

APPENDIX 2

Drainage Proposal and the Checklist

Our Ref: JK/D07/2026/YL

Your Ref: TPB/A/YL-MP/414

Date:

- 5 AUG 2026

The Secretary

Town Planning Board

15/F, North Point Government Office

333 Java Road

North Point, Hong Kong

Dear Sirs,

Subject: Application for Certificate of Exemption of Drainage Work
Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

we submit herewith 2 sets of drainage plans with calculations showing the proposed drainage system at the above premises to apply for Certificate of Exemption of Drainage Works. We have checked that the provision of the drainage system in the captioned lots using the proposed 375UC connecting to the proposed 350mm concrete pipe and connecting to the existing drainage system 350mm pipe and the main drainage channel of 3800mm wide are adequate;

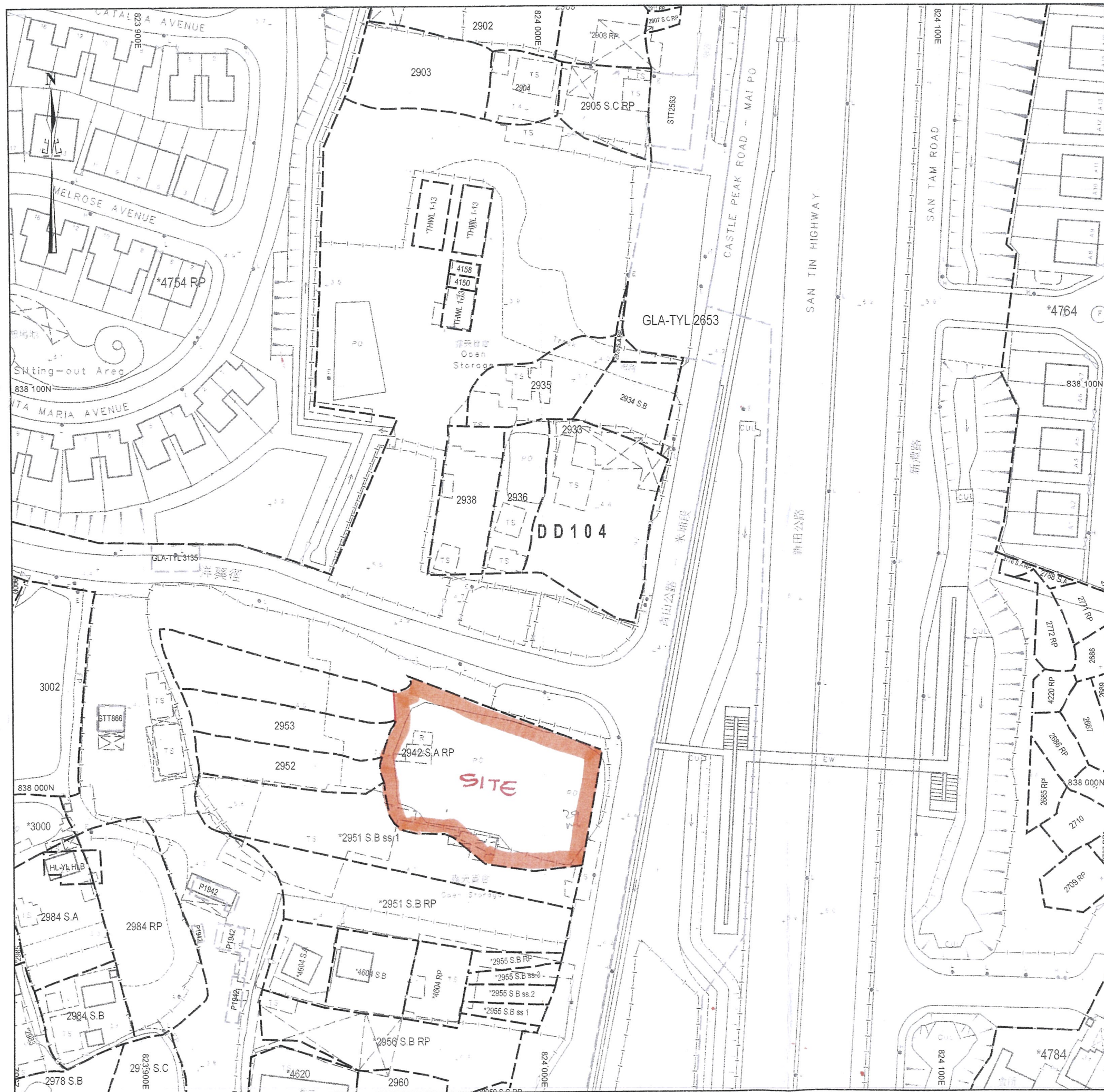
Should you have any queries, please feel free to contact the undersigned at [REDACTED]
Thank you for your kind attention. Your early approval/comments will be highly appreciated.



Ir. John Kwan Chi Ming, RPE

Encl.: 2 sets of Drainage Drawings





Block Plan 1:1000

- 5 AUG 2026

Your Ref: TPB/A/YL-MP/414

John Kwan Chi Ming

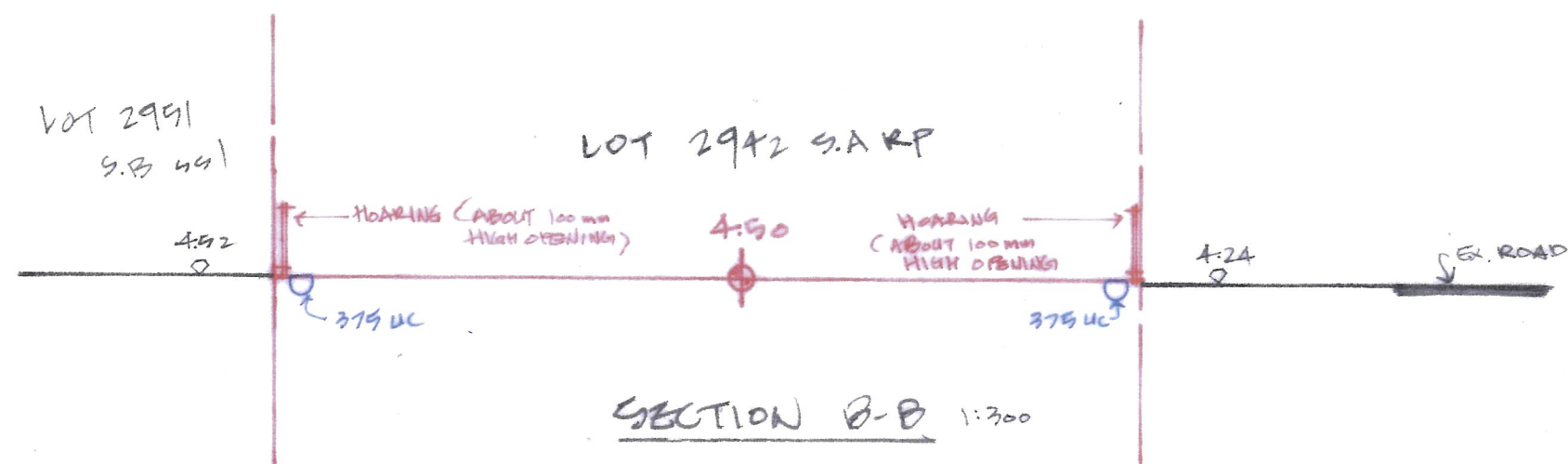
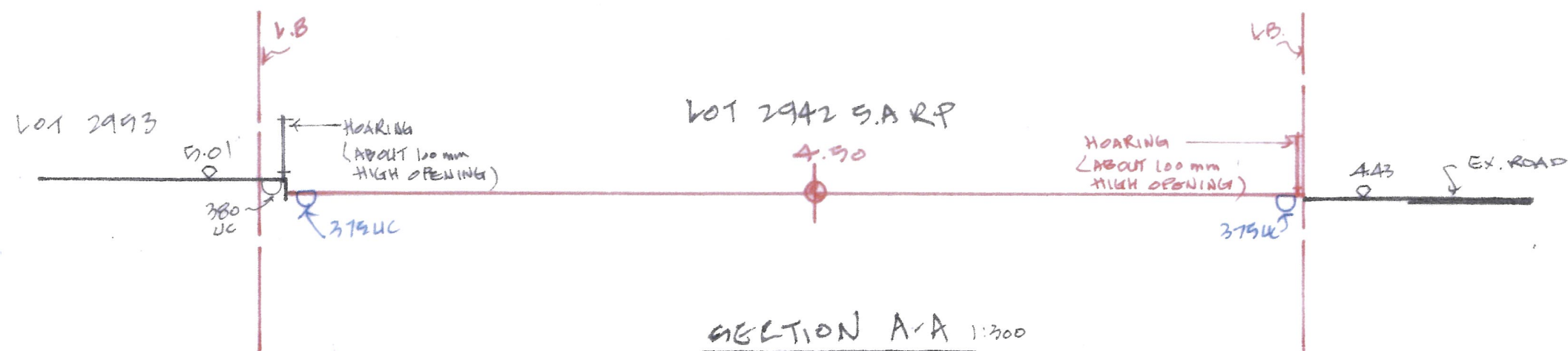
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-1/12



Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

John Kwan Chi Ming

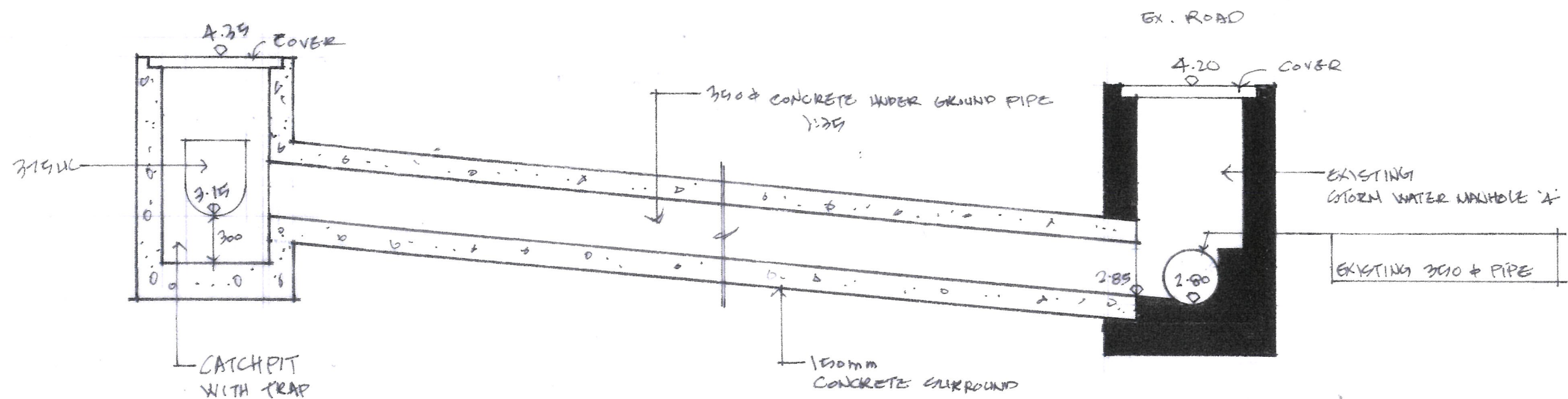
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-3



SECTION X-X 1:30

Your Ref: TPB/A/YL-MP/414

- 5 AUG 2026

John Kwan Chi Ming

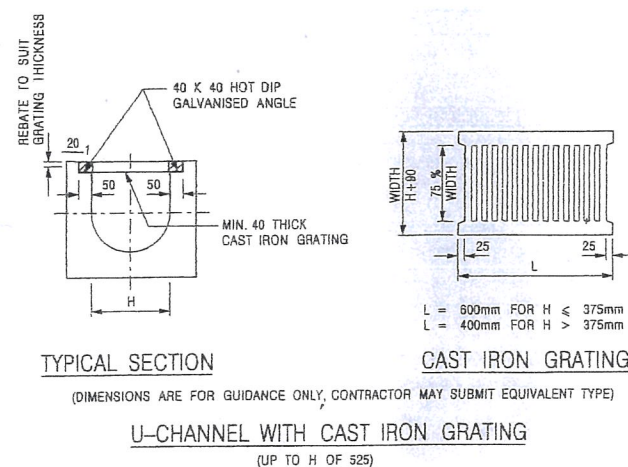
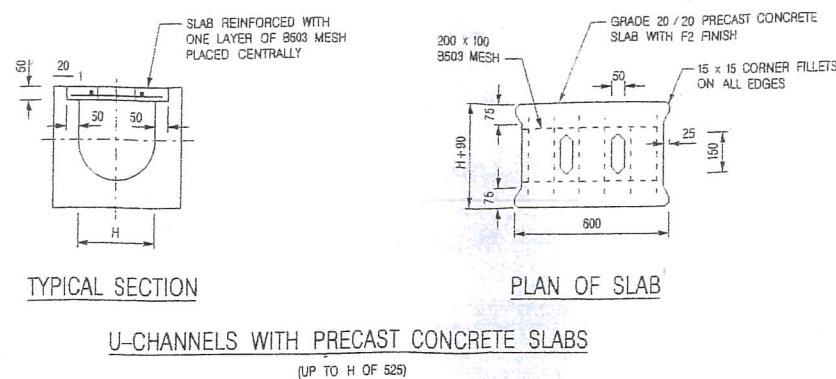
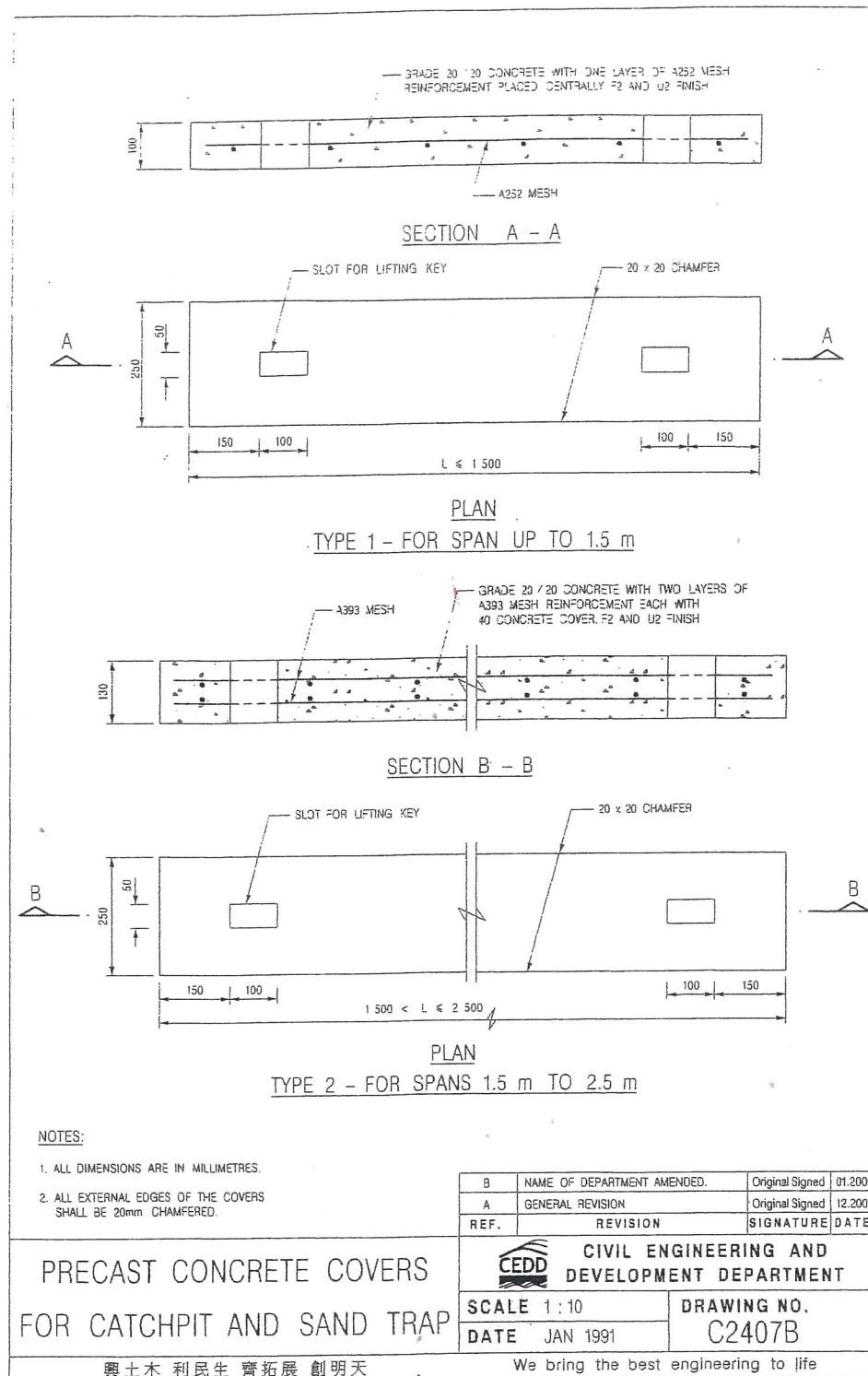
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-4

