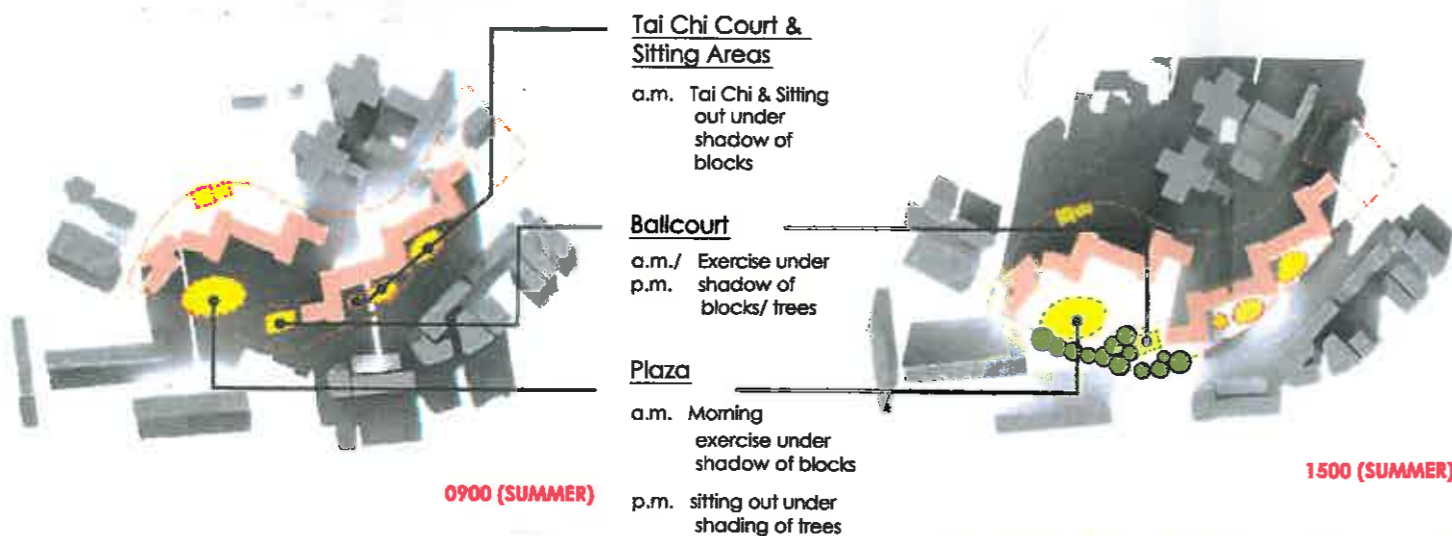
Improve Environmental Comfort

Enhance Thermal Comfort at Open Spaces

- Thermal comfort of shaded open spaces generally within comfort zone of 1.5 PMV - 2 PMV
- Further enhancement of 0.5 PMV by evaporative cooling at Plaza

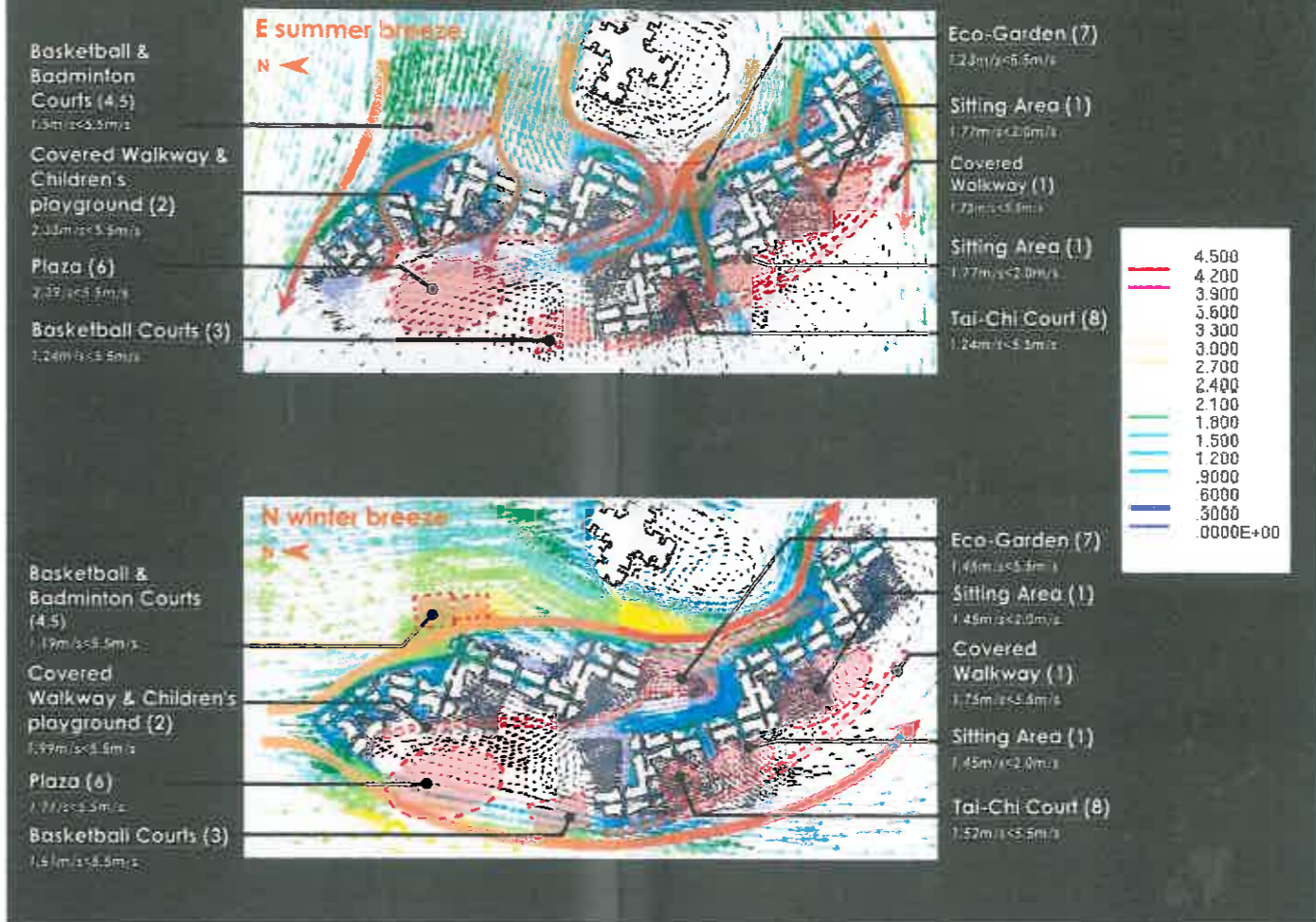


- Thermal comfort at open spaces in summer is enhanced by
 - shading by adjacent buildings
 - shading by vegetation
 - enhance natural ventilation



Enhance Comfort Wind Speed at Open Spaces

- Achieve comfort wind speed at all open spaces : strolling < 5.5 m/s
sitting < 2.0 m/s



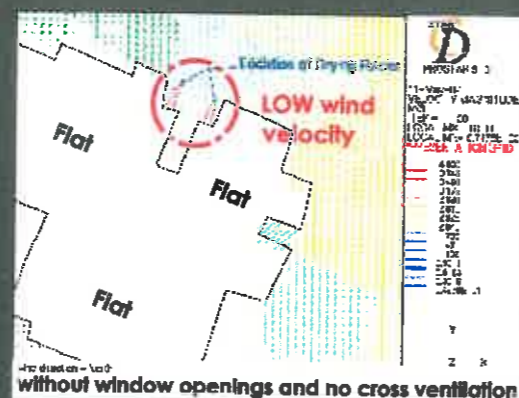
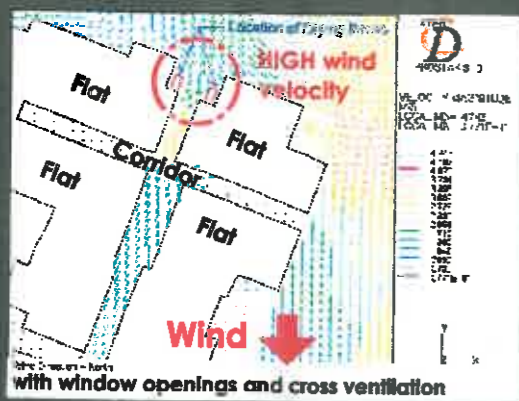
- Comfort wind speed at open spaces is enhanced by:
 - wind corridor
 - external areas shielded off from winter northerly wind

ENVIRONMENTAL SUSTAINABILITY

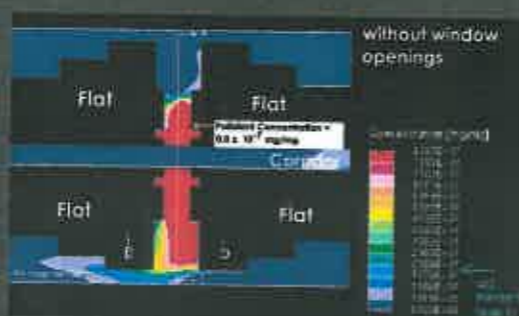
Improve Environmental Comfort

Drying Rack Located in well-ventilated Space away from Kitchen Exhaust

- Ventilation at location of drying rack (re-entrant) improved by means of cross ventilation in re-entrant.

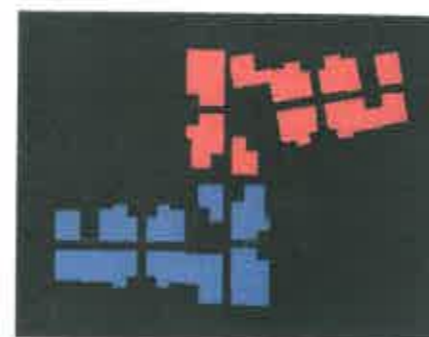


- Dispersion of pollutant from kitchen exhaust enhanced by cross ventilation in re-entrant space



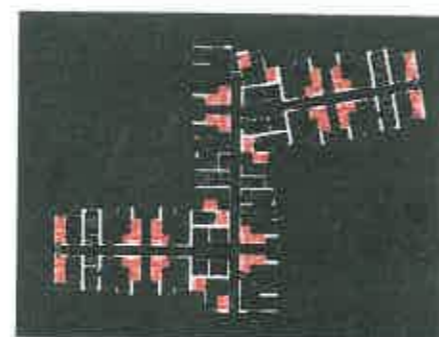
Buildability

Facilitate Mechanized Construction



- Modular flats
- Rotational Symmetry
- Minimize facade types

Allowance for more extensive Precasting



- Flexibility in structural frame to allow precast bathroom and kitchen units

Bring Nature to Community

Creation of Green Environment



- The nearby green habitat is extended into the development through a green belt of dense vegetation.



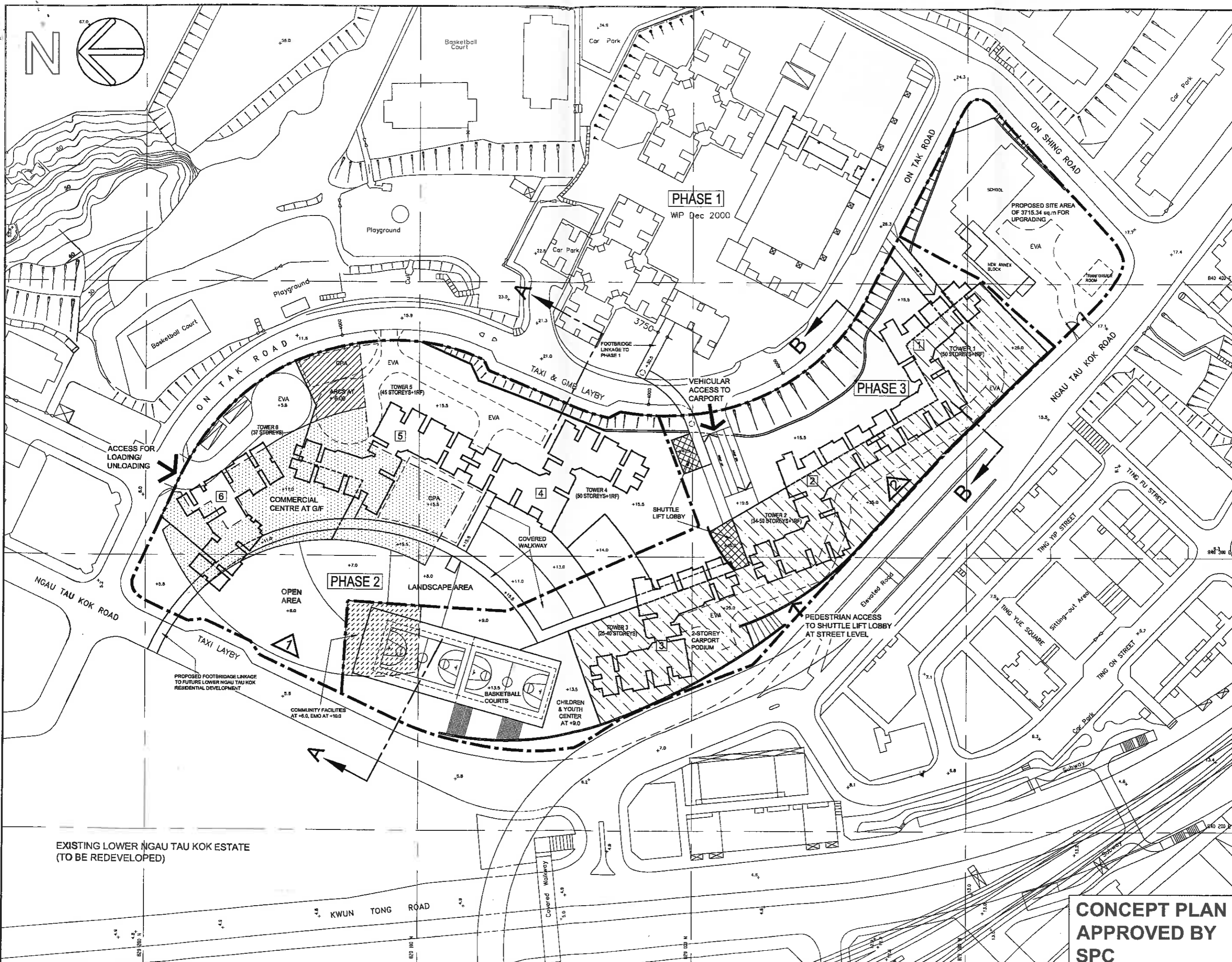
- Extensive tree planting for sun shading and creation of a green environment.



- Eco-garden to attract selected fauna and flora species.



