GoldRich PLANNERS & SURVEYORS LTD.

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Your Ref.: A/NE-SSH/155　　　　　Our Ref.: P23055B/TL24327　　　　　24　June　2024

The Secretary　　　　　　　　　　　　　　　　　　　By　Post　and　E-mail
Town Planning Board　　　　　　　　　　　　　　　tpbpd@pland.gov.hk
15/F., North Point Government Offices
333 Java Road, North Point, Hong Kong

Dear Sir,

Submission of Further Information

Proposed Temporary Private Vehicle Park (Private Cars) for a Period of 3 Years in "Village Type Development" Zone, Lot Nos. 537 (Part), 538 (Part), 540 S.A (Part) and 541 S.A (Part) in D.D. 218, Ma Kwu Lam Village, Sai Kung North, New Territories

We would like to submit further information to respond to the comments from Drainage Services Department dated 31.5.2024.

Yours faithfully,
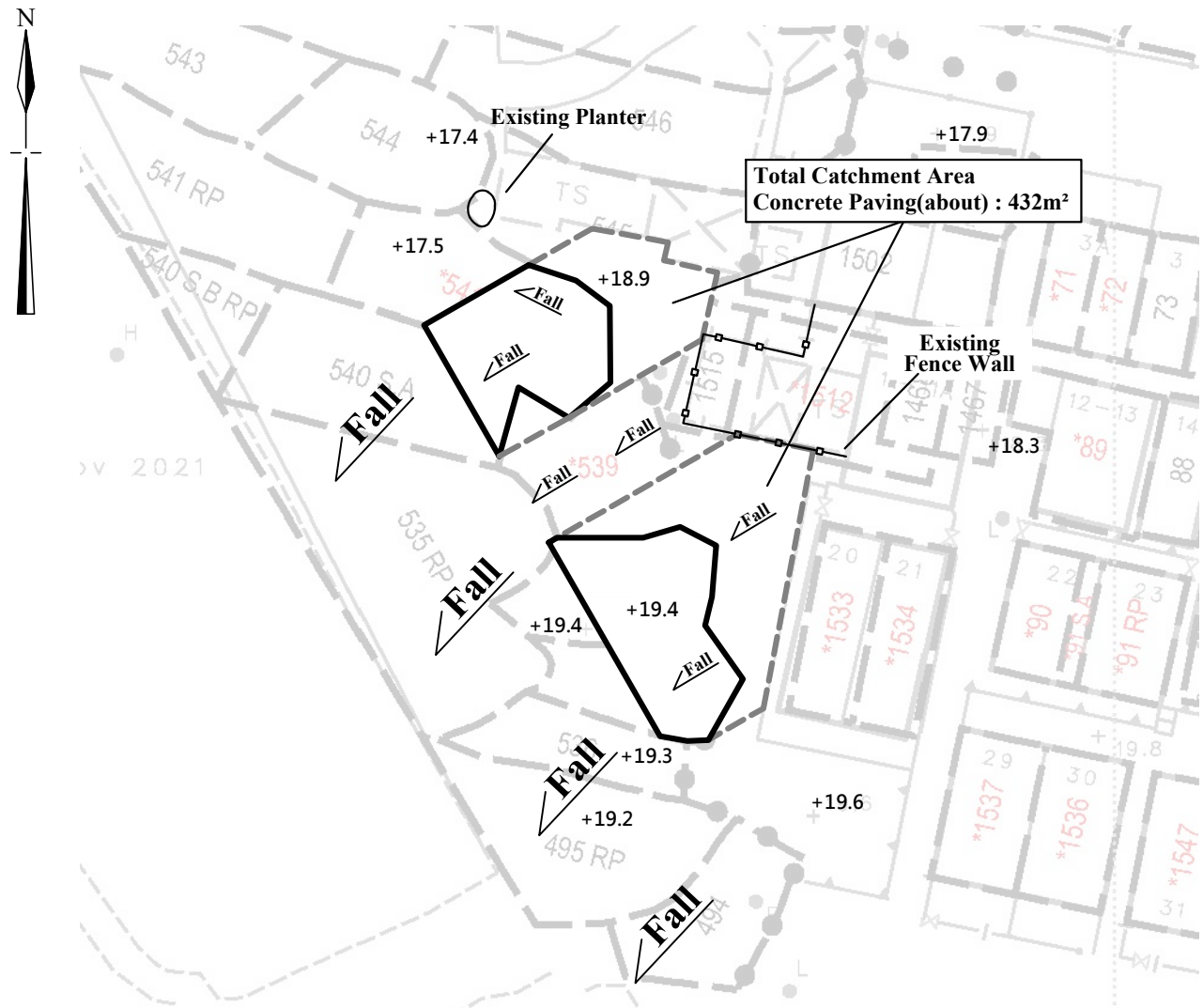For and on behalf of
Goldrich Planners & Surveyors Ltd.
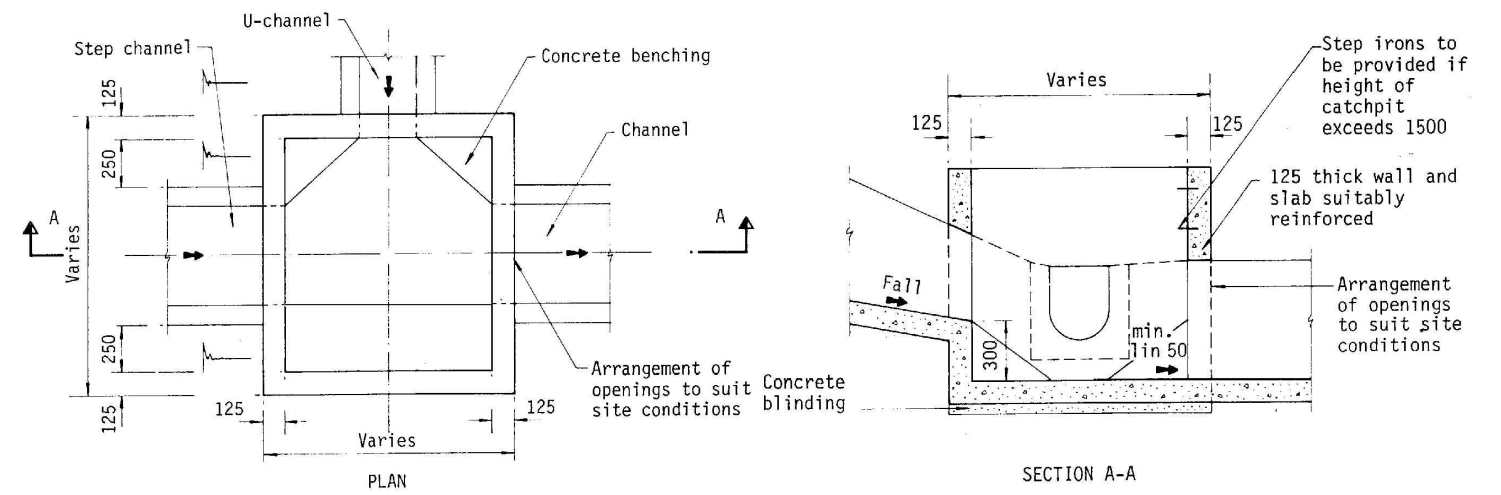
Francis Lau

Encl.

Further Information (4) for Planning Application Nos. A/NE-SSH/155
Response-to-Comment