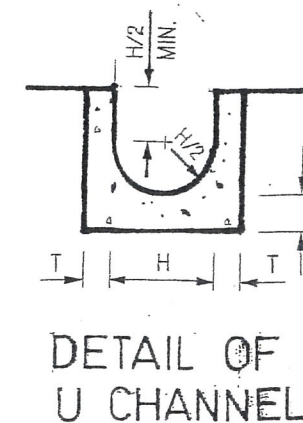


- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES.
 - H=NOMINAL CHANNEL SIZE.
 - ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
 - FOR COVERED CHANNELS TO BE HANDED OVER TO HIGHWAYS DEPARTMENT FOR MAINTENANCE, THE GRATING DETAILS SHALL FOLLOW THOSE AS SHOWN ON Hyd STD. DRG. NO. H3156.

E	NOTES 3 & 4 AMENDED.	Original Signed	12.2014
D	NOTE 4 ADDED.	Original Signed	06.2008
C	MINOR AMENDMENT, NOTE 3 ADDED.	Original Signed	12.2005
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	CAST IRON GRATING AMENDED.	Original Signed	12.2002
REF.	REVISION	SIGNATURE	DATE

COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	DRAWING NO. C2412E
SCALE 1:20	DATE JAN 1991
We Engineer Hong Kong's Development	

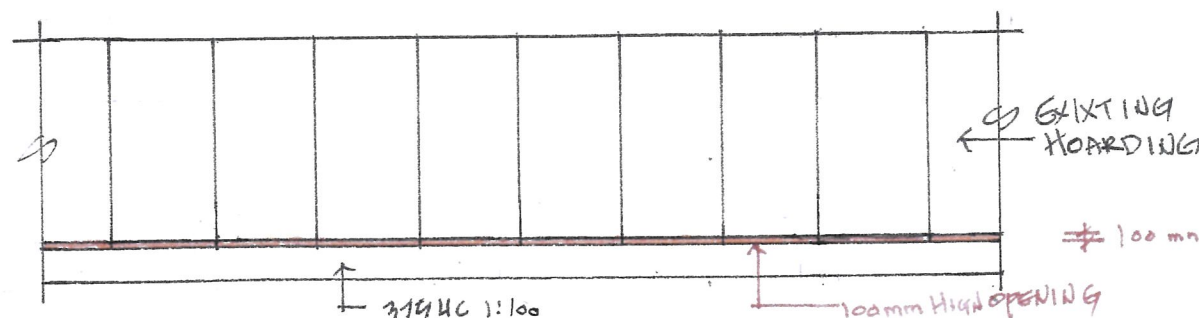


DIMENSION TABLE

NOMINAL SIZE H	T	B	D
300	80	100	350
375	100	150	540
450	100	150	575
525	100	150	615
600	100	150	650
675	125	175	740
750	125	175	775
900	125	175	850

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES.
- FOR DIMENSIONS OF CHANNELS SEE TABLE.
- ALL CONCRETE SHALL BE GRADE 20 / 20.
- CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
- EXPANSION JOINTS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 10 METRES WITH DETAILS AS SHOWN ON STD. DRG. NO. C2413.
- 675 - 900 CHANNELS SHALL BE REINFORCED AS SHOWN ON STD. DRG. NO. C2410.