ENVIRONMENTAL SUSTAINABILITY



NOTES

- AREA OF SLOPE IN PHASE 2&3 ALONG ON TAK ROAD EXCLUDED IN NET SITE AREA FOR PLOT RATIO CALCULATION.
- FOOTPATH ALONG NGAU TAU KOK ROAD AND ON TAK ROAD IS 4m.
- COMMERCIAL CENTRE AT GROUND LEVEL
- COMMUNITY FACILITIES AT GROUND LEVEL
- CARPORT PODIUM
- ARCS AT +6.00
- SHUTTLE LIFT LOBBY

REVISION		INITIAL/DESIGNATION
NO.	DESCRIPTION AND DATE	DWN CKD AUTH
A	1. PROPOSED SCHOOL SITE AREA REVISED. 2. CARPORT ENTRANCE REVISED. 3. BUILDING HEIGHT REVISED. 4. LAYOUT OF COMMERCIAL CENTRE & COMMUNITY FACILITY REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
B	1. PODIUM REVISED (COMMERCIAL CENTRE DELETED). 2. CARPORT ENTRANCE REVISED. 3. BOUNDARY LINE REVISED. 4. LAYOUT OF TOWER 1 TO 5 REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
C	1. PODIUM REVISED (COMMERCIAL CENTRE ADDED, CARPORT RATIO REDUCED TO 1:13). 2. CARPORT ENTRANCE & LUL ACCESS REVISED. 3. TAXI & GMB LAYBY REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
D	1. TAXI & GMB LAYBY REVISED. 2. ARCS LOCATION REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
E	1. ADDITION OF BALL COURTS. 2. COMMUNITY FACILITIES REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
F	1. PODIUM REVISED.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
G	1. GENERAL REVISION.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED
H	1. GENERAL REVISION.	10/04/01 37 38/09/01 A/118 ORIGINAL SIGNED

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/2 JOHN HO		26.09.01
SA/8 A/C	JOSEPH HO		26.09.01
CHECKED	A/118 ELLEN K.S. NGAN		26.09.01
	STO(A)/36 W.S. TANG		24.09.01
	STC		24.09.01
DRAWN	TO(A)/137 C.W. HUNG		24.09.01

PROJECT
REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3

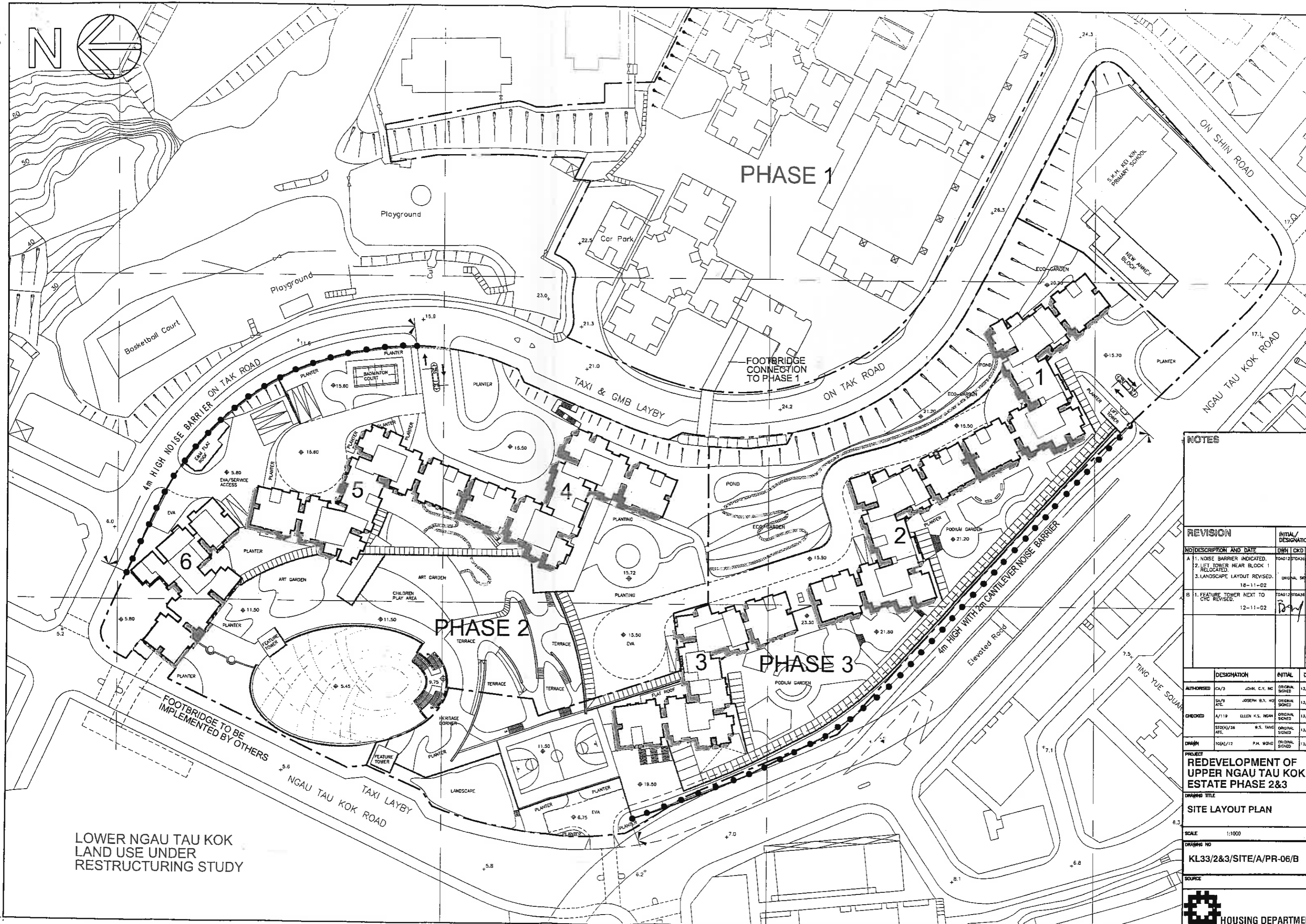
DRAWING TITLE
BLOCK PLAN

SCALE
1:1250

DRAWING NO
KL33/2&3/SITE/A/B1B/SK-01/H

SOURCE

CONCEPT PLAN APPROVED BY SPC



LOWER NGAU TAU KOK
LAND USE UNDER
RESTRUCTURING STUDY

NOTES

REVISION	INITIAL/DESIGNATION
A 1. NOISE BARRIER INDICATED.	OWN CKD/AUTH
2. LIFT TOWER NEAR BLOCK 1 RELOCATED.	TD4012570A36/A/119
3. LANDSCAPE LAYOUT REVISED.	ORIGINAL SIGNED
18-11-02	
B 1. FEATURE TOWER NEXT TO CYC REVISED.	TD4012570A36/A/119
12-11-02	BM

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/3 JOHN C.Y. NG	ORIGINAL SIGNED	13/9/02
SA/9 ATC	JOSEPH B.Y. HO	ORIGINAL SIGNED	13/9/02
CHECKED	A/119 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/9/02
STD(A)/36 HIC	H.S. TANG	ORIGINAL SIGNED	13/9/02
DRAWN	10(A)/12 P.H. WONG	ORIGINAL SIGNED	13/9/02

PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

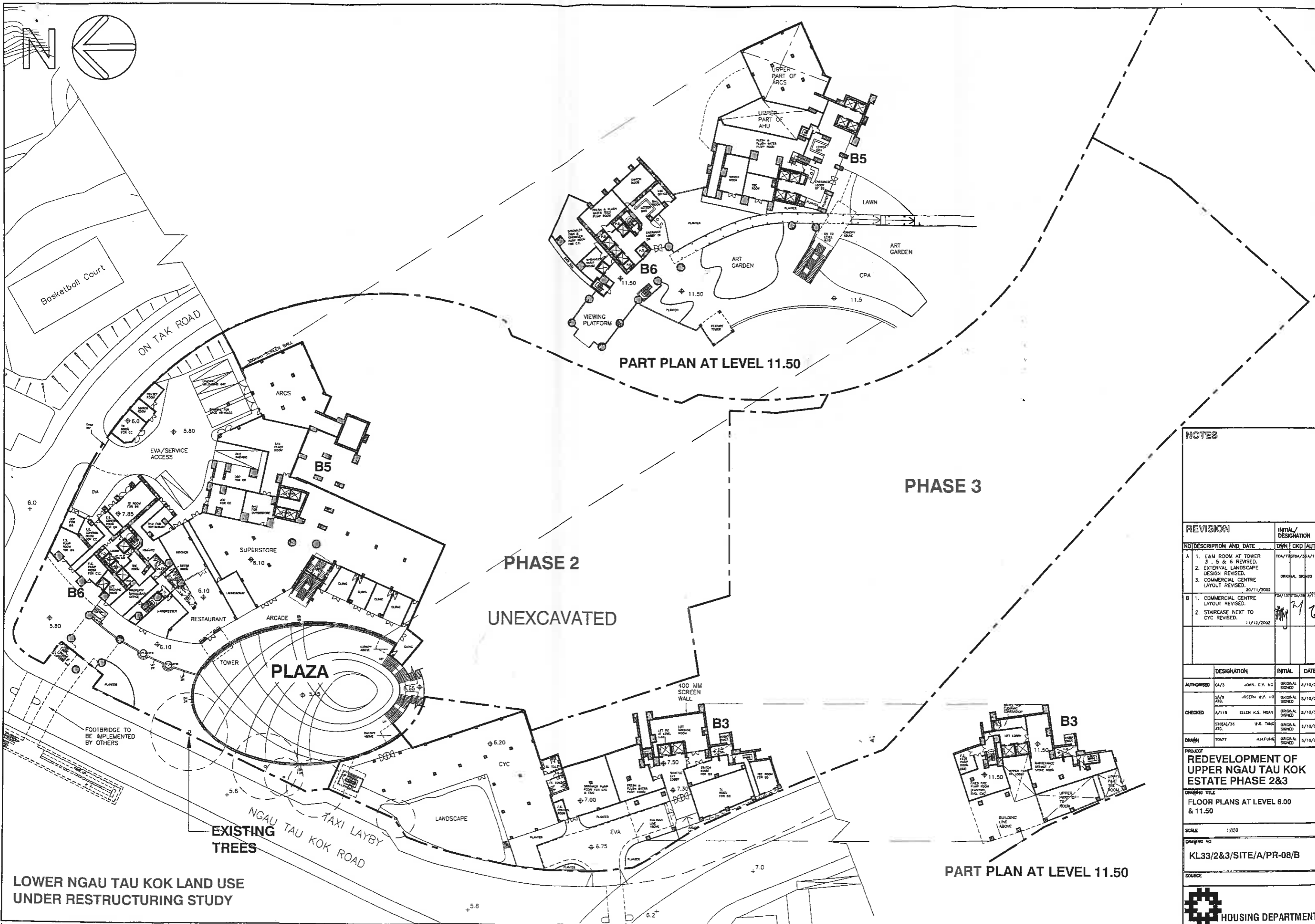
DRAWING TITLE
SITE LAYOUT PLAN

SCALE
1:1000

DRAWING NO
KL33/2&3/SITE/A/PR-06/B

SOURCE

HOUSING DEPARTMENT



LOWER NGAU TAU KOK LAND USE
UNDER RESTRUCTURING STUDY

NOTES

REVISION		INITIAL/DESIGNATION
NO	DESCRIPTION AND DATE	DATE
A	1. E&M ROOM AT TOWER 3, 5 & 6 REVISED. 2. EXTERNAL LANDSCAPE DESIGN REVISED. 3. COMMERCIAL CENTRE LAYOUT REVISED. 20/11/2002	TD/13/10/04/SEA/119 ORIGINAL SIGNED
B	1. COMMERCIAL CENTRE LAYOUT REVISED. 2. STAIRCASE NEXT TO CYC REVISED. 11/12/2002	TD/13/10/04/SEA/119 ORIGINAL SIGNED

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/3 JOHN, C.Y. NG	ORIGINAL SIGNED	8/10/02
	SA/9 JOSEPH W.Y. HO	ORIGINAL SIGNED	8/10/02
CHECKED	A/118 ELLEN K.S. NGAN	ORIGINAL SIGNED	8/10/02
	SEA/38 W.S. TANG	ORIGINAL SIGNED	8/10/02
DRAWN	TD/77 A.H. FUNG	ORIGINAL SIGNED	8/10/02

PROJECT
REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3

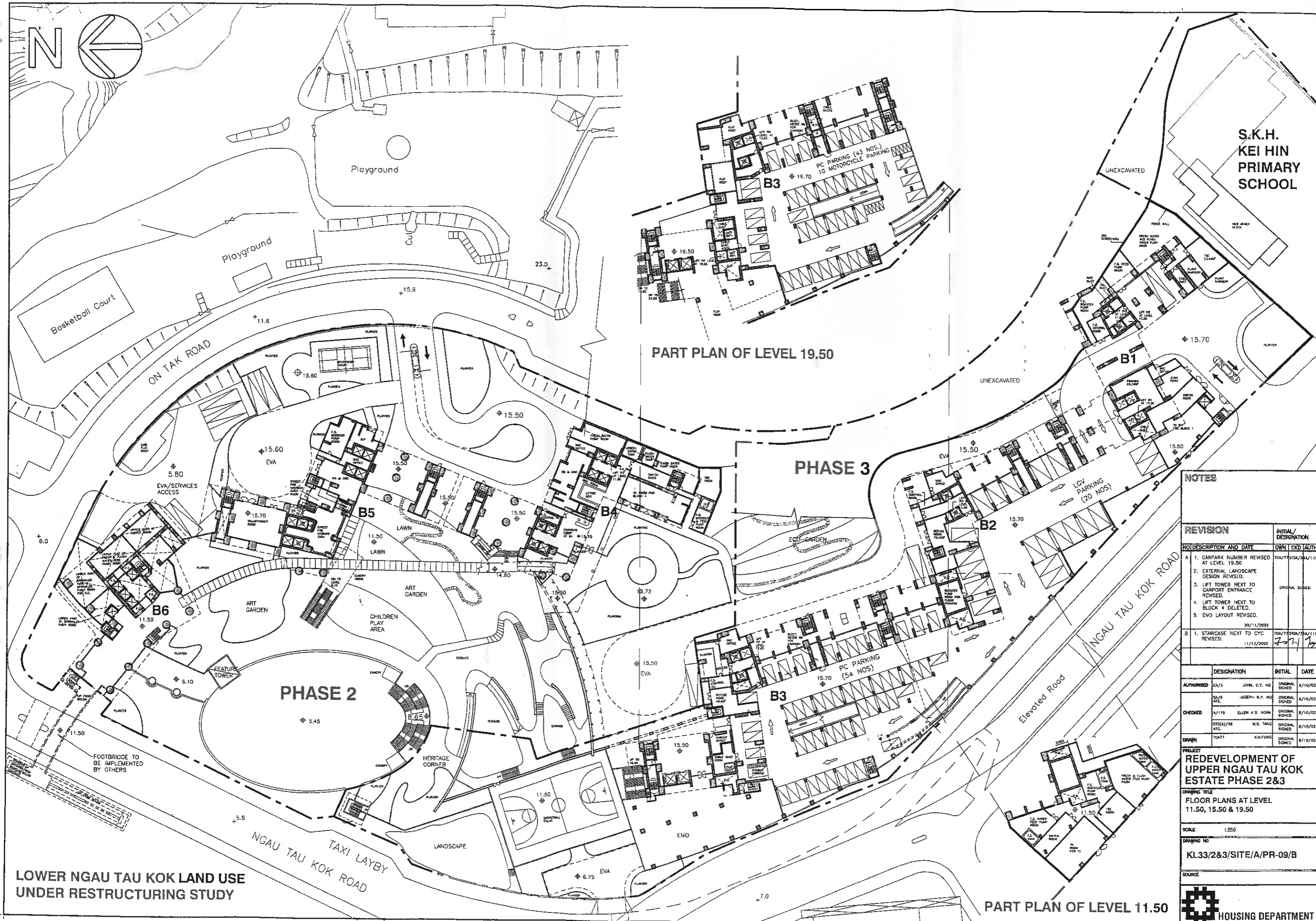
DRAWING TITLE
FLOOR PLANS AT LEVEL 6.00
& 11.50

SCALE 1:850

DRAWING NO
KL33/2&3/SITE/A/PR-08/B

SOURCE

HOUSING DEPARTMENT



S.K.H. KEI HIN PRIMARY SCHOOL

NOTES

REVISION	INITIAL / DESIGNATION
A 1. CARPARK NUMBER REVISED AT LEVEL 19.50	TOA/77/STDA/38A/119
2. EXTERNAL LANDSCAPE DESIGN REVISED.	ORIGINAL SIGNED
3. LIFT TOWER NEXT TO CARPORT ENTRANCE REVISED.	
4. LIFT TOWER NEXT TO BLOCK 4 DELETED.	
5. EMO LAYOUT REVISED.	
B 1. STAIRCASE NEXT TO CYC REVISED.	TOA/77/STDA/38A/119

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/3 JOHN C.Y. NG	ORIGINAL SIGNED	8/10/02
SA/3	JOSEPH W.Y. HO	ORIGINAL SIGNED	8/10/02
CHECKED	SA/119 ELLEN K.S. NGAN	ORIGINAL SIGNED	8/10/02
STDA/38	W.S. TANG	ORIGINAL SIGNED	8/10/02
DRAWN	TOA/77	ORIGINAL SIGNED	8/10/02

PROJECT
REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3

DRAWING TITLE
FLOOR PLANS AT LEVEL 11.50, 15.50 & 19.50

SCALE
1:850

DRAWING NO
KL33/2&3/SITE/A/PR-09/B

SOURCE

HOUSING DEPARTMENT



S.K.H.
KEI HIN
PRIMARY
SCHOOL

PHASE 1

ON TAK ROAD

TAXI & GMB LAYBY

FOOTBRIDGE
LINKAGE TO
PHASE 1

ON TAK ROAD

Elevated Road

NGAU TAU KOK ROAD

PHASE 2

PHASE 3

PART PLAN OF LEVEL 28.85

LOWER NGAU TAU KOK LAND USE
UNDER RESTRUCTURING STUDY

NOTES

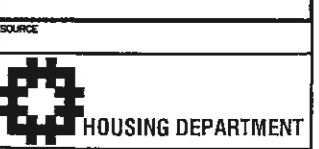
REVISION	INITIAL/DESIGNATION
NO DESCRIPTION AND DATE	DWN CKD AUTH
A 1. EXTERNAL LANDSCAPE DESIGN REVISED. 2. LIFT TOWER NEXT TO CARPORT ENTRANCE REVISED. 3. LIFT TOWER NEXT TO BLOCK 4 DELETED.	TOA/77/STDA/34/119 ORIGINAL SIGNED
B 1. FEATURE TOWER NEXT TO CYC REVISED.	TOA/77/STDA/34/119 11/12/2002 JAN

DESIGNATION	INITIAL	DATE
AUTHORISED CA/3 JOHN C.Y. NG	ORIGINAL SIGNED	9/10/02
SA/9 JOSEPH W.Y. HO	ORIGINAL SIGNED	9/10/02
CHECKED A/119 ELLER K.S. NGAN	ORIGINAL SIGNED	9/10/02
STDA/34 W.S. TANG	ORIGINAL SIGNED	9/10/02
DRAWN STDA/34 W.S. TANG	ORIGINAL SIGNED	9/10/02