Comments from Drainage Services Department received on 31.5.2024

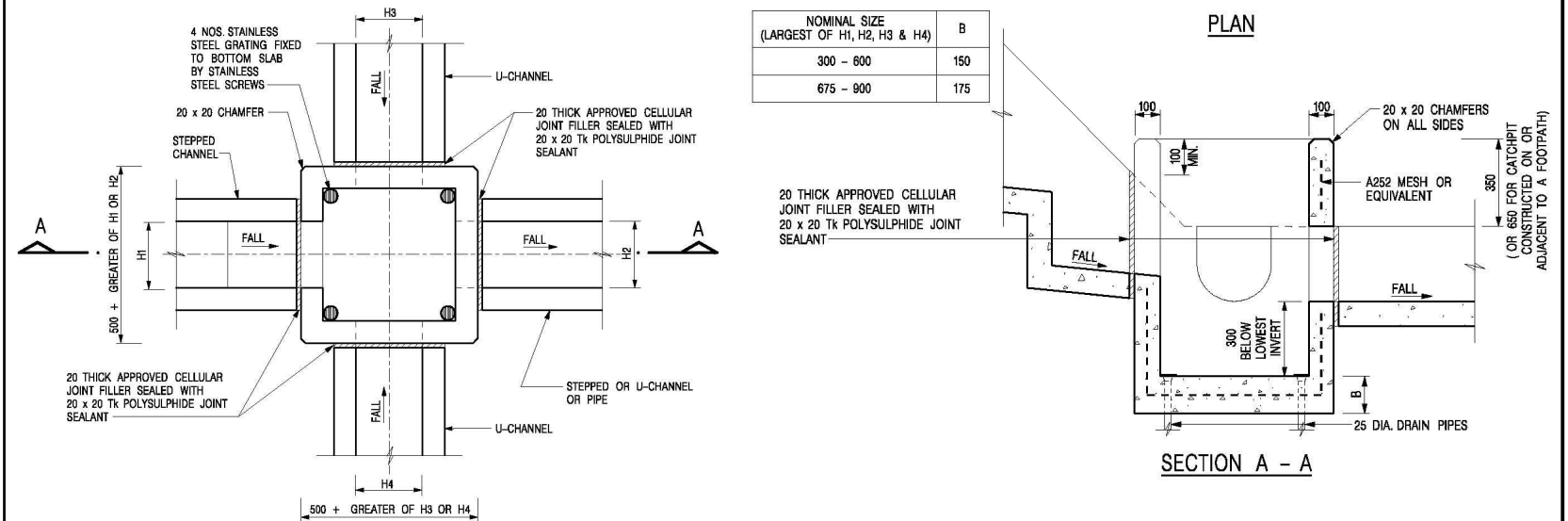Contact person: Mr. Justin LAU (Tel.: 2300 1545)

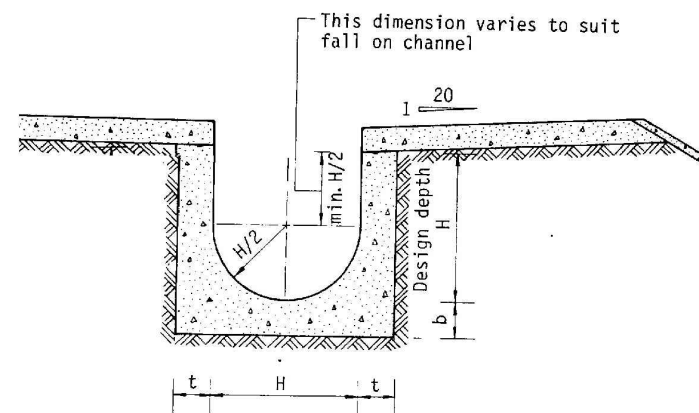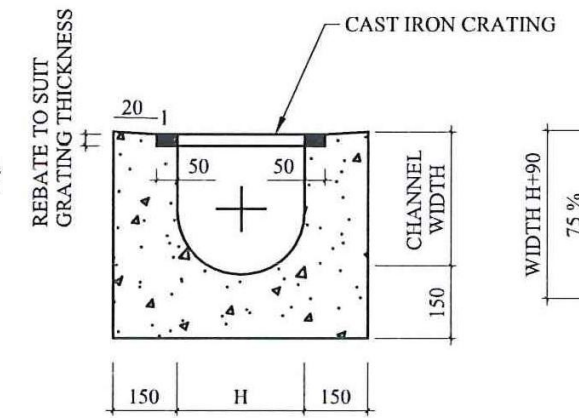| I.	Comment	Response
(a)	Supporting calculations to demonstrate that the proposed drainage system and the existing downstream drain/channel has adequate capacity to convey the runoff to be discharged arising from the proposed development. (Checking for existing 250UC and its downstream for SSH_155)	Please refer to attached drainage calculations for details.
(b)	Please justify your proposed catchment area. (Please provide support evidence for all directions of the sites)	Ground levels of surrounding area are indicated on Plan 4.2a to justify the proposed catchment area.
(c)	The drainage flow path from the development to the public drainage system / streamcourse / sea / any recognized drainage facilities should be provided in association with supporting site photos for the captioned submission. (Please provide downstream information of existing250UC for SSH_155).	Please refer to the attached site photo showing the drainage flow path to local village drainage facilities.
(d)	The lot owners/developers are required to rectify/modify the drainage systems if they are found to be inadequate or ineffective during operation. The lot owners/developers shall also be liable for and shall indemnify Government against claims and demands arising out of damage or nuisance caused by failure of the systems.	Noted.
(e)	The lot owners/developers shall resolve any conflict/disagreement with relevant lot owner(s) and seek LandsD's permission for laying new drains/channels and /or modifying/upgrading existing ones in other private lots or on Government land (where required) outside the application site(s).	Noted.