DETAIL OF HOARDING OPENING 1:75

Your Ref: TPB/A/YL-MP/414

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John Kwan Chi Ming

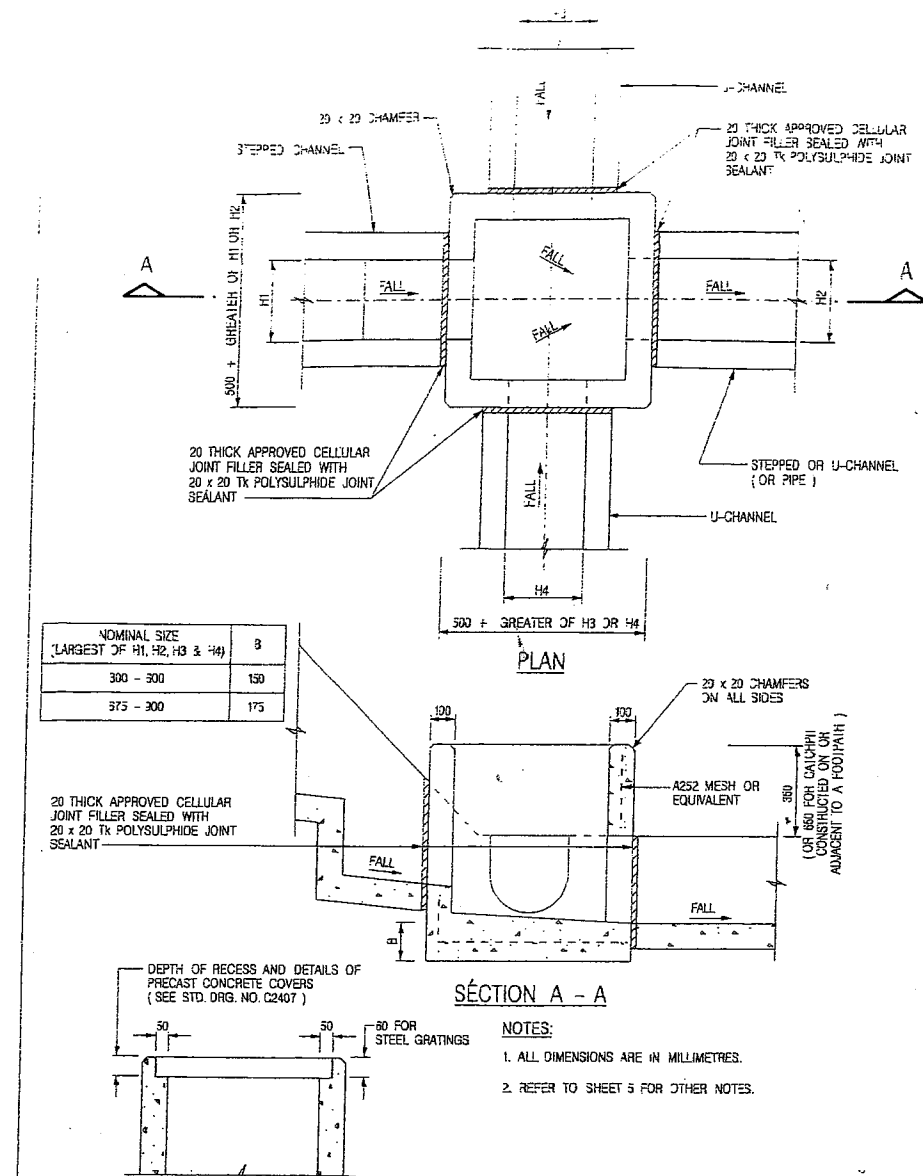
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-5



ALTERNATIVE TOP SECTION FOR
PRECAST CONCRETE COVERS / GRATINGS

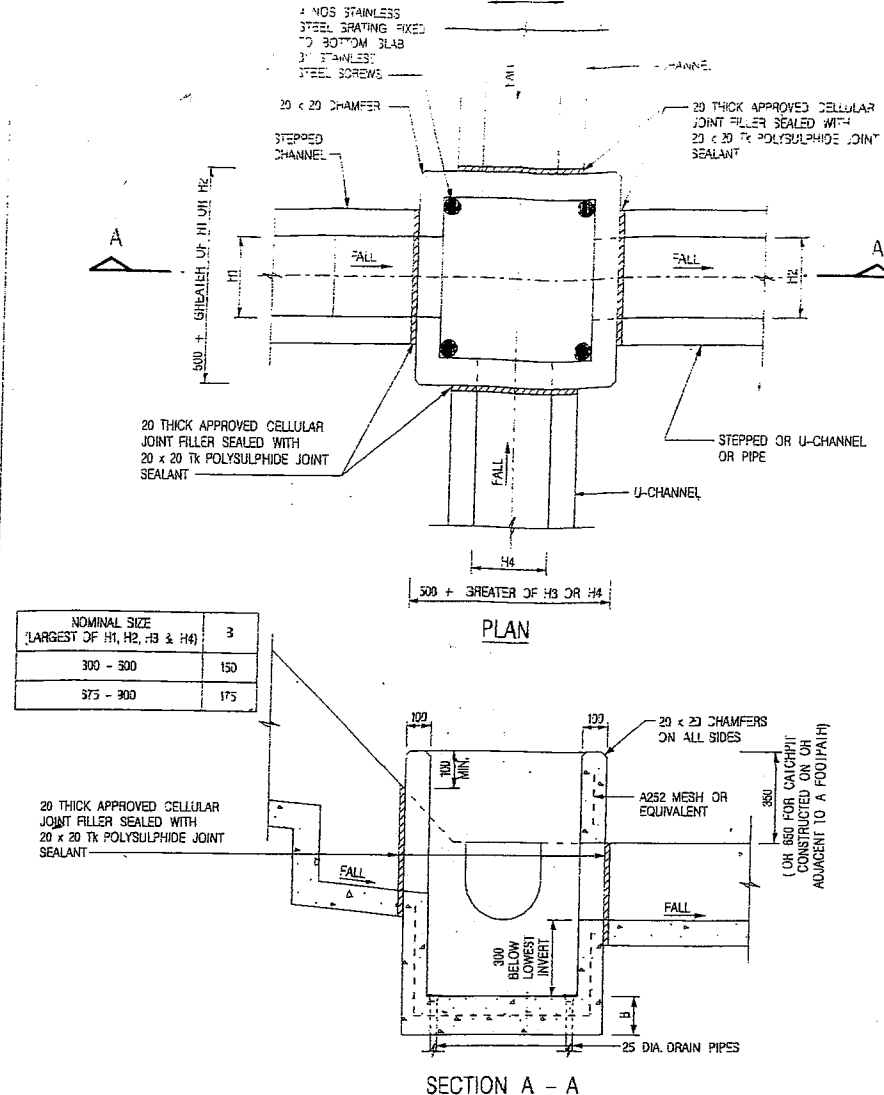
- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. REFER TO SHEET 3 FOR OTHER NOTES.

STANDARD CATCHPIT DETAILS
(SHEET 1 OF 5)

FORMER DRG. NO. C2405J	Original Signed	33.2015
REF.	REVISION	SIGNATURE DATE
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		
SCALE 1:20	DRAWING NO. C2405 /1	
DATE JAN 1991		

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- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. REFER TO SHEET 2 FOR OTHER NOTES.

CATCHPIT WITH TRAP
(SHEET 1 OF 2)

FORMER DRG. NO. C2405J	Original Signed	33.2015
REF.	REVISION	SIGNATURE DATE
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		
SCALE 1:20	DRAWING NO. C2406 /1	
DATE JAN 1991		

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- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. ALL CONCRETE SHALL BE GRADE 20 /20
 3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
 4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2418.
 5. CONCRETE TO BE COLOURED AS SPECIFIED.
 6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED BY THE ENGINEER, CATCHPIT WITH TRAP IS NORMALLY NOT PREFERRED DUE TO PONDING PROBLEM.
 7. UPON THE REQUEST FROM MAINTENANCE PARTY, DRAIN PIPES AT CATCHPIT BASE CAN BE USED BUT THIS IS FOR CATCHPITS LOCATED AT SLOPE TOE ONLY AND AS DIRECTED BY THE ENGINEER.
 8. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405 /2) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
 9. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON STD. DRG. NO. C2405 /5; EXCEPT ON THE UPSLOPE SIDE) IN LIEU OF STEEL GRATINGS OR CONCRETE COVERS CAN BE ACCEPTED AS AN ALTERNATIVE SAFETY MEASURE FOR CATCHPITS NOT ON A FOOTPATH NOR ADJACENT TO IT. TOP OF THE HANDRAILING SHALL BE 1000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
 10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 mm STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
 11. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON STD. DRG. NO. C2406 /4.
 12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