PROJECT
REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3

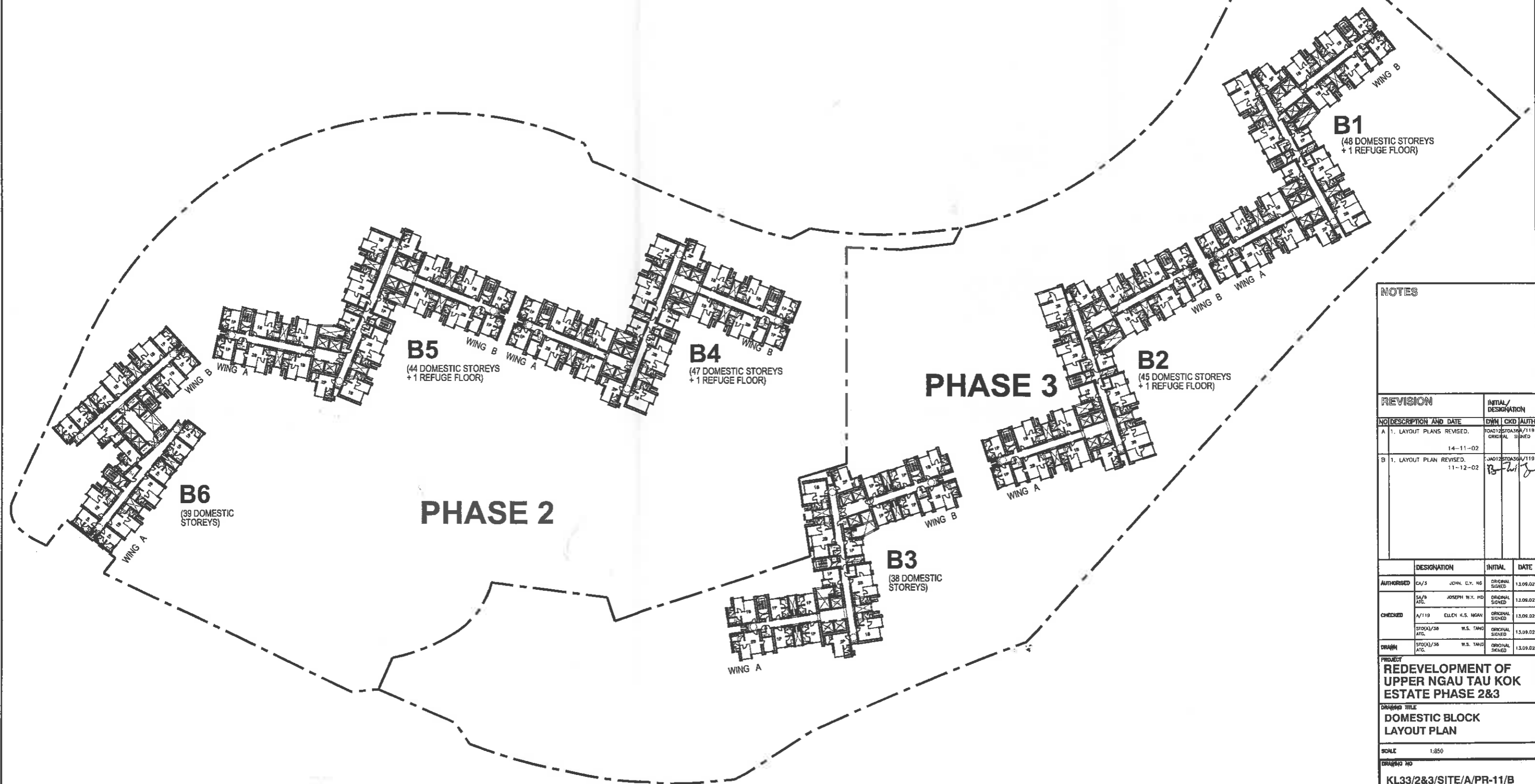
DRAWING TITLE
FLOOR PLAN AT LEVEL
23.30

SCALE 1:850
DRAWING NO
KL33/2&3/SITE/A/PR-10/B





S.K.H.
KEI HIN
PRIMARY
SCHOOL



NOTES

REVISION

NO	DESCRIPTION AND DATE	INITIAL/DESIGNATION
A	1. LAYOUT PLANS REVISED. 14-11-02	TOAD12/STO38/119 ORIGINAL SIGNED
B	1. LAYOUT PLAN REVISED. 11-12-02	TOAD12/STO38/119 ORIGINAL SIGNED

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/S	JOHN C.Y. NG	ORIGINAL SIGNED 13.09.02
	SA/S	JOSEPH W.Y. HO	ORIGINAL SIGNED 13.09.02
CHECKED	A/119	ELLEN K.S. NGAN	ORIGINAL SIGNED 13.09.02
	STO(A)/38	W.S. TANG	ORIGINAL SIGNED 13.09.02
DRAWN	STO(A)/38	W.S. TANG	ORIGINAL SIGNED 13.09.02

PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

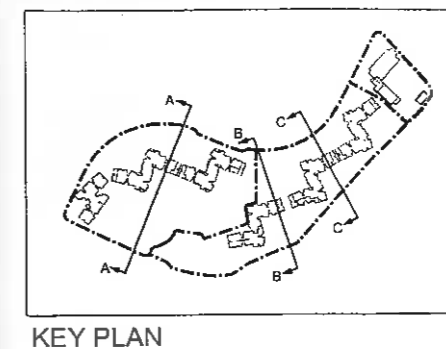
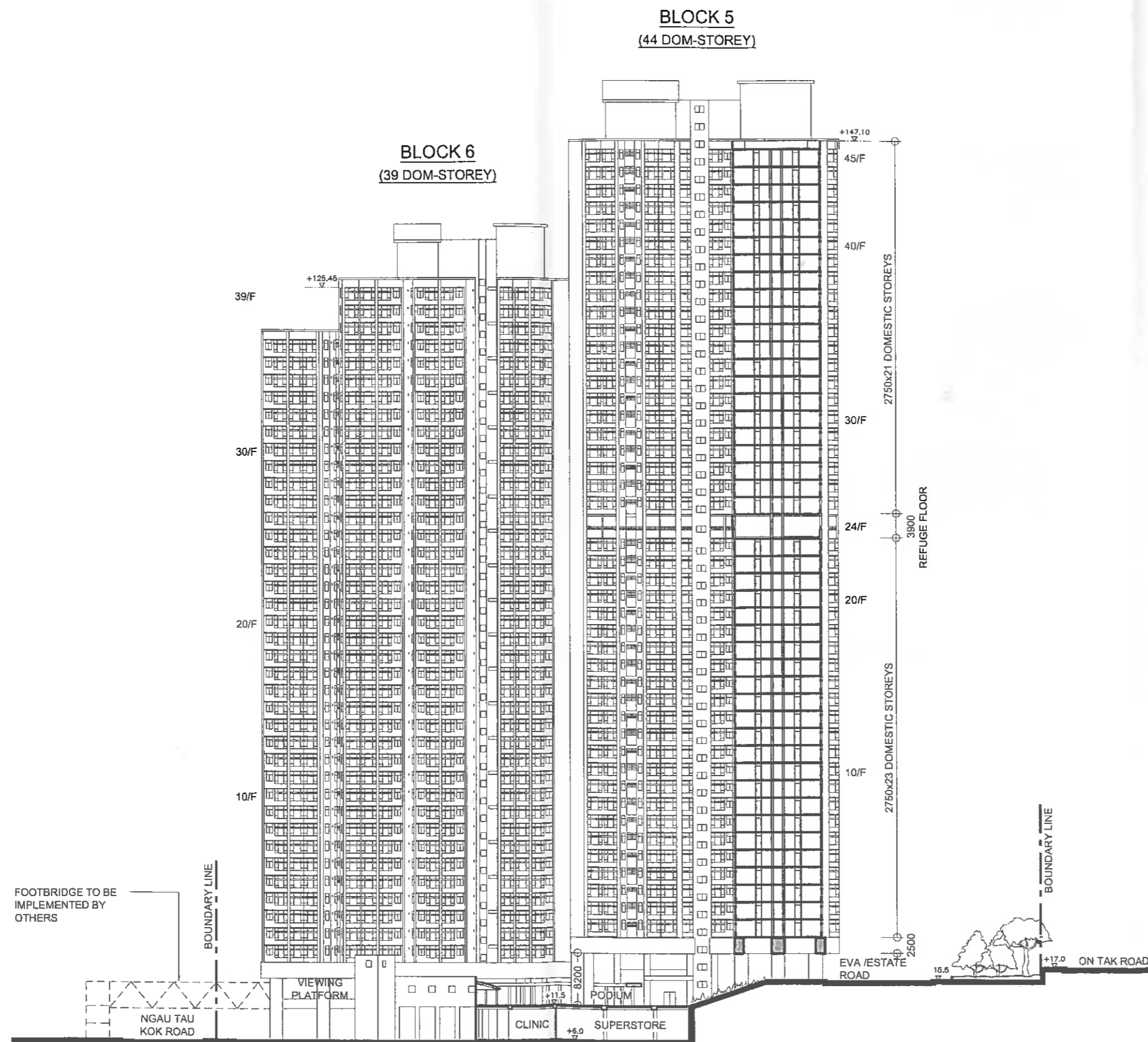
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**DOMESTIC BLOCK
LAYOUT PLAN**

SCALE
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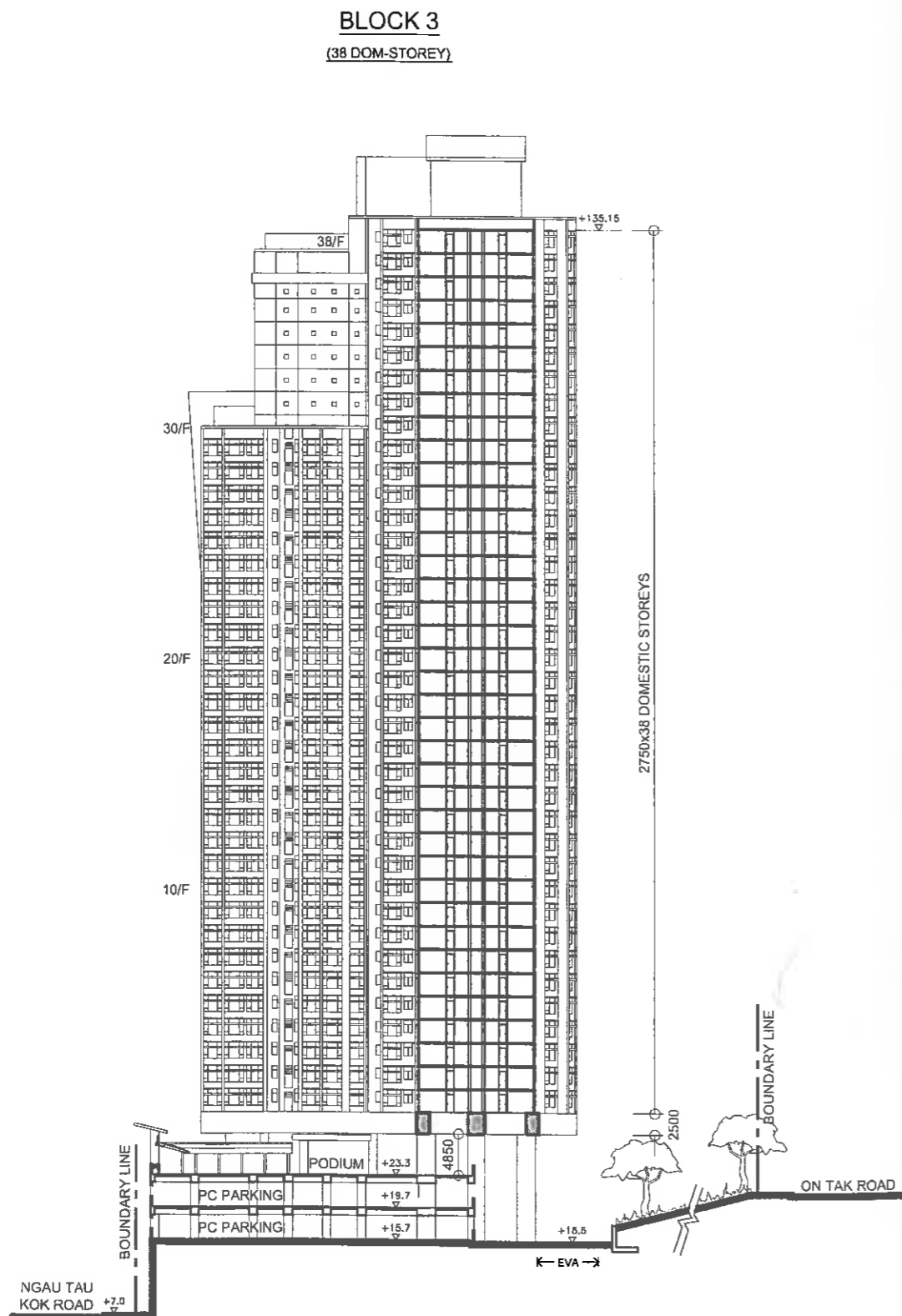
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KL33/2&3/SITE/A/PR-11/B

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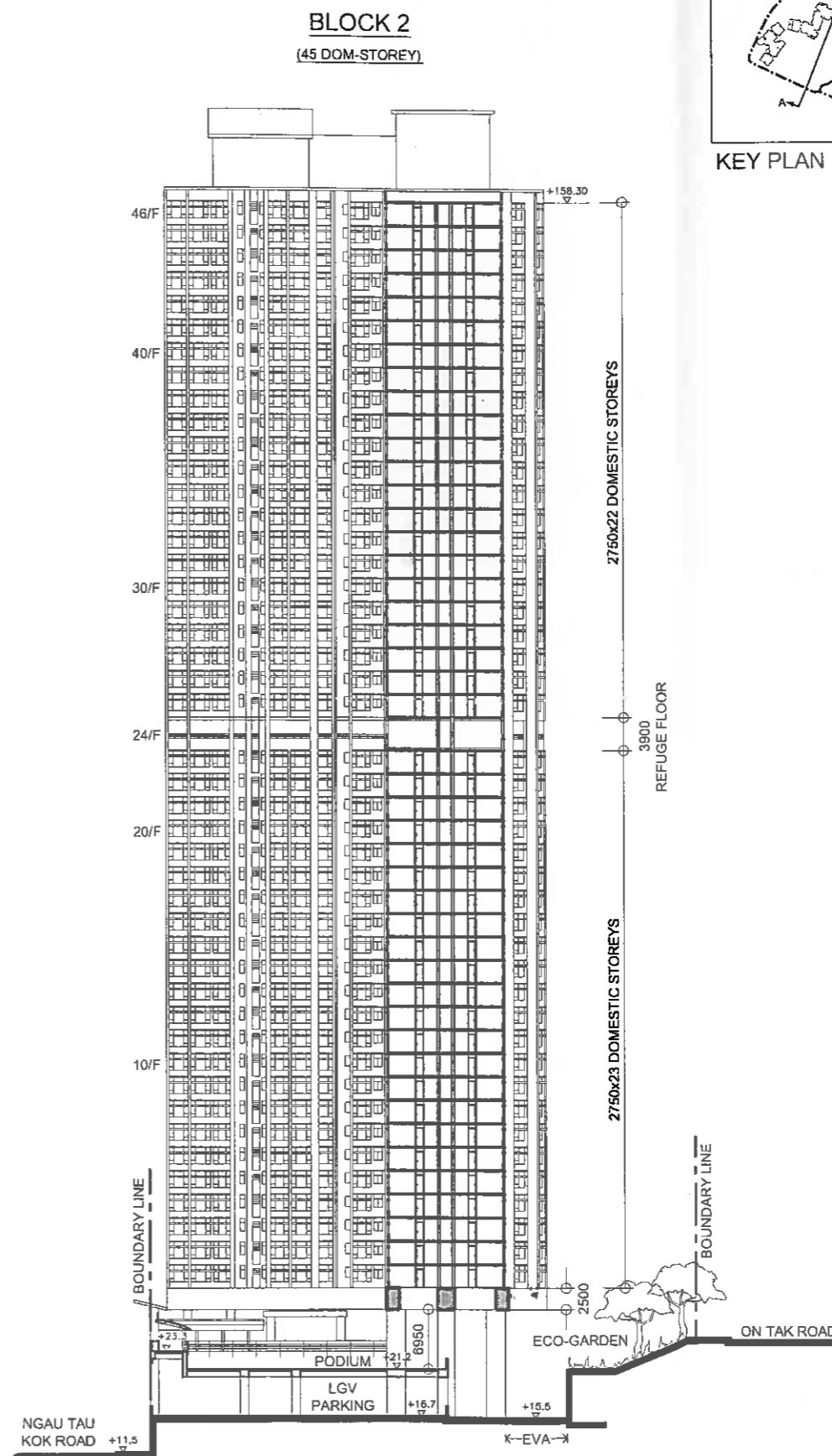