Connection details of proposed outfall between CP2 and CP3

Catch-pit (CP3)

Proposed 250 Covered UC 1:200 (250 width, min. 250 depth)

Catch-pit with trap (CP2)

Proposed 250 UC with C.I cover 1:200 (250 width, min. 250 depth)

+19.2
+19.3
+18.44
+18.41
300 mm
fall 1:200
300 mm
300 mm
5m

(N. T. S.)

N

Fall

Proposed 300mm UC 1:200

Proposed 300mm UC 1:200

547
543
544
541 RP
540 S.B RP
540 S.
535 RP
546
TS
545
555
551
554
1502
1515
1468
20
21
*1533
*1534
495 RP

Nov 2021

+17.4
+17.5

Application Site

G.L. 18.9
I.L. 18.65

CP1
G.L. 18.86
I.L. 18.60

Proposed 250mm UC 1:200
Fall

Proposed 250mm UC with C.I. cover 1:200

Proposed 250mm covered UC 1:200

Fall
Fall
Fall
Fall

Proposed 250mm Covered UC 1:200

Proposed 250mm UC with C.I. cover 1:200

+19.4
Fall

G.L. 19.4
I.L. 18.48

Proposed 250mm UC 1:200

Existing 300mm UC 1:200

Existing 300mm UC 1:200

CP3
G.L. 19.2
I.L. 18.41

CP2
G.L. 19.3
I.L. 18.44

A1
+19.6

Legend

⊠ Proposed Catch-pit

▢ Proposed Catch-pit with trap

—— Proposed U-Channel

- - - Proposed Covered U-Channel

+|+|+| U-Channel with C.I. cover

⋈ Vehicular Ingress / Egress

◁ Viewpoint of Drainage Photo

Site Boundary
Site Boundary
Site Boundary
Site Boundary

Proposed 250mm U-Channel
Adjoining Portion
Proposed 250mm U-Channel

A
17.5
Fall
18.9
Fall
19.4
Fall
19.3
19.3
A1

(N.T.S)

1:300 (A3)	**Drainage Proposal**	**Goldrich Planners & Surveyors Ltd.**
April 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	**Plan 4.1a** (P 23055B)

AREA OF CATCHMENT
(N.T.S)

- N
- 543
- 544
- 541 RP
- 540 S.B RP
- Existing Planter
- +17.4
- +17.9
- +17.5
- Total Catchment Area
  Concrete Paving(about) : 432m²
- +18.9
- Fall
- Fall
- Existing Fence Wall
- 539
- +18.3
- Fall
- Fall
- Fall
- 540 GA RP
- 535 RP
- 495 RP
- +19.4
- +19.4
- Fall
- +19.3
- +19.6
- +19.2
- *1533
- *1534
- *1537
- *1536
- *1547