MINOR AMENDMENT.	Original Signed	34.2016
FORMER DRG. NO. C2405J	Original Signed	33.2015
REF.	REVISION	SIGNATURE DATE
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		
SCALE 1:20	DRAWING NO. C2406 /2A	
DATE JAN 1991		

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CP2, CP3 & CPA

CP1

Your Ref: TPB/A/YL-MP/414

- 5 AUG 2026

John Kwan Chi Ming

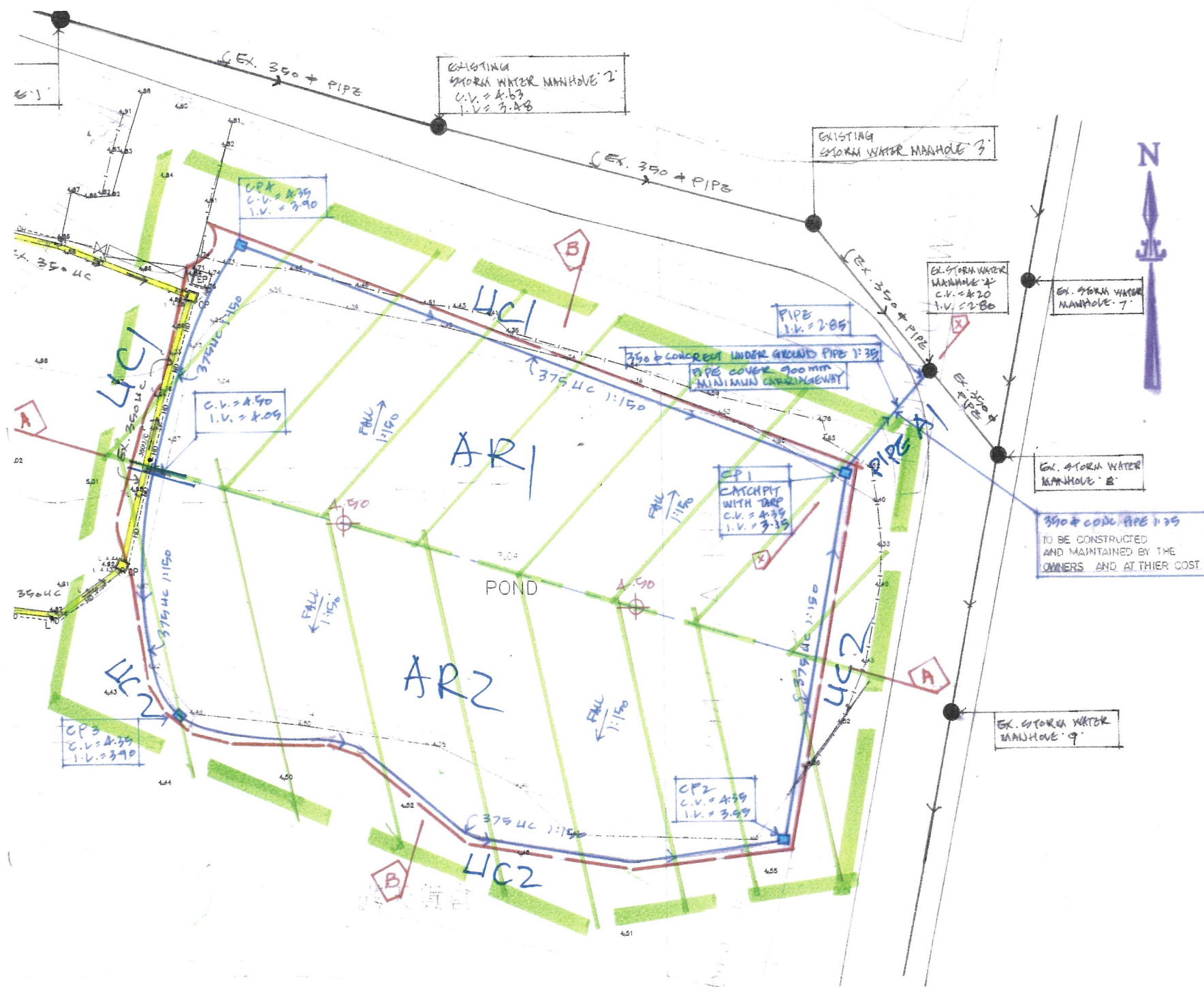
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-6



CATCHMENT AREA 1:400

Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

John Kwan Chi Ming

Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-7

RATIONAL METHOD

Calculation of Flow Rate

Refer to the attached drawing no. SKETCH A

Channel	Catchment	Length L1 (m)	Length L2 (m)	Channel Gradient S (1 in)	Measured Catchment Area Am (m²)	Run off Coeff. C	Catchment Ave. Slope H (m per 100 m)	Inlet Time ti (mins)	Travel Time tt (mins)	Time of Conc. tc (mins)	Rain Intensity i (mm/hr)	Required Flow Rate Q (req) (m³/s)	Channel Size D (mm)	Type	Free Board (mm)	Hydraulic Perimeter P (m)	Hydraulic Area Ah (m²)	Hydraulic Radius R = Ah/P (m)	Flow Vel. Vf (m/s)	Flow Rate Q (des) (m³/s)	Ratio of Q(des)/Q(Areq)	Status (1*Q(Areq)< Q(des)?)	Remarks
UC 1	AR 1	19	68	150	1300	1	1	1.34	0.73	2.07	343.83	0.1243	375	Channel	50	0.86	0.11	0.12	1.56	0.17	1.34	OK!	
UC 2	AR 2	21	72	150	1200	1	1	1.49	0.77	2.26	338.79	0.1130	375	Channel	50	0.86	0.11	0.12	1.56	0.17	1.47	OK!	
main channel check	main	20	33	150	2500	1	1	1.32	0.07	1.40	363.67	0.2528	3800	Channel	50	9.67	12.70	1.31	7.53	95.67	378.53	OK!	it is about 378 times bigger than required

General Formulas :

1. $S = (USIL - DSIL)/L$
2. $to = 0.14465 * L / (H^{0.2} * A^{0.1})$
3. $i = a / \{ (tc + b)^c \}$
4. $Vf = (1.49 * R^{0.54} * S^{0.58})$ (I.D.F Relationship)
5. $Q = Ah * Vf$ (Manning's formula)
6. $tc = to + tf$

i - extreme mean intensity in mm/hr, where a, b, and c are storm constants given in table 3 of Stormwater Drainage Manual by DSD.

L - Distance in metres measured on the line of natural flow between the design section and that point of the catchment from which water would take the longest time to reach the design section.