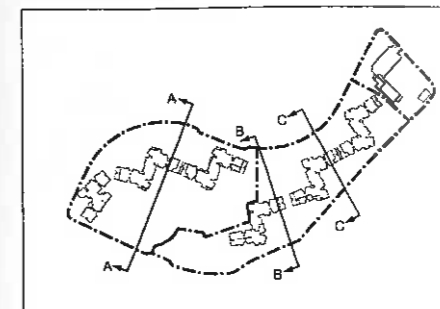
REVISION				INITIAL/ DESIGNATION	
NO	DESCRIPTION AND DATE	OWN	CHK	AUTH	
A	1. NOS. OF STOREYS REVISED.	STDA/STDA/A/119	38	ATC/38	
	08-10-02				
DESIGNATION				INITIAL	DATE
AUTHORISED	CA/3	JOHN C.Y. NG	ORIGINAL SIGNED		13.09.02
	SA/2	JOSEPH B.Y. HO	ORIGINAL SIGNED		13.09.02
CHECKED	A/119	ELLEN K.S. NGAN	ORIGINAL SIGNED		13.09.02
	STDA/26	W.S. TANG	ORIGINAL SIGNED		13.09.02
DRAWN	TD(A)/117	C.W. HUNG	ORIGINAL SIGNED		13.09.02
PROJECT					
REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2 & 3					
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SECTION A-A					
SCALE					
1:750					
DRAWING NO					
KL33/2&3/SITE/A/PR-12/A					
SOURCE					
HOUSING DEPARTMENT					



SECTION B-B



SECTION C-C



KEY PLAN

NOTES

REVISION

NO	DESCRIPTION AND DATE	INITIAL/DESIGNATION	CHK	AUTH
A	1. NOS. OF STOREYS REVISED. 08-10-02	STOA/STOA/A/119 30 AUG 02		

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/3 JOHNL C.Y. HO	ORIGINAL SIGNED	13/9/02
	SA/3 JOSEPH R.Y. HO	ORIGINAL SIGNED	13/9/02
CHECKED	A/119 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/9/02
	STOA/1/36 W.S. TANG	ORIGINAL SIGNED	13/9/02
DRAWN	TD(A)/157 C.W. HUNG	ORIGINAL SIGNED	13/9/02

PROJECT
REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2 & 3

DRAWING TITLE
SECTION B-B & C-C

SCALE 1:750

DRAWING NO
KL33/2&3/SITE/A/PR-13/A

SOURCE





FOOTBRIDGE TO
BE IMPLEMENTED
BY OTHERS

ON TAK
ROAD

BLOCK 6
39 DOM. STOREYS

BLOCK 5
44 DOM. STOREYS
+ 1 REFUGE FLOOR

PHASE 2

BLOCK 4
47 DOM. STOREYS
+ 1 REFUGE FLOOR

BLOCK 3
38 DOM. STOREYS

Elevated road in front

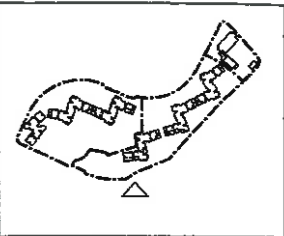
BLOCK 2
45 DOM. STOREYS
+ 1 REFUGE FLOOR

PHASE 3

BLOCK 1
48 DOM. STOREYS
+ 1 REFUGE FLOOR

S.K.H. KEI HIN
PRIMARY
SCHOOL

NOTES



KEY PLAN

REVISION

NO.	DESCRIPTION AND DATE	INITIAL/DESIGNATION	DATE
A	1. NOS. OF STOREYS REVISED. 2. ELEVATED ROAD SHOWN.	TO(A) /140 /28 (sig)	14/11/02

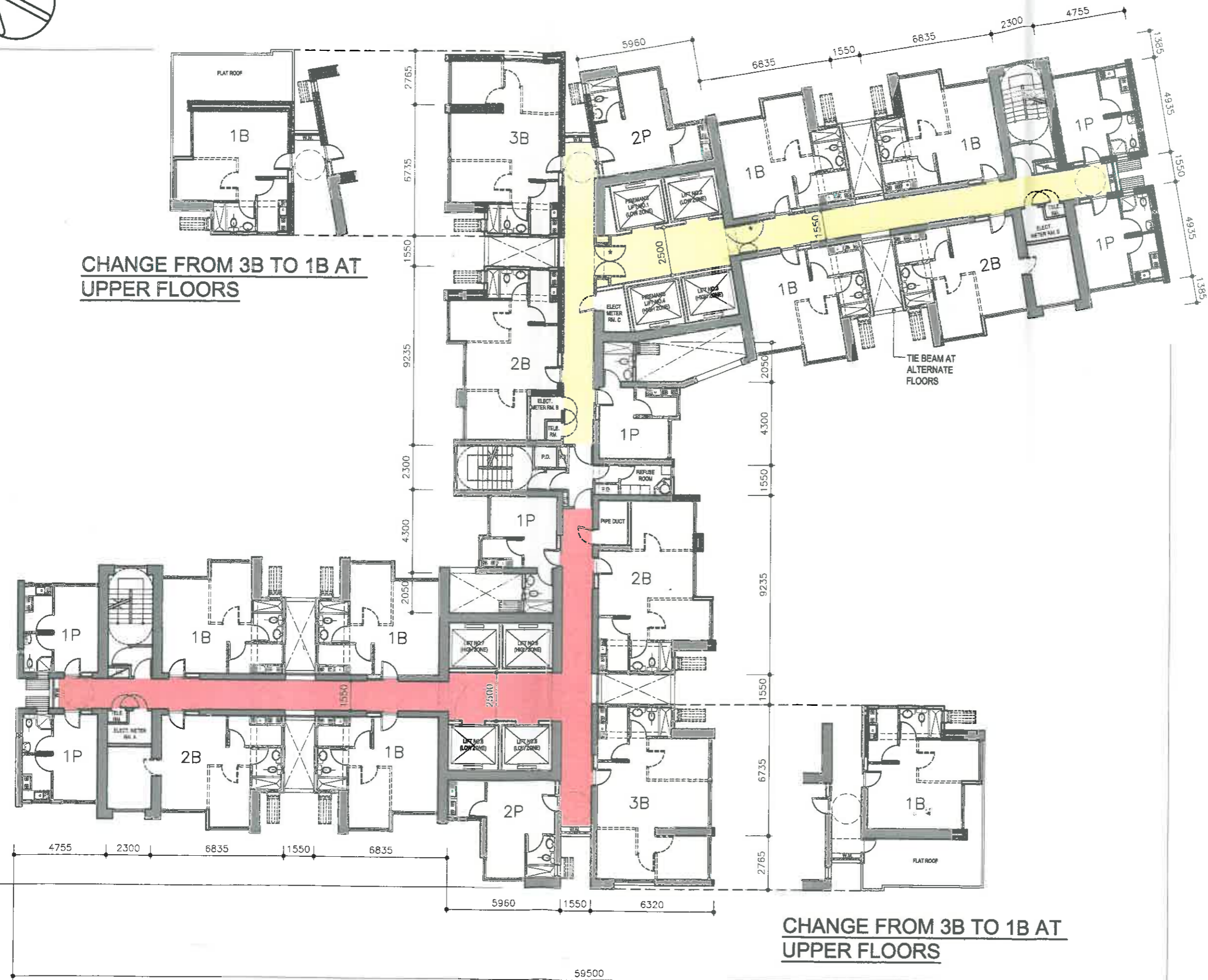
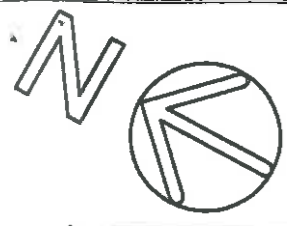
	DESIGNATION	INITIAL	DATE
AUTHOR	CA/2	JOHN C.Y. NG	10/10/02
	SA/3	JOSEPH W.Y. HO	10/10/02
CHECKED	A/119	ELLEN K.S. NGAN	10/10/02
	STD(A)/36	W.S. TANG	10/10/02
DRAWN	STD(A)/36	W.S. TANG	10/10/02

PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

DRAWING TITLE
ELEVATION

SCALE
Drawing No
KL33/2&3/SITE/A/PR-14/A

SOURCE
 **HOUSING DEPARTMENT**



NOTES
LEGEND:
• FIRE DOOR FOR PROTECTION OF FIREMAN'S LIFT LOBBY, NORMALLY HELD OPENED & AUTOMATICALLY RELEASED TO CLOSE IN CASE OF FIRE

REVISION		INITIAL/DESIGNATION
DESCRIPTION AND DATE		DATE
A 1. GENERAL LAYOUT REVISED. 2. 3B CHANGE TO 1B IN LIEU OF 2B AT UPPER FLOORS 3. WATER METER CUPBOARD LOCATION REVISED.		14/11/02
B 1. LAYOUT OF KITCHEN & TOILET REVISED.		11/12/02

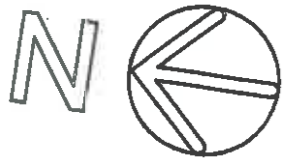
	DESIGNATION	INITIAL	DATE
AUTHOR	DA/3	JOHN C.Y. HO	ORIGINAL SIGNED
	SA/9	JOSEPH W.Y. HO	ORIGINAL SIGNED
CHECKED	A/119	ELLEN K.S. NGAN	ORIGINAL SIGNED
	STO(A)/38	W.S. TANG	ORIGINAL SIGNED
DRAWN	STO(A)/38	W.S. TANG	ORIGINAL SIGNED
	ATC		

REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3

TYPICAL FLOOR PLAN OF BLOCK 1 & 2

SCALE 1:200
KL33/2&3/SITE/A/PR-15/B





NOTES

LEGEND:

* FIRE DOOR FOR PROTECTION OF FIREMAN'S LIFT LOBBY, NORMALLY HELD OPENED & AUTOMATICALLY RELEASED TO CLOSE IN CASE OF FIRE

REVISION

NO.	DESCRIPTION AND DATE	INITIAL	DESIGNATION
A	1. GENERAL LAYOUT REVISED. 2. WATER METER CLIPBOARD LOCATION REVISED. 14/11/02	TOM12STO36	A/119 ORIGINAL SIGNED
B	1. LAYOUT OF KITCHEN & TOILET REVISED. 11/12/02	TOM12STO36	A/119 ORIGINAL SIGNED

	DESIGNATION	INITIAL	DATE
AUTHORISED	CA/3 JOHN C.Y. HO	ORIGINAL SIGNED	13/8/02
	SA/3 JOSEPH W.Y. HO	ORIGINAL SIGNED	13/8/02
CHECKED	A/118 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/8/02
	STO36/36 W.S. TANG	ORIGINAL SIGNED	13/8/02
DRAWN	STO36/36 W.S. TANG	ORIGINAL SIGNED	13/8/02

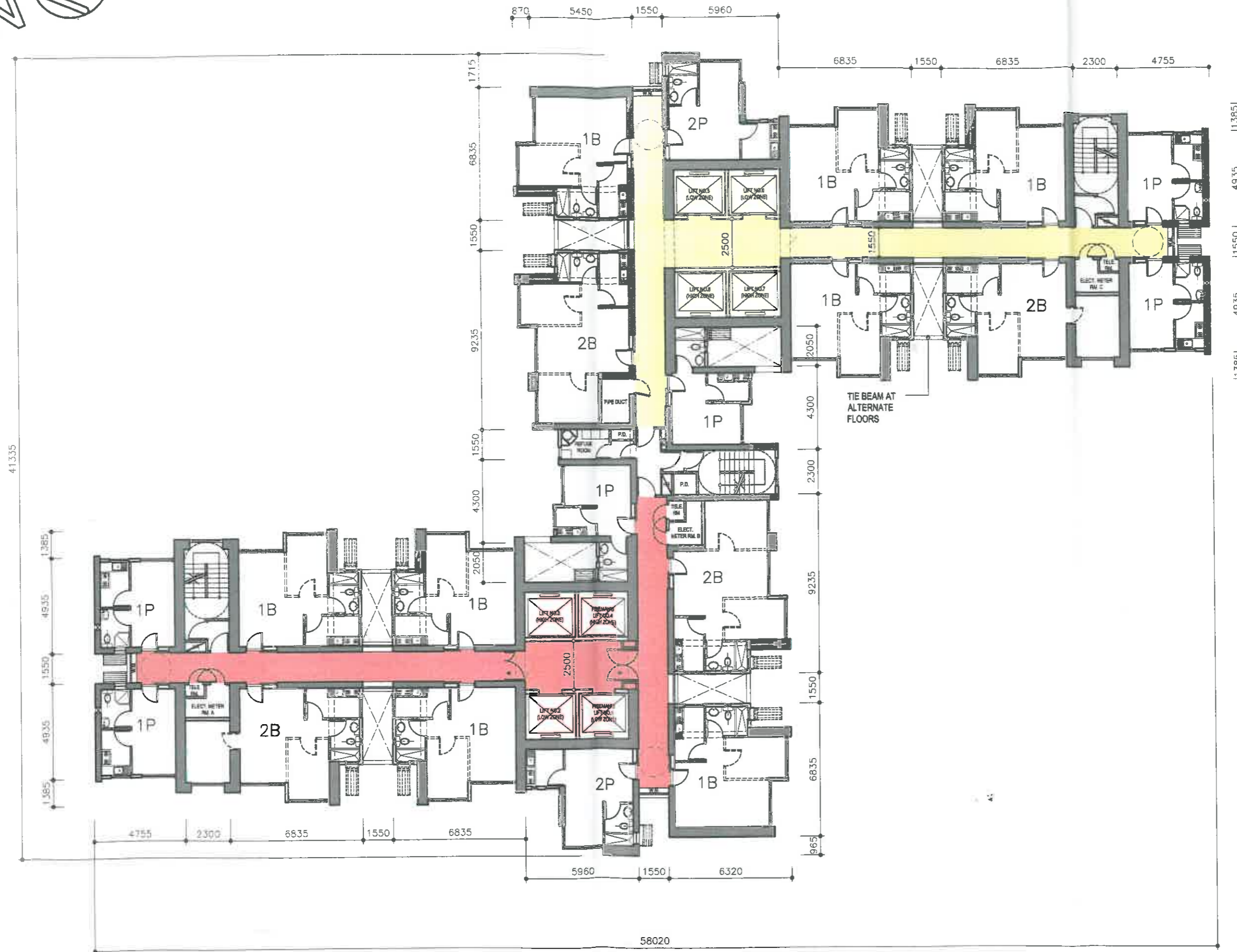
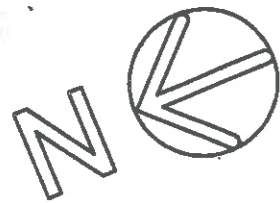
PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

DRAWING TITLE
**TYPICAL FLOOR PLAN
OF BLOCK 3**

SCALE 1:200

DRAWING NO.
KL33/2&3/SITE/A/PR-16/B





NOTES

LEGEND:

* FIRE DOOR FOR PROTECTION OF FIREMAN'S LIFT LOBBY, NORMALLY HELD OPENED & AUTOMATICALLY RELEASED TO CLOSE IN CASE OF FIRE

REVISION

NO.	DESCRIPTION AND DATE	INITIAL/DESIGNATION
A	1. GENERAL LAYOUT REVISED. 2. WATER METER CLIPBOARD LOCATION REVISED. 14/11/02	DM112/ST03036 A/119 ORIGINAL SIGNED
B	1. LAYOUT OF KITCHEN & TOILET REVISED. 11/12/02	DM112/ST03036 A/119 SIGNED

	DESIGNATION	INITIAL	DATE
AUTHORISED	DA/3 JOHN C.Y. NG	ORIGINAL SIGNED	13/9/02
	SA/9 JOSEPH W.T. HO	ORIGINAL SIGNED	13/9/02
CHECKED	A/119 ELLEN K.S. HOAN	ORIGINAL SIGNED	13/9/02
	ST03036/28 W.S. TANG	ORIGINAL SIGNED	13/9/02
DRAWN	ST03036/26 W.S. TANG	ORIGINAL SIGNED	13/9/02

PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

DRAWING TITLE
**TYPICAL FLOOR PLAN
OF BLOCK 4**

SCALE 1:200

DRAWING NO.
KL33/2&3/SITE/A/PR-17/B

SOURCE



HOUSING DEPARTMENT



NOTES

LEGEND:

- * FIRE DOOR FOR PROTECTION OF FIREMAN'S LIFT LOBBY, NORMALLY HELD OPENED & AUTOMATICALLY RELEASED TO CLOSE IN CASE OF FIRE

REVISION

NO.	DESCRIPTION AND DATE	INITIAL/DESIGNATION
A	1. GENERAL LAYOUT REVISED. 2. WATER METER CLIPBOARD LOCATION REVISED. 14/11/02	TD0412ST0430 A/119 ORIGINAL SIGNED
B	1. LAYOUT OF KITCHEN & TOILET REVISED. 11/12/02	TD0412ST0430 A/119 ORIGINAL SIGNED