TYPICAL DETAILS OF CATCHPIT

Step channel — U-channel — Concrete benching — Channel — Arrangement of openings to suit site conditions — Concrete blinding

PLAN

Step irons to be provided if height of catchpit exceeds 1500 — 125 thick wall and slab suitably reinforced — Arrangement of openings to suit site conditions — Fall — min. 1 in 50 — 300

SECTION A-A

DETAILS OF CATCHPIT WITH TRAP
(REFER TO CEDD'S STANDARD DWG. C2406/1)

NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 – 600	150
675 – 900	175

PLAN

SECTION A – A

TYPICAL DETAILS OF U CHANNEL

This dimension varies to suit fall on channel

TYPICAL SECTION OF
U-CHANNEL WITH COVER
(N.T.S.)
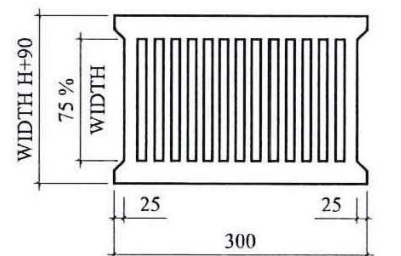
CAST IRON CRATING

CAST IRON CRATING
(HEAVY DUTY)

Title block

1:500 (A3)	**Drainage Proposal**	Goldrich Planners & Surveyors Ltd.
March 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Plan 4.2a (P 23055B)

Viewpoint 1

		Ref.
1 For Catchment Area A		**Ref.**

1 For Catchment Area A

$$\text{Area, } A = 432 \text{ m}^2$$
$$\text{Average slope, } H = 0.1 \text{ m per 100m}$$
$$\text{Distance on the line of natural flow, } L = 18.6 \text{ m}$$

$$\text{Time of concentraction, } t_o = 0.14465L / (H^{0.2}A^{0.1}) = 0.14465 (18.6) / (0.1^{0.2}*432^{0.1})$$
$$= 2.3 \text{ min}$$

SDM 7.5.2 (d)

2 For Proposed U-Channel in catchment area A

	From	To
Ground level (mPD)	18.90	19.30
Invert level (mPD)	18.65	18.44

$$\text{Width of u-channel, } w = 250 \text{ mm}$$
$$\text{Length of u-channel, } L_c = 38.4 \text{ m}$$
$$\text{Depth of vertical part of u-channel, } d = 735 \text{ mm}$$
$$\text{Gradient of u-channel, } S_f = 18.65\text{-}18.44)/38.4 = 0.005$$

$$\text{Cross-Section Area, } a = 0.5 \, \pi \, r^2 + w \, d = 0.5 \times 3.14 \times 125^2 + 250 \times 735$$
$$= 0.208 \text{ m}^2$$
$$\text{Wetted Perimeter, } p = \pi \, r + 2 \, d = 3.14 \times 125 + 2 \times 735$$
$$= 1.863 \text{ m}$$
$$\text{Hydralic radius, } R = a / p$$
$$= 0.112 \text{ m}$$

SDM 8.2.1

3 Use Manning Equation for estimating velocity of stormwater

$$\text{Take } n = 0.016 \quad \text{for concrete lined channels:-}$$
$$\text{Allowable velocity, } v = R^{1/6} \text{x} (RS_f)^{1/2}/n = (0.112)^{1/6} \times (0.112 \times 0.005)^{1/2} / 0.016$$
$$= 1.07 \text{ m/s}$$
$$\text{Time of flow, } t_f = 0.6 \text{ min}$$

SDM Table 13
SDM Table 12

4 Use "Rational Method" for calculation of design flow

$$\text{Design intensity, } i = a / (t_o + t_f + b)^c$$
$$= 505.5 / (2.3+0.6+3.29)^{0.355} \quad \text{for return period T = 50 years}$$
$$= 264$$

SDM 4.3.2
SDM Table 3(a)