Note : Equation 2-5 from Geotechnical Manual For Slopes

Filename : A200a/b

Pipe Checking

Using The Colebrook-White Equation

roughness factor (n) = 0.013
Roughness (Ks) = 0.6
Kinematic viscosity of fluid (ν) = $1.141E-06$ m²/s (at Temp = 15°C)

Pipe	Length L (m)	Pipe Gradient S (1 in)	Accumulated Flow Rate Q(Areq) (m³/s)	Pipe Size D (mm)	Hydraulic Perimeter P (m)	Hydraulic Area A (m²)	Flow Vel. Vf (m/s)	Flow Rate Q [des] (m³/s)	Rate of Q(Des)/Q (Areq)	Status (1.05Q[Areq]<Q[des]?)
Pipe A1	25.00	35.00	0.2528	350	1.10	0.10	2.95	0.28	1.12	OK!
shown 350 pipe having capacity of over 1.12 times than required										

CAVOULATION

General Formulas :

1. $S = (USIL - DSIL)/L$
2. $Vf = -2 * (2 * g * D * S)^{0.5} * \log (Ks / (3.7 * D) + 2.51 * \nu / (2 * g * D * S)^{0.5})$ (The Colebrook-White Equation)
3. $Q = Ah * Vf$

L - Distance in metres measured on the line of natural flow between the design section and that point of the catchment from which water would take the longest time to reach the design section.

File name : A10a/b

Note : Equation 3-6 from STORMWATER DRAINAGE MANUAL

16:47:33 15/07/2026

Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

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Registered Professional Engineer	
PROPOSED DRAINAGE WORK ON	
Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long	
DATE: 4/8/2026	DRAWING: 7-8

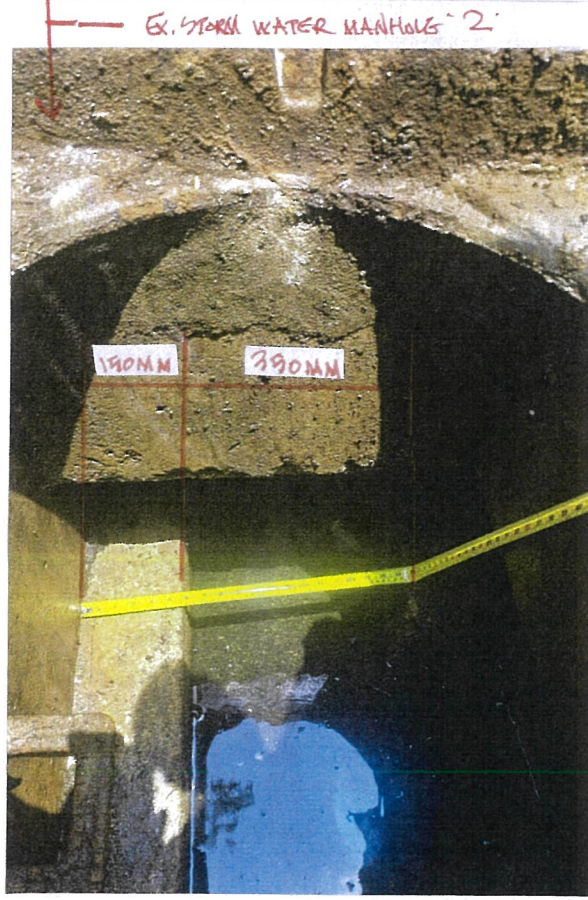
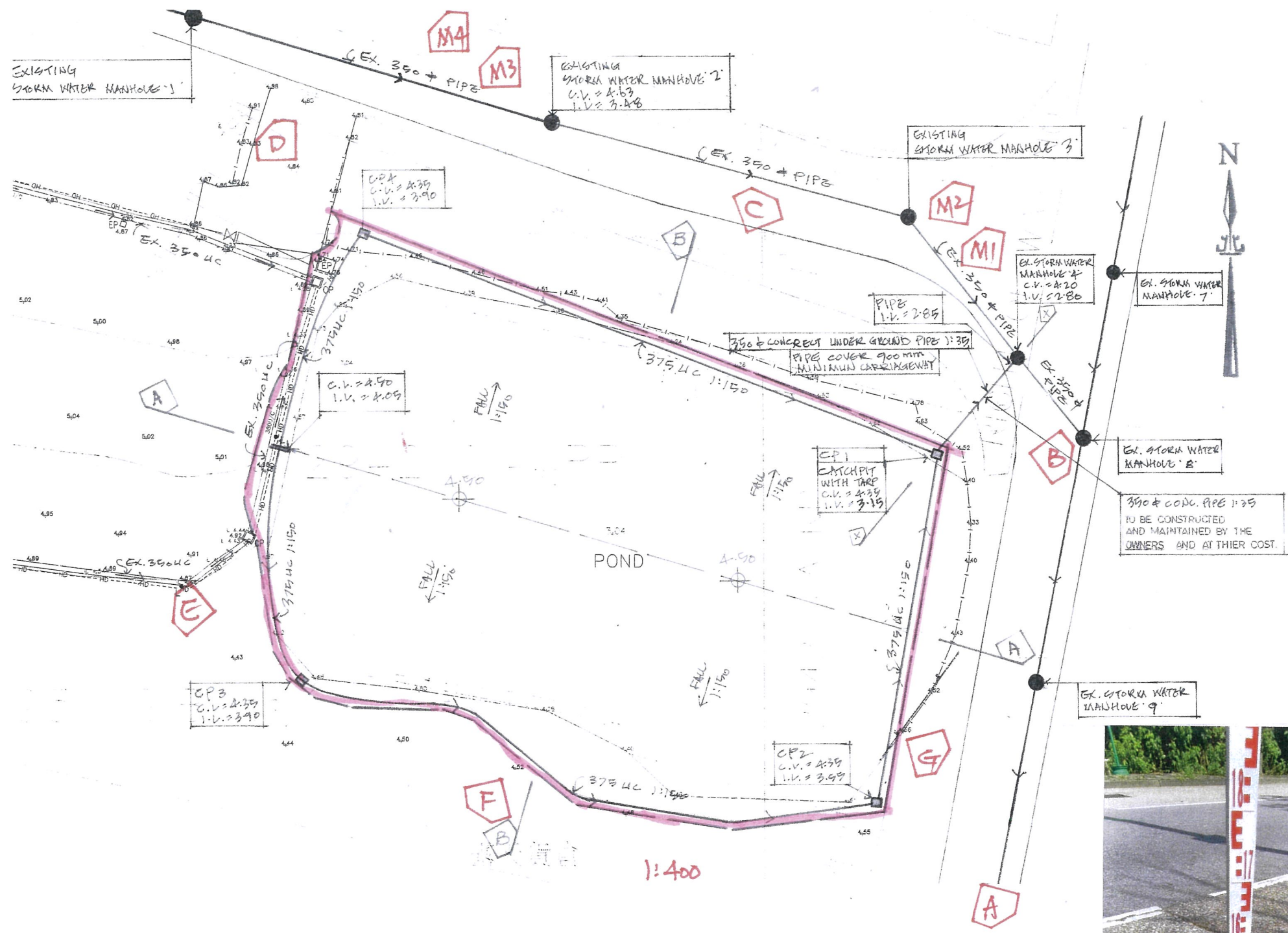


PHOTO PLAN

Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

John Kwan Chi Ming

Registered Professional Engineer

PROPOSED DRAINAGE WORK ON
Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-9