	DESIGNATION	INITIAL	DATE
AUTHOR	DA/3 JOHNS, C.Y. HO	ORIGINAL SIGNED	13/9/02
SA/8	JOSEPH W.Y. HO	ORIGINAL SIGNED	13/9/02
CHECKED	A/119 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/9/02
ST04/38	W.S. TANG	ORIGINAL SIGNED	13/9/02
ST04/38	W.S. TANG	ORIGINAL SIGNED	13/9/02

PROJECT
**REDEVELOPMENT OF
UPPER NGAU TAU KOK
ESTATE PHASE 2&3**

DRAWING TITLE
**TYPICAL FLOOR PLAN
OF BLOCK 5**

SCALE 1:200

DRAWING NO.
KL33/2&3/SITE/A/PR-18/B





* FIRE DOOR FOR PROTECTION
OF FIREMAN'S LIFT LOBBY,
NORMALLY HELD OPENED &
AUTOMATICALLY RELEASED TO
CLOSE IN CASE OF FIRE

REVISION		INITIAL/ DESIGNATION
NO DESCRIPTION AND DATE		OWN / CKD / AUT
A	1. GENERAL LAYOUT REVISED. 2. WATER METER CUPBOARD LOCATION REVISED. 14/11/02	TDAD125TD3036 A/11 ORIGINAL SIGNED
B	1. LAYOUT OF KITCHEN & TOILET REVISED. 11/12/02	TDAD125TD3036 A/11 11/12/02

	DESIGNATION	INITIAL	DATE
AUTHORIZED	DA/3 JOHN D.Y. NG	ORIGINAL SIGNED	13/8/00
	SA/9 ATG. JOSEPH W.Y. NG	ORIGINAL SIGNED	13/8/00
CHECKED	A/18 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/8/00
	STO(A)/36 ATG. W.S. TANG	ORIGINAL SIGNED	13/8/00
REVIEW	STO(A)/36 ATG. W.S. TANG	ORIGINAL SIGNED	13/8/00

PROJECT	REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3
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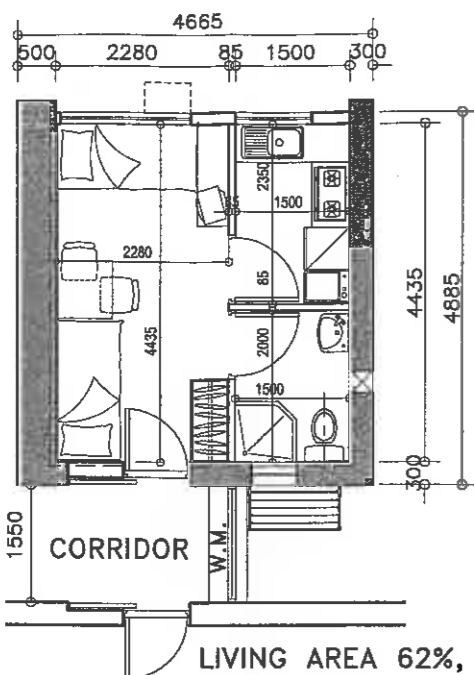
DRAWING TITLE
**TYPICAL FLOOR PLAN
OF BLOCK 6**

SCALE 1:200

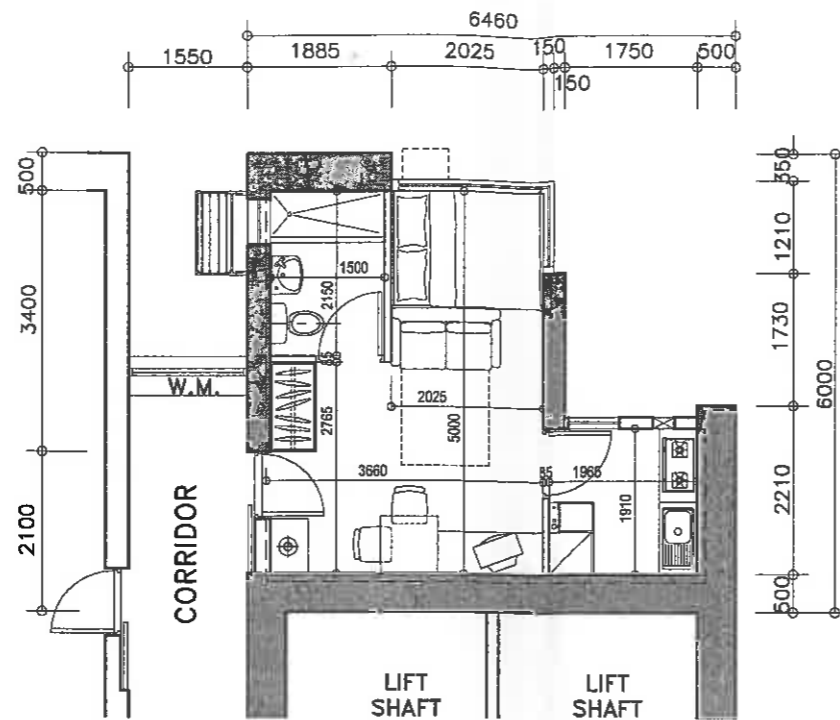
KL33/2&3/SITE/A/PR-19/B

1000

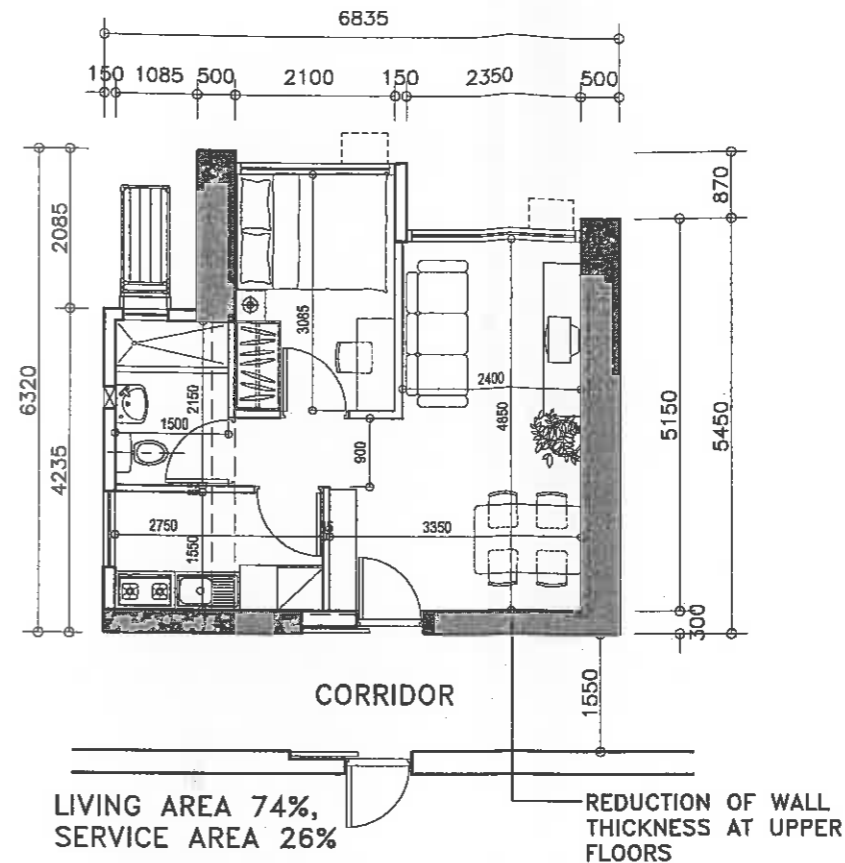




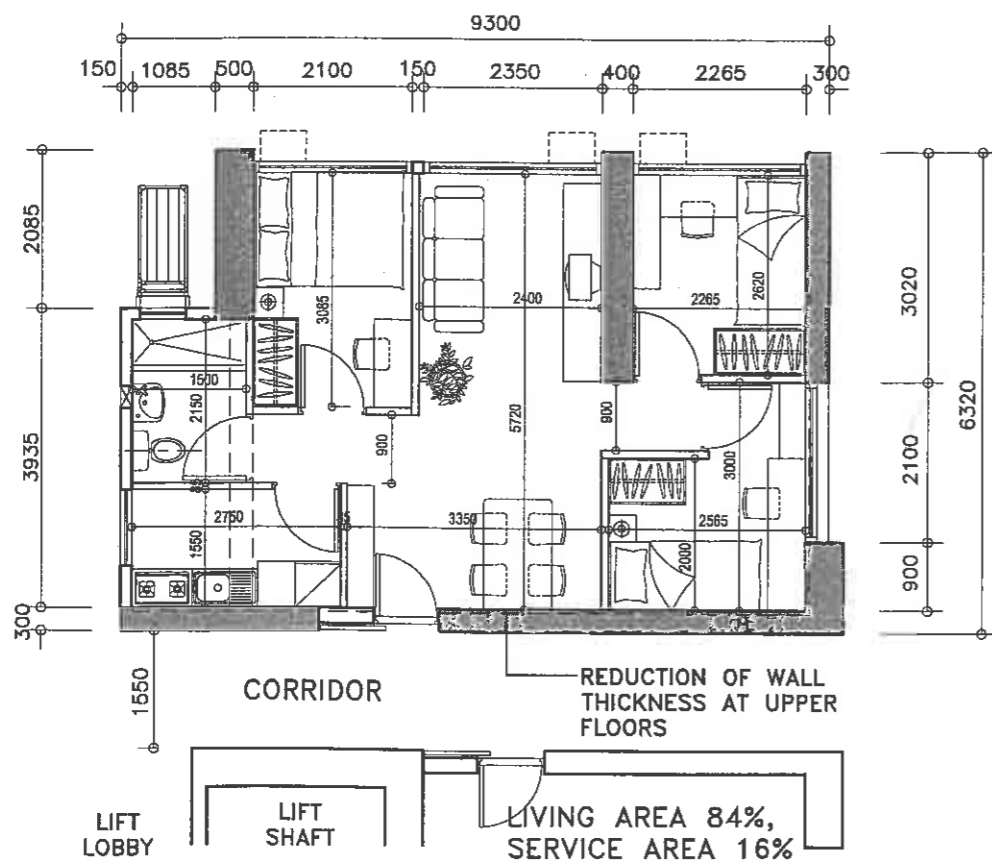
1P/2P IFA: 17.11m², 18.00m², 18.90m²
SFA: 22.80m²



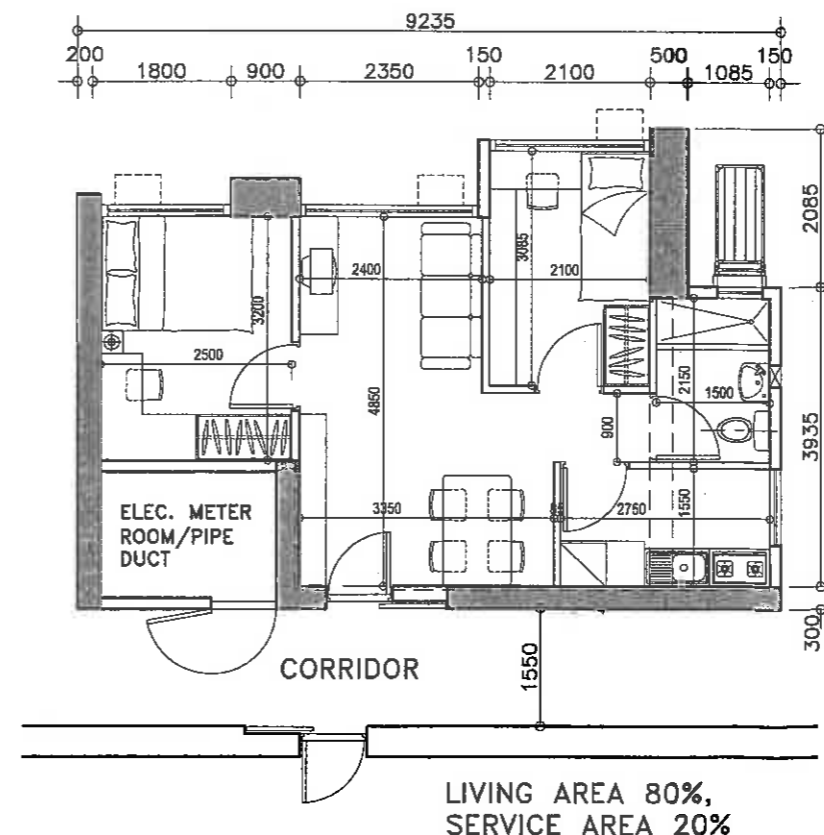
2P/3P IFA: 21.97m², 22.99m², 24.04m²
SFA: 29.94m²



1B IFA: 30.39m², 30.94m², 31.50m²
SFA: 37.29m²



3B IFA: 47.56m², 48.29m², 49.02m²
SFA: 55.23m²



2B IFA: 38.46m², 38.85m², 39.25m²
SFA: 45.62m²

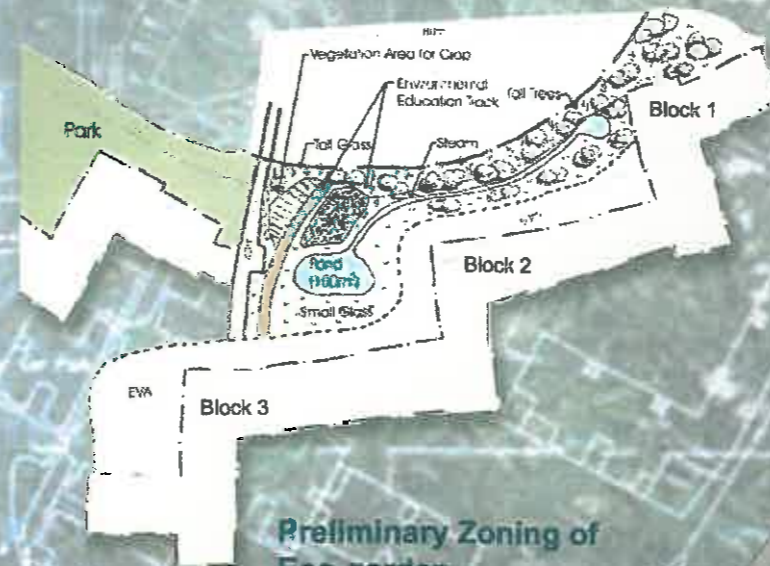
- Structural free space allows flexibility in internal layout
- Improve usability by minimizing door opening to living/ dining area directly.
- Kitchen exhaust and drying rack locations are separated.
- Outlet from sanitary fittings discharge directly to stacks at external walls.
- Universal Design requirements incorporated

NOTES			
REVISION			
NO	DESCRIPTION AND DATE	INITIAL/DESIGNATION	DATE
A	1. FLAT LAYOUT SLIGHTLY REVISED 26/11/2002	TO(A) STGA A/119 /137 /36 (etg.)	11/12/2002
B	1. KITCHEN & BATH LAYOUT REVISED 11/12/2002	TO(A) STGA A/119 /137 /36 (etg.)	
AUTHORISED			
DESIGNATION	INITIAL	DATE	
CA/3 JOHN C.Y. HO	ORIGINAL SIGNED	13/09/02	
SA/9 JOSEPH W.Y. HO	ORIGINAL SIGNED	13/09/02	
A/119 ELLEN K.S. NGAN	ORIGINAL SIGNED	13/09/02	
STGA/36 W.S. TANG	ORIGINAL SIGNED	13/09/02	
STGA/36 W.S. TANG	ORIGINAL SIGNED	13/09/02	
PROJECT			
REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3			
DRAWING TITLE			
TYPICAL FLAT MODULES LAYOUT			
SCALE 1:100			
DRAWING NO. KL33/2&3/SITE/A/PR-21/B			
SOURCE			
HOUSING DEPARTMENT			

Remarks : 1. All interior partitions, furniture and drying racks are by tenants except for drying rack in 1P/2P flats



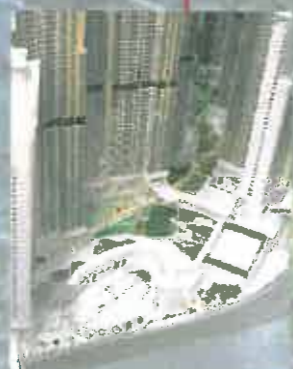
Eco-garden Conceptual Section



Preliminary Zoning of Eco-garden



Children Play Area



Plaza



Heritage Corner



Community Art Garden



Eco-garden

NOTES

REVISION	INITIAL/DESIGNATION
NO. DESCRIPTION AND DATE	DESIGNER/DATE
A 1. LAYOUT REVISED.	19-11-02

DESIGNATION	INITIAL	DATE
AUTHOR	JOHN C.Y. HO	13/08/02
SLA/2	EVANS P.L. LI	13/08/02
CHECKED	PAUL K.S. WONG	13/08/02
STAMP/36	W.S. TANG	13/08/02
STAMP/36	W.S. TANG	13/08/02

REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2&3

MASTER LANDSCAPE PLAN

SCALE: 1:1000
DRAWING NO: KL33/2&3/SITE/L/PR-01/A



PART IIA - TECHNICAL SUMMARY OF ECO-GARDEN

Executive Summary of Eco-garden in Upper Ngau Tau Kok Phase 2 & 3

What is Eco-garden

In ecological terminology, “eco-garden” means “the habitat of living things”. In urban built environment, eco-gardens can partially recreate the natural environment that has been replaced by concrete structures in the urbanization process. By partially restoring the habitats of selected fauna species, some native species like butterflies, dragonflies and birds, which are seldom found in the urban areas, could be attracted to urban developments from existing green habitats at nearby mountains, hillside and large public parks. In recent years, it has become popular in developed countries like Japan and Germany to reproduce nature in the built environment by construction of “eco-gardens”

Benefits of Eco-garden

Eco-garden enables people to come in contact with nature. Restoring the natural environment in the places where people live has many benefits:

- 1) An enjoyable living environment – Through contact with nature, people will feel relaxed and be released from the pressure of urban living. The smell, sight and touch of greenery and butterflies etc. will make their living environment more enjoyable and mentally refreshing;
- 2) Understand the value of life – Man will be psychologically balanced by having contact with natural living things, especially from a very young age. He learns a lot through contact with nature, particularly about such matters as the value of life;
- 3) Preservation of natural environment – Through networks of eco-gardens in urban areas, the whole environment of the city would be improved. People will also become more conscious of the value of natural environment and the need of its preservation;
- 4) Fostering local community-building – In the process of appreciating and preserving the natural environments, eco-garden serves as a place for interchange amongst local residents of all ages and strengthening the sense of belonging of the residents.