Type of surface	Runoff Coefficient C	Catchment Area A (m^2)	C x A
Flat Glassland(heavy soil)	0.25	0.0	0.0
Concrete Paving	0.95	432.0	410.4
		SUM =	410.4

SDM 7.5.2 (b)

$$\text{Upstream flow, } Q_u = 0 \text{ m}^3/\text{s}$$

$$\text{Design flow, } Q_d = 0.278i \, \Sigma \, C_jA_j + Q_u \quad \text{where } A_j \text{ is in km}^2$$
$$= 0.278 \times 264 \times 410.4 / 1000000 + 0$$
$$= 0.030 \text{ m}^3/\text{s}$$

SDM 7.5.2 (a)

$$\text{Allowable flow, } Q_a = a \text{ x } v$$
$$= 0.208 \times 1.07$$
$$= 0.223 \text{ m}^3/\text{s}$$

$$> Q_d \text{ (O.K.)}$$

Reference was made to Stormwater Drainage Manual (SDM) by DSD

Scale: NA	**Drainage Calculation**	Goldrich Planners & Surveyors Ltd.
June 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Page 1 (P23055B)

	Ref.
1 For Channel Section S1	

1 For Channel Section S1

$$\text{Area, A} = 0 \text{ m}^2$$
$$\text{Average slope, H} = 0.1 \text{ m per 100m}$$
$$\text{Distance on the line of natural flow, L} = 0 \text{ m}$$

Time of concentraction, t_o = $0.14465L / (H^{0.2}A^{0.1})$ = $0.14465 (0) / (0.1\char`^0.2*0\char`^0.1)$ SDM 7.5.2 (d)
= 0.0 min

2 For Proposed U-Channel Section S1

	From	To
Ground level (mPD)	19.30	19.20
Invert level (mPD)	18.44	18.41

$$\text{Width of u-channel, w} = 250 \text{ mm}$$
$$\text{Length of u-channel, } L_c = 5 \text{ m}$$
$$\text{Depth of vertical part of u-channel, d} = 662 \text{ mm}$$
$$\text{Gradient of u-channel, } S_f = (18.44\text{-}18.41)/5 = 0.005$$

Cross-Section Area, a = $0.5\ \pi\ r^2 + w\ d$ = $0.5 \times 3.14 \times 125\char`^2 + 250 \times 662$
= 0.190 m²
Wetted Perimeter, p = $\pi\ r + 2\ d$ = $3.14 \times 125 + 2 \times 662$
= 1.717 m
Hydralic radius, R = a / p   SDM 8.2.1
= 0.111 m

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016   for concrete lined channels:-   SDM Table 13
Allowable velocity, v = $R^{1/6}$x $(RS_f)^{1/2}$/n = $(0.111)\char`^1/6 \times (0.111 \times 0.005)\char`^1/2 / 0.016$ SDM Table 12
= 1.06 m/s
Time of flow, t_f = 0.08 min

4 Use "Rational Method" for calculation of design flow

Design intensity, i = $a / (t_o + t_f + b)^c$ SDM 4.3.2
= $505.5 / (0+0.1+3.29)\char`^0.35$ξ for return period T = 50 years   SDM Table 3(a)
= 328

Type of surface	Runoff Coefficient C	Catchment Area A (m²)	C x A	
Flat Glassland(heavy soil)	0.25	0.0	0.0	SDM 7.5.2 (b)
Concrete Paving	0.95	0.0	0.0	
		SUM =	0.0	

Upstream flow, Q_u = 0.03 m³/s

Design flow, Q_d = $0.278i\ \Sigma\ C_jA_j + Q_u$ where A_j is in km²   SDM 7.5.2 (a)
= $0.278 \times 328 \times 0 / 1000000 + 0.03$
= 0.030 m³/s

Allowable flow, Q_a = a x v
= 0.19 x 1.06
= 0.201 m³/s

> Q_d (O.K.)

Reference was made to Stormwater Drainage Manual (SDM) by DSD

Scale: NA	**Drainage Calculation**	Goldrich Planners & Surveyors Ltd.
June 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Page 2 (P23055B)