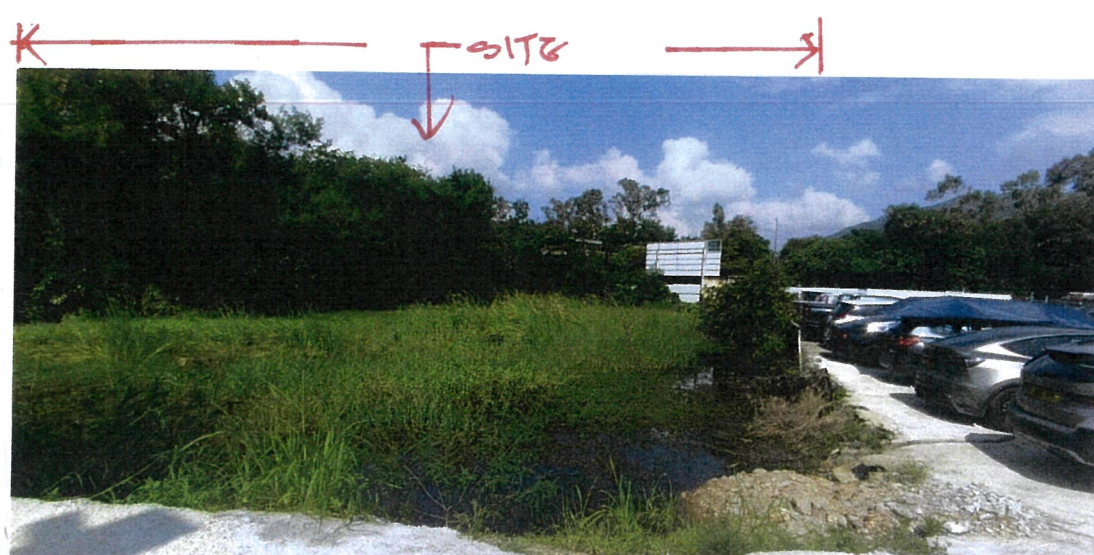
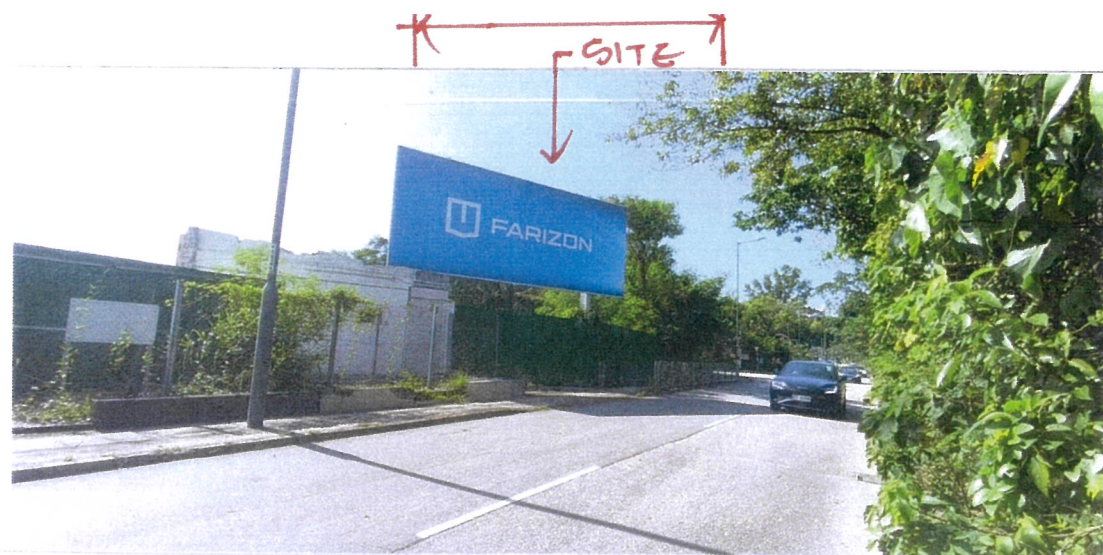


PHOTO PLAN

Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

John Kwan Chi Ming

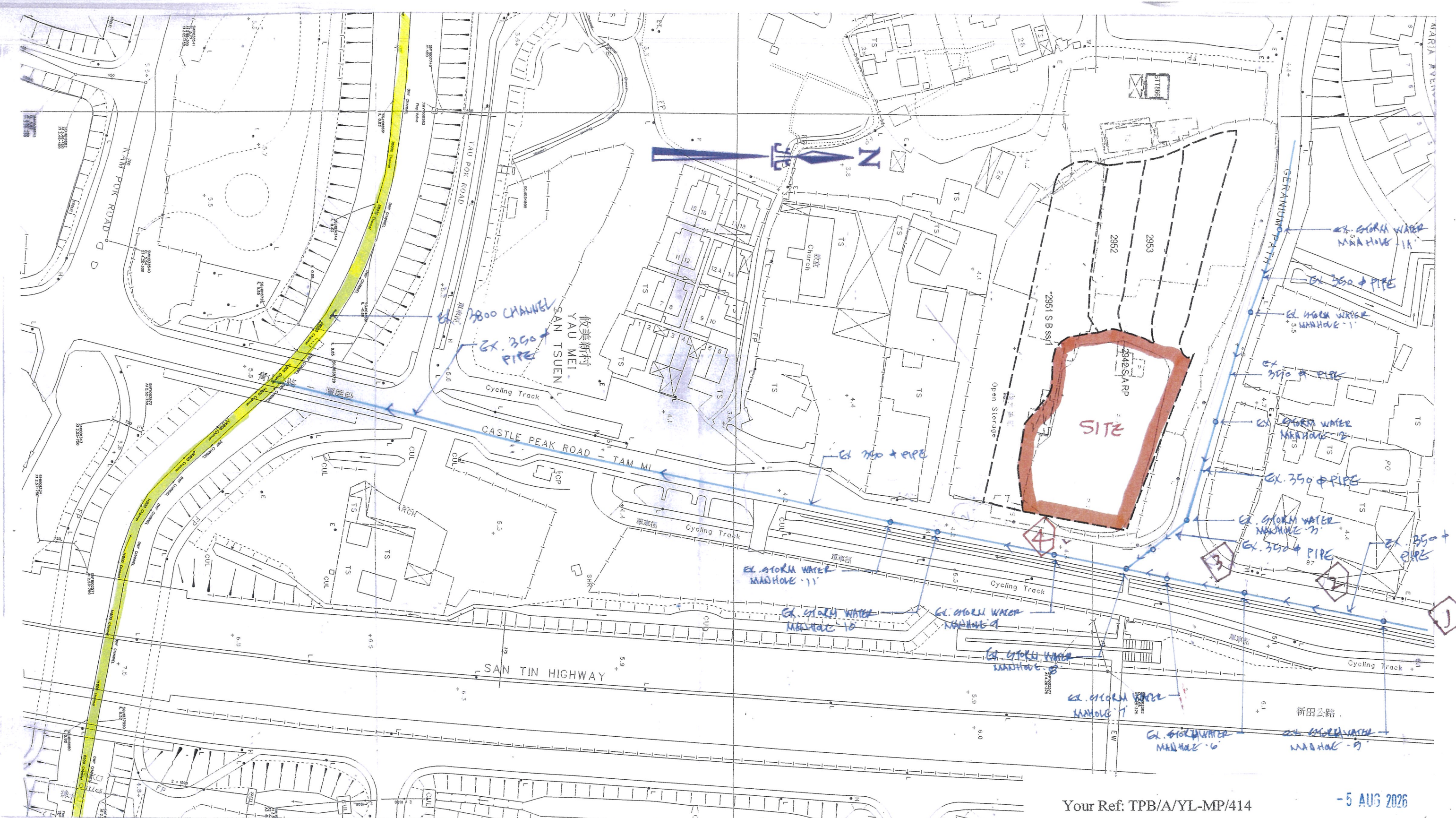
Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-10