Eco-garden of Upper Ngau Tau Kok Phase 2&3

A Japanese specialist consultant has been employed to carry out a field study of the ecological environment of Upper Ngau Tau Kok Phase 2 and 3. It was found that the site is adjacent to a “green island” (a large green habitat) in the hillside of Jordan Valley, and is connected to this “green island” through a strip of green area on the east of the site (On Tak Road Playgrounds).

Fauna species of this “green island” can be attracted to the proposed development by re-creation of the native nature environments in the proposed eco-garden. There is a high potential to successfully attract target fauna and flora species to the proposed eco-garden because of such unique ecological environment of the site.

Target fauna of the proposed eco-garden are birds, insects (butterflies, dragonflies, grasshoppers) and fishes.

The major ecological elements of the eco-garden are-

- 1) Tree area: Tall trees and brushes of native species (for birds and insects)
- 2) Grassland: Long and short grass (for grasshoppers, butterflies and dragonflies)
- 3) Water pond: Water pond with wetland (for small fishes and dragonflies)
- 4) Stream: Water course (for natural purification of pond water)

Management and operation of Eco-garden

An effective way to sustain the ecological system is by controlled access to the eco-garden. Manned access (e.g. a limited number of hour(s) per day) is recommended. In Japan, local residents and organizations will hold excursions to the eco-gardens. Residents may also form eco-garden groups to conduct nursing and/or improvement programme.

A location separated from the main pedestrian circulation is proposed for the eco-garden of this project to facilitate flourishing of target flora and fauna species and to ensure ease of management/maintenance.

The water areas are essential elements for the success of the eco-garden. Nuisance to tenants, like mosquito breeding, could be avoided by proper design and maintenance:

- a) Design for a continuous running water
- b) Eliminate any stagnant water area
- c) Fishes fed on mosquitoes larvae be introduced in the water pond
- d) Filtration system to be provided as a backup
- e) Regular maintenance

To ensure that the water pond and the stream are well maintained, regular maintenance service of a specialist contractor is recommended.

Cost and maintenance

The proposed eco-garden mainly involves the planting of selected native trees and plants and the construction of a stream and a water pond. The additional capital cost is mainly for the water pond and stream and is around HK\$480,000 including associated filtration system. The recurrent cost of regular maintenance of the water areas by specialist contractor is around HK\$4,000 per month while the electricity cost for running the pump and filtration system is about HK\$250 per month.

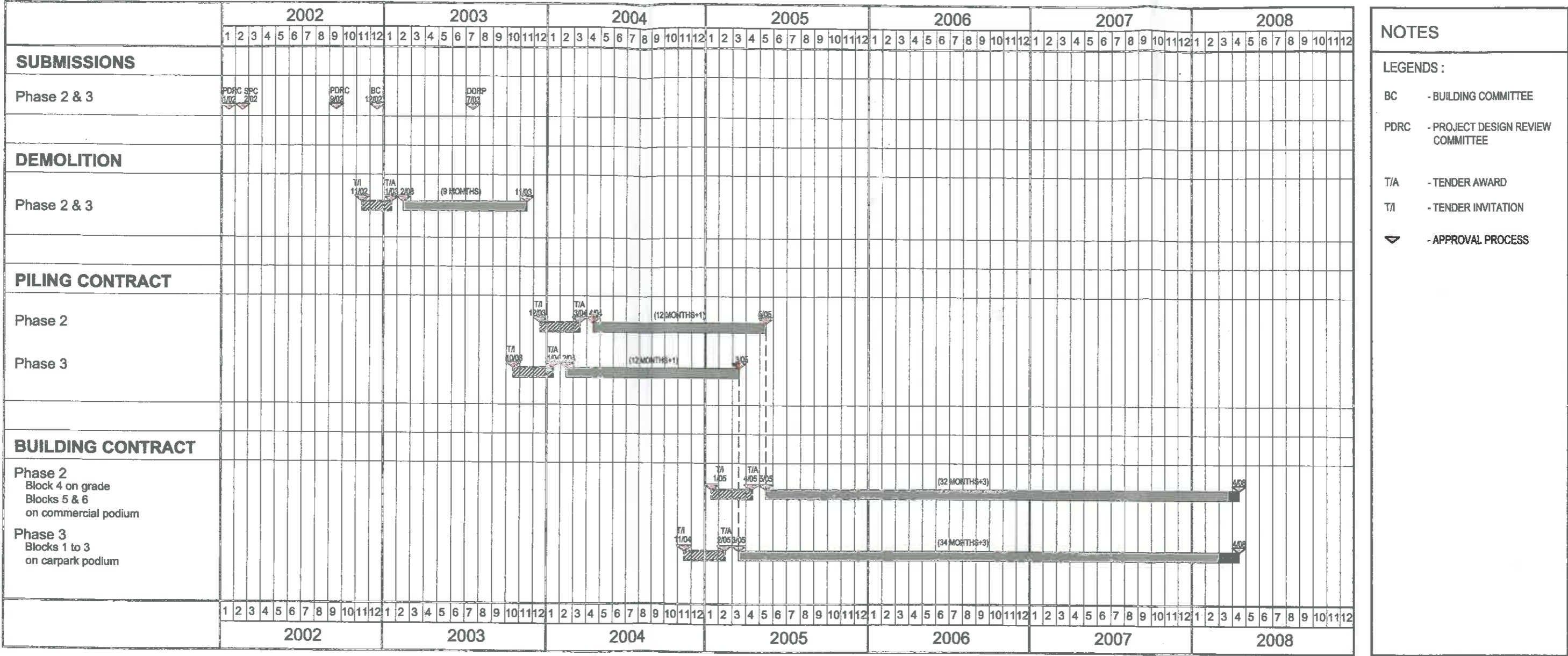
Maintenance should be planned and implemented in accordance with the characteristics of each ecological element of the eco-garden. For the water and stream, it is recommended that the following routine maintenance works be carried out by a specialist contractor twice a week:

1. Check and maintain water quality
2. Remove debris and stagnant water area
3. Weeding if necessary
4. Remove any fishes or water species improperly introduced by tenants
5. Stop any breeding of unexpected wild life (e.g. frogs)
6. Maintenance of the filtration system

For the planting area, as the plants will be native species mainly, only ad hoc weeding and trimming of trees will be sufficient. This can be carried out through the routine soft landscape maintenance work.

In the long run the maintenance work may also be carried out by local residents through activities organized by local community groups as in cases of Japan. This will foster local community-building and enhance the sense of belonging of the residents.

REDEVELOPMENT OF UPPER NGAU TAU KOK ESTATE PHASE 2 & 3



PART IV - PROJECT DEVELOPMENT BUDGET

ANALYSIS OF SITE DEVELOPMENT & CONSTRUCTION COST ESTIMATE NO. 3

(For Financial Viability Assessment Purpose)

PROJECT : Redevelopment of Upper Ngau Tan Kok Estate Phases 2 & 3

PHDP Code : KL33RR

Estimated Costs (incl. common elements apportioned across all phases within the Whole Development Site)	COST PORTIONS								Total (incl. fluctuation)
	DOM (NS)	DOM (L/UL)	CC (RE)	CC (L/UL)	CP (PC)	CP (LGV)	WEL	GN	
A. Phase 2 (Estimate No. 3)	m2	m2	m2	m2	m2	m2	m2	m2	m2
CFA of Cost Portions (m2)	123,358	-	3,176	-	-	-	-	-	126,534
1.0 Site Development Costs	Cost in (\$ '000)								
1.1 Demolition	12,124	-	312	-	-	-	-	-	12,436
1.2 Site Formation	-	-	-	-	-	-	-	-	-
2.0 Construction Costs									
2.1 Foundation (incl. caps)	169,725	-	4,370	-	-	-	-	-	174,095
2.2 Building (incl. building services)	455,629	-	27,104	-	-	-	-	-	482,733
2.3 Transfer Structures	33,524	-	-	-	-	-	-	-	33,524
2.4 External Works	60,986	-	1,570	-	-	-	-	-	62,556
2.5 Noise Mitigation Works	7,103	-	-	-	-	-	-	-	7,103
2.6 Automated Refuse Collection System	16,857	-	-	-	-	-	-	-	16,857
3.0 Development Contingencies and Other Project Costs	Included in above								
3.1 Development Contingencies	-	-	-	-	-	-	-	-	-
3.2 Other Project Costs	18,899	-	834	-	-	-	-	-	19,733
Cost Estimate of Phase 2 (Estimate No. 3)									
Projected to Date of Tenders (A)	774,847	-	34,190	-	-	-	-	-	809,037
(Unit Cost in terms of \$/m2 CFA) :-	6,281	-	10,765	-	-	-	-	-	6,394
(Fund Split % pro-rata on cost values) :-	95.77%	-	4.23%	-	-	-	-	-	100.00%
B. Phase 3 (Estimate No. 3)	m2	m2	m2	m2	m2	m2	m2	m2	m2
CFA of Cost Portions (m2)	136,832	-	-	-	3,475	1,200	837	-	142,344
1.0 Site Development Costs	Cost in (\$ '000)								
1.1 Demolition	13,448	-	-	-	342	118	82	-	13,990
1.2 Site Formation	-	-	-	-	-	-	-	-	-
2.0 Construction Costs									
2.1 Foundation (incl. caps)	188,263	-	-	-	4,781	1,651	1,152	-	195,847
2.2 Building (incl. building services)	500,410	-	-	-	16,707	8,228	5,233	-	530,578
2.3 Extra Cost from carpark (see Note 6)	6,853	-	-	-	-3,582	-3,271	-	-	0
2.4 Transfer Structures	36,908	-	-	-	-	-	-	-	36,908
2.5 External Works	67,647	-	-	-	1,718	593	414	-	70,372
2.6 Noise Mitigation Works	7,820	-	-	-	-	-	-	-	7,820
2.7 Automated Refuse Collection System	18,558	-	-	-	-	-	-	-	18,558
3.0 Development Contingencies and Other Project Costs	Included in above								
3.1 Development Contingencies	-	-	-	-	-	-	-	-	-
3.2 Other Project Costs	20,998	-	-	-	499	183	172	-	21,852
Cost Estimate of Phase 3 (Estimate No. 3)									
Projected to Date of Tenders (B)	860,905	-	-	-	20,465	7,502	7,053	-	895,925
(Unit Cost in terms of \$/m2 CFA) :-	6,292	-	-	-	5,889	6,252	8,427	-	6,294
(Fund Split % pro-rata on cost values) :-	96.09%	-	-	-	2.28%	0.84%	0.79%	-	100.00%
GRAND TOTAL = (A) + (B)	1,635,752	-	34,190	-	20,465	7,502	7,053	-	1,704,962
(Unit Cost in terms of \$/m2 CFA) :-	6,287	-	10,765	-	5,889	6,252	8,427	-	6,341
(Fund Split % pro-rata on cost values) :-	95.94%	-	2.01%	-	1.20%	0.44%	0.41%	-	100.00%

Legend for Cost Portions :

DOM - Domestic Portion	CP(PC) - Carpark (Private Car)	WEL - Welfare Facilities
NS - Non-Standard Block	CP(LGV) - Carpark (Light Goods Vehicle)	UN - Unallocable
CC - Commercial (Shopping) Centre	L/UL - Loading/Unloading Area	TS - Transfer Structure
RE - Retail Area	GN - Government Non-reimbursable	EW - External Works

Notes :

- All prices are at June 2002 price level and adjusted for tender price inflation to tender in dates of contracts based on -1% per annum for year 2002 and 0% per annum for 2003 onwards.
- Apportionment of the Site Development and Construction Costs are in accordance with the cost apportionment guidelines set out in DCMBI No. P24/00 (Revised on 24 August 2002).
- Development Contingencies are set at 2% for all non-standard domestic blocks and 5% for all other non-standard elements.
- Other Project Costs (e.g. traffic and environmental studies, land surveying studies, site potential and other engineering studies, site investigation, geotechnical advisory services, construction material test, piling test carried out by direct testing contractor, etc.) are set at 2.5% on Site Development Costs, Construction Costs and Development Contingencies.
- The project is a **Group 1** project.
- CFA and cost of the Normal Scheme of carpark is used above and the cost difference between actual site specific design and Normal Scheme for carpark is apportioned to domestic portion in Phase 3.
- The CFA of domestic portion in Phase 3 includes the additional CFA for Carpark between Normal Scheme and actual site specific design.

Exclusions :

- Project Management Costs, e.g. professional services & overheads, consultant fees and Consultant Site Staff, financing and legal costs/expense, etc.

Basis of the Estimate :

Refer Summary Sheet of each Phase

Prepared by : QS/CI (Wilson Chan)

Date : 18-Nov-02

**Summary of Cost Apportionment
of Commonly Shared Elements in Site Development and Construction Cost Estimate No. 3**

PROJECT : Redevelopment of Upper Ngau Tau Kok Estate Phases 2 & 3 **PHDP Code : KL33RR**

	Phase 2	Phase 3	-	Total
Total CFA (m2)	126,534	142,344		268,878
CFA of domestic portion (m2)	123,358	135,807		259,165

COST ELEMENTS	Estimated Cost in \$,000			Total (incl. fluctuation)
	Phase 2	Phase 3	-	
A. Cost Items (incl. tender price inflation) Expended under Respective Phases Before Cost Apportionment				
1 Demolition	12,436	13,990	-	26,426
2 Site Formation	-	-	-	-
3 Foundation (incl. caps)	139,954	229,988	-	369,942
4 Transfer Structures	28,008	42,424	-	70,432
5 External Works for commonly shared elements	63,563	69,365	-	132,928
6 Noise Mitigation Works	2,417	12,506	-	14,923
7 Automated Refuse Collection System	28,941	6,474	-	35,415
8 Others	-	-	-	-
Total :-	275,319	374,747	-	650,066
B. Construction Cost Estimate (incl. tender price inflation) to respective Tender-in dates				
1 Building	398,330	440,325	-	838,655
2 Building Services	84,403	90,253	-	174,656
Construction Cost Estimate (excl. commonly shared elements) :-	482,733	530,578	-	1,013,311
C. Adjustment for Costs of Common Elements Apportioned to each Phases within the Whole Development Site (see Note 1 and 3)				
1 Demolition (see Note 2)	12,436	13,990	-	26,426
2 Site Formation	-	-	-	-
3 Foundation (incl. caps) (see Note 2)	174,095	195,847	-	369,942
4 Transfer Structures	33,524	36,908	-	70,432
5 External Works for Commonly shared elements (see Note 2)	62,556	70,372	-	132,928
6 Noise Mitigation Works	7,103	7,820	-	14,923
7 Automated Refuse Collection System	16,857	18,558	-	35,415
8 Others	-	-	-	-
Total of Common Apportioned Elements :- (Phase split in %)	306,571 47.16%	343,495 52.84%	-	650,066 100%
D. Total Cost Estimate (incl. common elements apportioned across all phases within the Whole Development Site) (Item D = Item B + Item C)				
1 Demolition	12,436	13,990	-	26,426
2 Site Formation	-	-	-	-
3 Foundation (incl. caps)	174,095	195,847	-	369,942
4 Building	398,330	440,325	-	838,655
5 Building Services	84,403	90,253	-	174,656
6 Transfer Structures	33,524	36,908	-	70,432
7 External Works for Commonly shared elements	62,556	70,372	-	132,928
8 Noise Mitigation Works	7,103	7,820	-	14,923
9 Automated Refuse Collection System	16,857	18,558	-	35,415
10 Others	-	-	-	-
Total Cost Estimate for Financial Viability Assessment :- (Item B + Item C)	789,304	874,073	-	1,663,377
E. Add for Development Contingencies and Other Project Costs (see Notes 4 & 5)				
1 Development Contingencies (Included in above)	-	-	-	-
2 Other Project Costs	19,733	21,852	-	41,585
Total Cost Estimate including Development Contingencies and Other Project Costs for Financial Viability Assessment :- (Item D + Item E)	809,037	895,925	-	1,704,962

Notes :

- (1) The costs of commonly shared items expended under each phase shall be identified and the total apportioned across all phases of the same Development site (in Item C above) pro-rata on CFA basis. (The figures in the 'Total' column of Item A should be transferred to the 'Total' column of Item C and then apportioned to each Phase on a pro-rata CFA basis)
- (2) The costs of demolition, foundations and external works are apportioned to individual buildings on a pro-rata CFA basis across HA business of Phase 2 and Phase 3 of the same Development Site.
- (3) The total cost of Transfer Structure, Noise Mitigation Works and ARCS is shared among the domestic portions on a pro-rata CFA basis.
- (4) Development Contingencies are set at 2% for all non-standard domestic blocks and 5% for all other non-standard elements.
- (5) Other Project Costs are set at 2.5% of Item D.

SUMMARY OF SITE DEVELOPMENT & CONSTRUCTION COST (EXCLUDING OTHER PROJECT COSTS) BUDGET NO. 3

PHASE 2

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

	COST PORTIONS							Common Items			Total (Incl. Fluctuation)
	PRH	HOS	CP	CC	WEL	UN	GN	TS/NM	FDN	DEMO/EW	
CFA of Cost Portions (m2)	123,358			3,176							126,534
COST ITEMS	Estimated Cost in \$,000							Estimated Cost in \$,000			\$,000
A. Cost Budget At June 2002 (Excluding Other Project Costs & Tender Price Inflation)											
1.0 Site Development Costs											
1.1 Demolition Contract	-	-	-	-	-	-	-	-	-	12,436	12,436
1.2 Site Formation Contract	-	-	-	-	-	-	-	-	-	-	-
2.0 Construction Costs											
2.1 Foundation Contract	-	-	-	-	-	-	-	3,843	133,665	3,149	140,657
2.2 Building Contract											
2.21 Building (excl. building services)	379,369	-	-	20,963	-	-	-	-	-	-	400,332
2.22 Building Services	78,550	-	-	6,277	-	-	-	-	-	4,954	89,781
2.23 Transfer Structures	-	-	-	-	-	-	-	28,149	-	-	28,149
2.24 Public Transport Interchange	-	-	-	-	-	-	-	-	-	-	-
2.25 External Works for commonly shared elements	-	-	-	-	-	-	-	-	-	57,214	57,214
2.26 Noise Mitigation Works	-	-	-	-	-	-	-	2,429	-	-	2,429
2.27 Automated Refuse Collection System	-	-	-	-	-	-	-	-	-	29,086	29,086
2.3 Other Separate Contracts (incl. Softlandscape)	-	-	-	-	-	-	-	-	-	1,715	1,715
Cost Budget At June 2002 Price Level	(A)	457,919	-	-	27,240	-	-	34,421	133,665	108,554	761,799
B. Cost Estimate Projected To Proposed Dates of Tenders [Cost in Item (A) plus Cost x (v), (w), (y) or (z)]											
1.0 Site Development Costs	Total (\$M)										
1.1 Demolition Contract	\$12.436	-	-	-	-	-	-	-	-	12,436	12,436
1.2 Site Formation Contract		-	-	-	-	-	-	-	-	-	-
2.0 Construction Costs											
2.1 Foundation Contract	\$139.954	-	-	-	-	-	-	3,824	132,997	3,133	139,954
2.2 Building Contract	\$603.956										
2.21 Building (excl. building services)		377,472	-	-	20,858	-	-	-	-	-	398,330
2.22 Building Services		78,157	-	-	6,246	-	-	-	-	4,929	89,332
2.23 Transfer Structures		-	-	-	-	-	-	28,008	-	-	28,008
2.24 Public Transport Interchange		-	-	-	-	-	-	-	-	-	-
2.25 External Works for commonly shared elements		-	-	-	-	-	-	-	-	56,928	56,928
2.26 Noise Mitigation Works		-	-	-	-	-	-	2,417	-	-	2,417
2.27 Automated Refuse Collection System		-	-	-	-	-	-	-	-	28,941	28,941
2.3 Other Separate Contracts (incl. Softlandscape)	\$1.706	-	-	-	-	-	-	-	-	1,706	1,706
Cost Budget Projected To Proposed Dates Of Tenders	\$758.052	(B)	455,629	-	27,104	-	-	34,249	132,997	108,073	758,052

Types of Contract

Demolition
Site Formation
Foundation

Tender In Dates

11/2002

02/2004

03/2005

Adjustment for months after June 2002

no adjustment as estimate cost based on Tender in date price level

6 Months x -1 % / 12 =

14 Months x 0 % / 12 =

6 Months x -1 % / 12 =

27 Months x 0 % / 12 =

(v)

(w)

-0.0050

0.0000

-0.0050 (y)

0.0000

-0.0050 (z)

Legend for Cost Portions :

PRH - Public Rental Housing
HOS - Home Ownership Scheme
CC - Commercial (Shopping) Centre

CP - Carpark
WEL - Welfare & Community Facilities
GN - Government non-reimbursable

UN - Unallocable
TS/NM - Transfer Structure/Noise Mitigation Works
DEMO/EW - Demolition Works/External Works
FDN - Foundations

Construction Cost Budget No. 3 (Domestic Blocks: Public Rental Housing Portion)
Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	No. of Flats	Estimated Cost		TOTAL
		Foundation (Incl/ Excl * Caps) See note 1	Building (Incl/ Excl * Caps)	
1.0 Standard Blocks (Not Used)				
(a) Non-standard Domestic blocks				
(b) Building Services				
Cost m2 CFA x CFA = Sub-Total (A) (Total CFA = _____ m2)			\$'000	-
2.0 Adjustments to Item 1.0 Above			\$'000	-
Sub-Total (B)				-
3.0 Non-Standard Blocks			\$'000	
(a) Non-standard Domestic blocks (Block No. 4, 47 domestic Storeys; Block No. 5, 44 domestic Storeys; Block No. 6, 39 domestic Storeys) Total Non-standard block CFA : 123,358 m2			371,930	371,930
- 1P/2P Flat/Unit (Av. 34.96 m2 CFA per Flat)	872			
- 2P/3P Flat/Unit (Av. 45.78 m2 CFA per Flat)	260			
- 1B Flat/Unit (Av. 57.51 m2 CFA per Flat)	985			
- 2B Flat/Unit (Av. 72.61 m2 CFA per Flat)	335			
	2,452			
(b) Building Services			77,010	77,010
Sub-Total (C)		-	448,940	448,940 (\$3,639/m2 CFA) (\$183,091per Flat)
4.0 Development Contingency 2%			\$'000	
(a) All non-standard blocks and all standard block elements other than superstructure			8,979	8,979
Sub-Total (D)		-	8,979	8,979
Total Cost of Domestic Block - Public Rental Housing Portion at June 2002 Price Level = (A) + (B) + (C) + (D) (including Provisions for Contract Fluctuations)			457,919	457,919 (\$3,712/m2 CFA) (\$186,753per Flat)

Notes

(1) See separate sheet for foundation cost.

Construction Cost Budget No. 3 (Commercial Centre Portion)

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	CFA (m2)	Estimated Cost		TOTAL
		Foundation (Incl/ Excl * Caps) See note 4	Building (Incl/ Excl * Caps)	
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Difference between Actual Design (item 1.0 above) and Cost Yardsticks/Cost Ceiling/Budget due to the following :- (The price levels of item 1.0 and the June Cost Yardstick should be the same)	Foundation (Incl/ Excl * Caps)	Building (Incl/ Excl * Caps)	TOTAL
(a) Addition for adjustment of single storey comercial complex	-	3,477	3,477
(b) Addition for loading/unloading area	-	84	84
(c) Addition for DCMBI P23/02	-	30	30
(d)			

Notes

- (1) Commercial centre is of Type D standard.
- (2) Provision of A/C is not required.
- (3) Estimated Cost for Commercial Centre based on yardstick.
- (4) See separate sheet for foundation cost.

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Foundation (Incl/ Excl * Caps)	Others	
1.0 Foundations based on Actual Design	\$,000.00		
(a) Allow for piling and pile caps to domestic blocks and commercial centre	127,300	-	127,300
Sub-Total (A)	127,300	-	127,300
2.0 Development Contingency (%)	\$,000.00		
	6,365	-	6,365
Sub-Total (B)	6,365	-	6,365
Total Cost of Foundations at June 2002 Price Level = (A) + (B)	133,665	-	133,665

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Building	Others	
1.0 Transfer Structures based on Actual Design	\$,000.00		
(a) Transfer structure below Domestic Blocks (including the additional cost of structural frames of commercial centre to accommodate domestic block above)	26,809	-	26,809
Sub-Total (A)	26,809	-	26,809
2.0 Development Contingency (3%)	\$,000.00		
	1,340	-	1,340
Sub-Total (B)	1,340	-	1,340
Total Cost of Transfer Structures at June 2002 Price Level = (A) + (B) (including Provisions for Contract Fluctuations)	28,149	-	28,149

Notes

Site Development Cost Budget No. 3

(Demolition Works Commonly Shared Across Phases of the Development and Amongst Various HA Businesses)

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Cost at Tender Price Level	Estimated Cost		TOTAL
	Demolition/	Others	
1.0 <u>Estimated Cost for Demolition Works</u>	<----- \$,000.00 ----->		
(a) Demolition of existing buildings	11,844	-	11,844
Sub-Total (A)	11,844	-	11,844
2.0 <u>Development Contingency (3%)</u>	<----- \$,000.00 ----->		
	592	-	592
Sub-Total (B)	592	-	592
Total Cost of Demolition Works at Tender Price Level = (A) + (B)	<----- \$,000.00 ----->		
	12,436	-	12,436

Notes

- The requirement in DCMBI No. P11/02 is not implemented.
- The cost above is the apportioned cost based on CFA of Phase 2 & 3.

Project : Redevelopment of Upper Ngau Tau Kok Phase 2 (PHDP Code : KL33RR)

Total GEA = 16,428 m²; Total CFA = 126,534 m²; Total LAA = 9,560 m²

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Foundation (Incl/ Excl * Caps)	Building (Incl/ Excl * Caps)	
1.0 External Works	<	\$,000.00	>
(a) Hard Landscape Works (Amenities)	-	20,046	20,046
(b) Underground Drainage	-	10,797	10,797
(c) Building Services	-	1,926	1,926
Sub-total (A)	-	32,769	32,769 (\$259/m ² CFA) (\$1,995/m ² GEA)
2.0 Additional Special External Works	<	\$,000.00	>
(a) Footpath widening Along On Tak Road	-	831	831
(b) Taxi & GMS layby at On Tak Road	-	600	600
(c) Retaining wall at open landscape	-	5,300	5,300
(d) Escalator & Lift Tower to open area	200	4,974	5,174
(e) Bell Tower and Viewing Platform	969	1,236	2,205
(f) Footbridge and lift tower to Phase 1	-	7,716	7,716
(g) Suspended podium for open area	1,830	1,400	3,230
(h) Connection work to other phases	-	250	250
(i) Noise barrier along On Tak Road (see note 1)	-	-	0
(j) Art work/sculptures and heritage preservation	-	779	779
(k) Feature wall in front of Commercial Centre	-	2,006	2,006
(l) Slope protection under suspended slab	-	1,300	1,300
(m) Allow for DCMBI P23/02 (EMP)	-	47	47
Sub-total (B)	2,999	26,439	29,438 (\$233/m ² CFA) (\$1,792/m ² GEA)
3.0 Development Contingency (%)	150	2,960	3,110
Sub-total (C)	150	2,960	3,110 (\$25/m ² CFA) (\$189/m ² GEA)
Total Cost of Commonly Shared External Works at June 2002 Price Level = (A) + (B) + (C) (including Provisions for Contract Fluctuations)	3,149	62,168	65,317 (\$516/m ² CFA) (\$3,976/m ² GEA)

4.0 Cost of Automated Refuse Collection System at June 2002 Price Level	<	\$,000.00	>
	-	27,701	27,701
5.0 Development Contingency (%)	-	1,385	1,385
Total Cost of Automated Refuse Collection System at June 2002 Price Level = Total of Items 4.0 to 5.0 (including Provisions for Contract Fluctuations)	-	29,086	29,086 (\$230/m ² CFA) (\$1,771/m ² GEA)

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Soft Landscape	Others	
6.0 Cost of Other Separate Contracts (incl. Softlandscaping Work) at June 2002 Price Level	1,091	542	1,633
7.0 Development Contingency (%)	55	27	82
Total Cost of Other Separate Contracts (including Softlandscaping Works) at June 2002 Price Level Price Level = Total of Items 6.0 to 7.0	1,146	569	1,715 (\$14/m ² CFA) (\$104/m ² GEA)

Notes

(1) Cost of noise barrier along On Tak Road is to be apportioned to domestic blocks only.

Construction Cost Budget No. 3

(Noise Mitigation Works - Commonly Shared Across Phases of the Development and Amongst Domestic Portions)

Project : Redevelopment of Upper Ngau Tau Kok Phase 2

(PHDP Code : KL33RR)

Cost at June 2002 Price Level	COST PORTIONS					TOTAL
	PRH		CC	CP	WEL	
	Foundation (Incl/ Excl * Caps)	Building (Incl/ Excl * Caps)				
1.0 <u>Noise Mitigation Works based on Actual Design</u>	<			\$,000.00		>
(a) Noise barrier along On Tak Road	3,660	1,663	-	-	-	5,323
(b) Provision of window A/C units to domestic blocks	-	669	-	-	-	669

Notes

(1) Cost of noise barrier along On Tak Road and window A/C units is to be apportioned to domestic blocks only.

SUMMARY OF SITE DEVELOPMENT & CONSTRUCTION COST (EXCLUDING OTHER PROJECT COSTS) BUDGET NO. 3

PHASE 3

Project: Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code: KL33RR)

	COST PORTIONS								Common Items			Total (Incl. Fluctuation)
	PRH	HOS	CP (PC)	CP (LGV)	CC	WEL	UN	GN	TS/NM	FDN	DEMO/EW	
CFA of Cost Portions (m2)	135,807	-	4,026 (Note 1)	1,674 (Note 1)	-	837	-	-	-	-	-	142,344
COST ITEMS	Estimated Cost In \$,000											\$,000
A. Cost Budget At June 2002 (Excluding Other Project Costs & Tender Price Inflation)												
1.0 Site Development Costs												
1.1 Demolition Contract	-	-	-	-	-	-	-	-	-	-	13,990	13,990
1.2 Site Formation Contract	-	-	-	-	-	-	-	-	-	-	-	-
2.0 Construction Costs												
2.1 Foundation Contract	-	-	-	-	-	-	-	-	5,987	221,836	3,321	231,144
2.2 Building Contract												
2.21 Building (excl. building services)	415,739	-	14,635	7,350	-	4,814	-	-	-	-	-	442,538
2.22 Building Services	87,186	-	2,156	920	-	445	-	-	-	-	5,679	96,386
2.23 Transfer Structures	-	-	-	-	-	-	-	-	42,637	-	-	42,637
2.24 Public Transport Interchange	-	-	-	-	-	-	-	-	-	-	-	-
2.25 External Works for commonly shared elements	-	-	-	-	-	-	-	-	-	-	62,424	62,424
2.26 Noise Mitigation Works	-	-	-	-	-	-	-	-	12,569	-	-	12,569
2.27 Automated Refuse Collection System	-	-	-	-	-	-	-	-	-	-	6,507	6,507
2.3 Other Separate Contracts (incl. Soft landscape)	-	-	-	-	-	-	-	-	-	-	1,610	1,610
Cost Budget At June 2002 Price Level	(A)	502,925	-	16,791	8,270	-	5,259	-	61,193	221,836	93,531	909,805
B. Cost Estimate Projected To Proposed Dates of Tenders [Cost in Item (A) plus Cost x (v), (w), (y) or (z)]												
1.0 Site Development Costs	Total (\$M)											
1.1 Demolition Contract	\$13,990	-	-	-	-	-	-	-	-	-	13,990	13,990
1.2 Site Formation Contract	-	-	-	-	-	-	-	-	-	-	-	-
2.0 Construction Costs												
2.1 Foundation Contract	\$229,988	-	-	-	-	-	-	-	5,957	220,727	3,304	229,988
2.2 Building Contract	\$659,745											
2.21 Building (excl. building services)		413,660	-	14,562	7,313	-	4,790	-	-	-	-	440,325
2.22 Building Services		86,750	-	2,145	915	-	443	-	-	-	5,651	95,904
2.23 Transfer Structures		-	-	-	-	-	-	-	42,424	-	-	42,424
2.24 Public Transport Interchange		-	-	-	-	-	-	-	-	-	-	-
2.25 External Works for commonly shared elements		-	-	-	-	-	-	-	-	-	62,112	62,112
2.26 Noise Mitigation Works		-	-	-	-	-	-	-	12,506	-	-	12,506
2.27 Automated Refuse Collection System		-	-	-	-	-	-	-	-	-	6,474	6,474
2.3 Other Separate Contracts (incl. Soft landscape)	\$1,602	-	-	-	-	-	-	-	-	-	1,602	1,602
Cost Budget Projected To Proposed Dates of Tenders	\$905,325	(B)	500,410	-	16,707	8,228	-	5,233	60,887	220,727	93,133	905,325

Notes
(1) Areas of CP(PC) and CP(LGV) are based on actual site specific design

Types of Contract

Demolition
Site Formation
Foundation

Tender In Dates

11/2002
-
12/2003
-
01/2005

Adjustment for months after June 2002

no adjustment as estimate cost based on Tender in date price level (v)
- (w)
6 Months x -1 % / 12 = -0.0050
12 Months x 0 % / 12 = 0.0000 -0.0050 (y)
6 Months x -1 % / 12 = -0.0050
25 Months x 0 % / 12 = 0.0000 -0.0050 (z)

Legend for Cost Portions :

PRH - Public Rental Housing
HOS - Home Ownership Scheme
CC - Commercial (Shopping) Centre
FDN - Foundation of Building

CP (PC) - Carpark (Private Car)
CP (LGV) - Carpark (Light Goods Vehicle)
WEL - Welfare & Community Facilities
GN - Government non-reimbursable

UN - Unallocable
TS/NM - Transfer Structure/ Noise Mitigation Works
DEMO/EW - Demolition Works/External Works

Construction Cost Budget No. 3 (Domestic Blocks: Public Rental Housing Portion)

Project : Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	No. of Flats	Estimated Cost		TOTAL
		Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	
1.0 Standard Blocks (Not Used)				
Cost m2 CFA x CFA = Sub-Total (A) (Total CFA = _____ m2)		-	-	-
2.0 Adjustments to Item 1.0 Above		-	-	-
Sub-Total (B)		-	-	-
3.0 Non-Standard Blocks				
Total CFA : 135,807 m2				
(a) Non-standard Domestic Blocks (Builder's works) (Block No. 1, 48 Domestic Storeys; Block No. 2, 45 Domestic Storeys; Block No. 3, 38 Domestic Storeys)			402,565	402,565
Total Non-standard block CFA 135,046 m2				
<ul style="list-style-type: none"> 1P/2P Flat/Unit (Av. 35.86 m2 CFA per Flat) 872 2P/3P Flat/Unit (Av. 46.28 m2 CFA per Flat) 249 1B Flat/Unit (Av. 58.70 m2 CFA per Flat) 738 2B Flat/Unit (Av. 73.03 m2 CFA per Flat) 481 3B Flat/Unit (Av. 87.39 m2 CFA per Flat) 158 		2498		
(b) Ancillary Facilities (Builder's Works) (EMO, cleansing Contractor's Office & maintenance service / store room)			5,023	5,023
<div style="text-align: right;">CFA(m2)</div> EMO 458 Cleansing contractor's office & 303 Maintenance service / store room Total CFA (m2) 761				
(d) Building services for non-standard domestic blocks			84,237	84,237
(e) Building services for ancillary facilities			1,239	1,239
Sub-Total (C)		-	493,064	493,064
				(\$3,631/m2 CFA) (\$197,384per Flat)
4.0 Development Contingency (m2)				
			9,861	9,861
Sub-Total (D)		-	9,861	9,861
Total Cost of Domestic Block - Public Rental Housing Portion at June 2002 Price Level = (A) + (B) + (C) + (D) (Including Provisions for Contract Fluctuations)		-	502,925	502,925
				(\$3,703/m2 CFA) (\$201,331per Flat)

Notes

- (1) Ancillary facilities are grouped under domestic portion.
(2) See separate sheet for foundation cost.

Construction Cost Budget No. 3 (Welfare Portion)

Project : Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	CFA (m2)	Estimated Cost		TOTAL
		Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	
		←-----\$'000-----→		
1.0 Welfare Facilities (other Building)				
(a) Welfare facilities (Builder's works ; no fitting out included)	837	-	4,585	4,585
(b) Building Services		-	424	424
(c) Fitting Out for Welfare Facilities (Total area to be fitted out = 0 m2		-	-	-
2.0 Other Adjustments for Item 1.0 Above NIL				
3.0 Development Contingency (5% on non-standard works/elements)		-	250	250
Total Cost of Welfare Portion at June 2002 Price Level = Total of Items 1.0 to 3.0 (including Provisions for Contract Fluctuations)			5,259	5,259 (\$6,283/m2 CFA)

Note

Remarks

1. Welfare Portion includes the following :
Children & Youth Centre 837 m2 CFA

+

Construction Cost Budget No. 3 (Carpark Portion - Private Car)

Project : Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	Space (No.)	Estimated Cost		TOTAL
		Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	
1.0 Carpark - Private Car (Integrated with Domestic Blocks) based on Actual Site Specific Design		←\$'000→		
(a) Carpark Portion - Private Car (Builder's Works)		-	12,225	12,225
- private car	97			
- motorcycle	10			
	107			
(b) Adjustments for single and two-storey carpark		-	1,700	1,700
(c) Building Services		-	2,053	2,053
(d) Cost for provision of Environmental Management Plans (DCMBI P23/02)		-	13	13
Sub-total (A)		-	15,991	15,991
Total CFA based on Actual Site specific Desig <u>4,026</u> m2 (see note 1)		Private car (\$3,972/m2 CFA)		
Average CFA per private car space = <u>41</u> m2		(\$161,580per Space)		
Average CFA per motorcycle space = <u>8</u> m2		11.16% over/under that calculated based on Standard Yardsticks		
		Motorcycle (\$3,972/m2 CFA)		
		(\$31,775per Space)		
2.0 Development Contingency (5% on non-standard works/elements)		←\$'000→		
		-	800	800
Total Cost of Carpark Portion - Private Car based on Actual Site Specific Design at June 2002 Price Level = Total of Items 1.0 and 2.0 (including Provisions for Contract Fluctuations)		-	16,791	16,791
		Private car (\$4,171/m2 CFA)		
		(\$169,663per Space)		
		Motorcycle (\$4,171/m2 CFA)		
		(\$33,365per Space)		

3.0 Difference between Actual Site Specific Design (Item 1.0 and 2.0 above) and Normal Scheme	Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	TOTAL
\$'000			
Normal Scheme (two-storey freestanding carpark building) (CFA = 3,475m2)			
(a) Carpark Portion - Private Car	-	10,934	10,934
(b) Carpark Portion - Motorcycle	-	258	258
(b) Adjustments for 2 - storey carpark	-	1,362	1,362
(c) Cost for provision of Environment Management Plans (DCMBI P23/02)	-	9	9
(d) Development Contingency (5% on non-standard works/elements)	-	628	628
Sub-total (B)	-	13,191	13,191
\$'000			
Difference between Actual Site Specific Design and Normal Scheme at June 2002 Price level = Total of Items 1.0 and 2.0 - (B) (including Provisions for Contract Fluctuations)	-	3,600	3,600

Notes

- (1) The area of 4,026m2 consists of 3,946m2 and 80m2 for private car and motorcycle respectively.
- (2) The Normal Scheme is a two-storey freestanding carpark building with 97 private car spaces (33m2 each), 10 motorcycle spaces (8m2 each) and 20 light goods vehicle spaces (60m2 each).
- (3) The estimate for the Normal Scheme is based on yardsticks.
- (4) See separate sheet for foundation cost.

Construction Cost Budget No. 3 (Carpark Portion - Light Goods Vehicle)

Project : Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)

Cost at June 2002 Price Level	Space (No.)	Estimated Cost		TOTAL
		Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	
		-----\$'000----->		
1.0 Carpark - Light Goods Vehicle (Integrated with Domestic Blocks) based on Actual Site Specific Design				
(a) Carpark Portion - Light Goods Vehicle (Builder's Works)	20	-	6,994	6,994
(b) Building Services		-	876	876
(c) Cost for provision of Environmental Management Plans (DCMBI P23/02)		-	6	6
Sub-total (A)		-----\$'000----->		
(Total CFA based on Actual Site specific Design <u>1,674</u> m2 & Average CFA per carparking space = <u>84</u> m2)			7,876	7,876
				(\$4,705/m2 CFA) (\$393,800per Space) 11.91% over/under that calculated based on Standard Yardsticks
2.0 Development Contingency (3% on non-standard works/elements)		-----\$'000----->		
		-	394	394
Total Cost of Carpark Portion - Light Goods Vehicle based on Actual Site Specific Design at June 2002 Price Level = Total of Items 1.0 and 2.0 (Including Provisions for Contract Fluctuations)			8,270	8,270
				(\$4,940/m2 CFA) (\$413,500per Space)

3.0 Difference between Actual Site Specific Design (Item 1.0 and 2.0 above) and Normal Scheme	Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	TOTAL
	-----\$'000----->		
<u>Normal Scheme (two-storey freestanding carpark building)</u> (CFA = 1,200m2)			
(a) Carpark Portion - Light Goods Vehicle	-	4,272	4,272
(b) Adjustments for 2 - storey carpark	-	470	470
(c) Cost for provision of Environment Management Plans (DCMBI P23/02)	-	4	4
(d) Development Contingency (5% on non-standard works/elements)	-	237	237
	-----\$'000----->		
Sub-total (B)	-	4,983	4,983
	-----\$'000----->		
Difference between Actual Site Specific Design and Normal Scheme at June 2002 Price level = Total of Items 1.0 and 2.0 - (B) (including Provisions for Contract Fluctuations)	-	3,287	3,287

Notes

- (1) The Normal Scheme is a two-storey freestanding carpark building with 97 private car spaces (35m2 each), 10 motorcycle spaces (8m2 each) and 20 light goods vehicle spaces (60m2 each).
- (2) The estimate for the Normal Scheme is based on yardsticks.
- (3) See separate sheet for foundation cost.

Construction Cost Budget No. 3 (Foundations - Commonly Shared Across Phases of the Development and Amongst Various HA Businesses)

Project : **Redevelopment of Upper Ngau Tau Kok Estate Phase 3** **(PHDP Code : KL33RR)**

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Foundation (Incl/ Excl Caps)	Others	
1.0 Foundations based on Actual Design	<div><----- \$,000.00 -----></div>		
(a) Allow for foundations to domestic blocks and podium	211,272	-	211,272
Sub-Total (A)	211,272	-	211,272
2.0 Development Contingency <i>(5% on non-standard works/elements)</i>	<div><----- \$,000.00 -----></div>		
	10,564	-	10,564
Sub-Total (B)	10,564	-	10,564
Total Cost of Foundations at June 2002 Price Level = (A) + (B)	<div><----- \$,000.00 -----></div>		
	221,836	-	221,836

Notes

Construction Cost Budget No. 3 (Transfer Structures - Commonly Shared Across Phases of the Development and Amongst Domestic Portions)

Project : **Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)**

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Building	Others	
1.0 <u>Transfer structure based on Actual Design</u>	<div>←----- \$,000.00 -----→</div>		
(a) Transfer structure below domestic blocks (including the additional cost for structural frame of podium to accommodate domestic blocks above)	40,607		40,607
Sub-Total (A)	40,607	-	40,607
2.0 <u>Development Contingency</u> <small>(5% on non-standard works/elements)</small>	<div>←----- \$,000.00 -----→</div>		
	2,030	-	2,030
Sub-Total (B)	2,030	-	2,030
Total Cost of Transfer Structures at June 2002 Price Level = (A) + (B) (including Provisions for Contract Fluctuations)	<div>←----- \$,000.00 -----→</div>		
	42,637		42,637

Notes

Site Development Cost Budget No. 3

(Demolition Works - Commonly Shared Across Phases of the Development and Amongst Various HA Businesses)

Project : Redevelopment of Upper Ngau Tau Kok Estate Phase 3 (PHDP Code : KL33RR)

Cost at Tender Price Level	Estimated Cost		TOTAL
	Demolition	Others	
1.0 Estimated Cost for Demolition Works	<----- \$,000.00 ----->		
(a) Demolition of existing buildings	13,324	-	13,324
Sub-Total (A)	13,324	-	13,324
2.0 Development Contingency <small>(5% on non-standard works/elements)</small>	<----- \$,000.00 ----->		
	666	-	666
Sub-Total (B)	666	-	666
Total Cost of Demolition Works at Tender Price Level = (A) + (B)	<----- \$,000.00 ----->		
	13,990	-	13,990

Notes

- (1) The requirement in DCMBI No. P11/02 is not implemented.
- (2) The cost above is the apportioned cost based on the CFA of Phases 2 and 3.

Construction Cost Budget No. 3 (External Works - Commonly Shared Across Phases of the Development and Amongst Various HA Businesses)

Project : **Redevelopment of Upper Ngau Tau Kok Estate Phase 3** **(PHDP Code : KL33RR)**

Total GEA = 13,820 m2; **Total CFA=** 142,344 m2; **Total LAA** 5,132 m2

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)	
1.0 External Works (Incl. Contract Price Fluctuations)	\$,000.00		
(a) Hard Landscape Works (Amenities)	-	30,055	30,055
(b) Underground Drainage	-	8,381	8,381
Sub-total (A)	-	38,436	38,436 (\$270/m2 CFA) (\$2,781/m2 GEA)
2.0 Additional Special External Works (Incl. Contract Price Fluctuations)	\$,000.00		
(a) Footpath widening along On Tak Road	-	481	481
(b) Retaining walls / screen walls in open landscaped area	-	6,874	6,874
(c) Suspended podium structure for open area	-	2,541	2,541
(d) Shuttle lift towers	2,194	10,301	12,495
(e) Art work/sculptures and heritage preservation	-	250	250
(f) Slope protection under suspended slab	-	1,445	1,445
(g) Bell tower	969	741	1,710
(h) Paving reinstatement	-	1,105	1,105
(i) Cost for provision of Environmental Mangement Plans (DCMBI P23/02)	-	40	40
(j) Additional allowance for Building Services	-	2,396	2,396
(k) Allow for connection works to the other phase	-	250	250
Sub-total (B)	3,163	26,424	29,587 (\$208/m2 CFA) (\$2,141/m2 GEA)
3.0 Development Contingency (1% on non-standard works/elements)	158	3,243	3,401
Sub-total (C)	158	3,243	3,401 (\$24/m2 CFA) (\$246/m2 GEA)
Total Cost of Commonly Shared External Works at June 2002 Price Level = (A) + (B) + (C) (Including Provisions for Contract Fluctuations)	3,321	68,103	71,424 (\$502/m2 CFA) (\$5,168/m2 GEA)

4.0 Cost of Automated Refuse Collection System at June 2002 Price Level	\$,000.00		
		6,197	6,197
5.0 Development Contingency (1% on non-standard works/elements)		310	310
Total Cost of Automated Refuse Collection System at June 2002 Price Level = Total of Items 4.0 to 5.0 (Including Provisions for Contract Fluctuations)		6,507	6,507 (\$46/m2 CFA) (\$471/m2 GEA)

Cost at June 2002 Price Level	Estimated Cost		TOTAL
	Soft Landscape	Others	
6.0 Cost of Other Separate Contracts (Incl. Soft Landscaping Work) at June 2002 Price Level	1,059	474	1,533
7.0 Development Contingency (1% on non-standard works/elements)	53	24	77
Total Cost of Other Separate Contracts (Including Soft Landscaping Works) at June 2002 Price Level = Total of Items 6.0 to 7.0 (Including Provisions for Contract Fluctuations)	1,112	498	1,610 (\$11/m2 CFA) (\$116/m2 GEA)

Construction Cost Budget No. 3 (Noise Mitigation - Commonly Shared Across Phases of the Development and Amongst Domestic Portions)

Project : **Redevelopment of Upper Ngau Tau Kok Estate Phase 3** (PHDP Code : KL33RR)

Cost at June 2002 Price Level	COST PORTIONS					TOTAL
	PRH		CC	CP	WEL	
	Foundation (Incl/ Excl Caps)	Building (Incl/ Excl Caps)				
1.0 Noise Mitigatin Works based on Actual Design	← \$,000.00 →					
(a) Noise barriers	5,702	8,054	-	-	-	13,756
(b) Provision of window A/C units	-	3,896	-	-	-	3,896
(b) Cost for provision of Environmental Mangement Plans (DCMBI P23/02)	-	20	-	-	-	20
Sub-Total (A)	5,702	11,970	-	-	-	17,672
3.0 Development Contingency (5% on non-standard works/elements)	← \$,000.00 →					
	285	599	-	-	-	884
Sub-Total (B)	285	599	-	-	-	884
Total Cost of Noise Mitigation Works at June 2002 Price Level = (A) + (B) (including Provisions for Contract Fluctuations)	← \$,000.00 →					
	5,987	12,569	-	-	-	18,556

Note

The cost of noise barrier and window A/C units is to be apportioned to domestic portion only.