Your Ref: TPB/A/YL-MP/414

- 5 AUG 2026

GK-001 1:1000

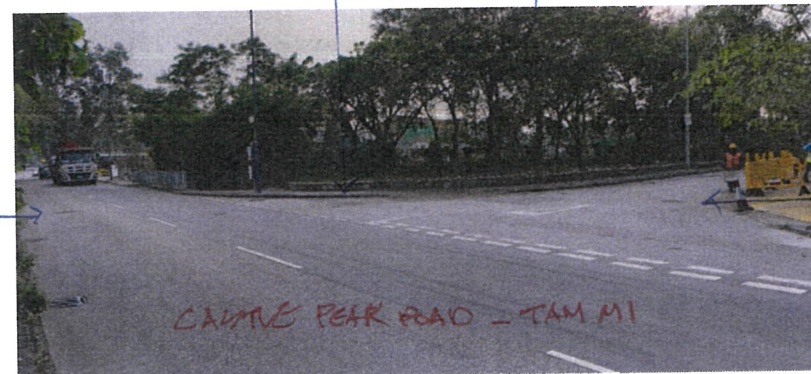
John Kwan Chi Ming	
Registered Professional Engineer	
PROPOSED DRAINAGE WORK ON	
Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long	
DATE: 4/8/2026	DRAWING: D-11

EX. STORM WATER
MANHOLE '5'



1

EX. STORM WATER
MANHOLE '8'



3

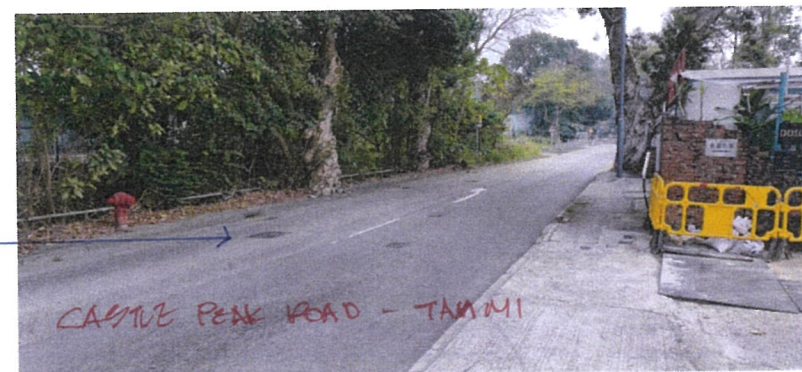
EX. STORM WATER
MANHOLE '3'

EX. STORM WATER
MANHOLE '6'



2

EX. STORM WATER
MANHOLE '10'



4

OK - 001

Your Ref: TPB/A/YL-MP/414

-5 AUG 2026

John Kwan Chi Ming

Registered Professional Engineer

PROPOSED DRAINAGE WORK ON

Lots 2942 S.A RP in D.D. 104, Mai Po, Yuen Long

DATE: 4/8/2026

DRAWING: D-12/1

Responses on DSD's Requirements / RemindersPlanning Application No.: A/YL-MP/414Location: Lot No. 2942sARP(Part)in D.D. 104

Site Area:	1,832	m ²
Land filling works involved?	Yes / No-	
Maximum increase in formation level:	0.2	m
Maximum level difference with adjoining lot:	0.2	m
Filling of pond(s) involved?	Yes / No-	
Estimated size of pond to be filled:	1,438	m ³

(A) DSD's Requirements	Fulfilled in the submission? (Yes / No)
(1) The proposed development should neither obstruct overland flow nor adversely affect any existing natural streams, village drains, ditches and the adjacent areas, etc., unless there is proper diversion.	Yes
(2) Adequate surface channels shall be provided to collect and convey the surface runoff accrued on the application site.	Yes
(3) For site formation level higher than the adjoining lots, peripheral surface channels, set at a level lower than the adjoining lots, should be constructed to collect runoff flowing from adjoining lots toward the application site.	Yes
(4) Where the site formation level is lower than the adjoining lots and boundary walls or hoarding are erected, adequate openings must be provided to allow existing overland flow from those lots to pass through. Otherwise, peripheral surface channels set at a lower level must be constructed to intercept the runoff.	Yes
(5) The applicant shall be required to place all the proposed works 3m away from the top of the bank of any existing watercourses. All the proposed works in the vicinity of the watercourses should not create any adverse drainage impacts, both during and after construction. Adequate measures should be provided at the resources of the applicant to our satisfaction in order to avoid the subject site from being eroded and flooded and to ensure capacity of watercourses and flooding susceptibility of the adjoining areas would not be adversely affected by the proposed development.	Yes
(6) The applicant should indicate the proposed and existing ground levels of the application site and ground levels of adjacent areas on the drainage plan.	Yes
(7) Cross sections showing the proposed drainage facilities and existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given.	Yes
(8) The proposal should indicate how the runoff (the flow direction) within the site and from the adjacent areas would be discharged to the proposed drainage system.	Yes
(9) Sand trap or provision alike should be clearly indicated on the proposed drainage plan and provided before the collected runoff is discharged to the existing drainage facilities.	Yes
(10) The applicant should clearly indicate the full alignment of the discharge path from the application site all the way down to the ultimate discharge point (e.g. a well-established stream course/public drainage system).	Yes
(11) The applicant should clearly indicate the existing drainage facilities on the proposed drainage plan. Site photos of existing drainage facilities including the discharge point (e.g. existing local village drain and its downstream drainage facilities) should be provided in order to demonstrate the presence and reflect condition of the existing drainage system. Also, the applicant should provide site photo(s) to demonstrate size of the existing drainage facilities.	Yes

(12) Cover levels and invert levels of the proposed and existing drainage facilities should be shown on the drainage plan. Invert levels of drainage facilities at the upstream should be higher than that at the downstream. Also, gradients and sizes of the proposed and existing drainage facilities should be shown on the drainage plan.	Yes
(13) The applicant should demonstrate with hydraulic calculation that the proposed drainage facilities are adequate to collect, convey and discharge the surface runoff accrued on the application site and the overland flow intercepted from the adjacent lands.	Yes
(14) The applicant should demonstrate with hydraulic calculation that the existing facilities to be discharged to have sufficient capacity to cater for any additional flow generated due to the subject application.	Yes
(15) When the ground adjacent to the application site is generally/significantly higher, the overland flow from the adjacent lands shall be probably intercepted. External catchment shall be considered in the hydraulic calculation. Also, the catchment area shall not be less than area of the application site. The applicant should demonstrate catchment area considered in the proposal is adequate.	Yes
(16) Stormwater Drainage Manual (SDM) and the newly promulgated SDM - Corrigendum published by DSD shall be considered in the hydraulic calculation. Also, storm constants of HKO Headquarters shall be adopted in the hydraulic calculation.	Yes
(17) The applicant should provide evidence to support the adoption of any design assumptions (e.g. time of concentration, catchment area, rainfall intensity, runoff coefficient, information of the existing stream and etc.) in the hydraulic calculation.	Yes
(18) Deposition of sediment in stormwater drainage system should be considered in the hydraulic calculation as per the requirement in Stormwater Drainage Manual (Section 9.3).	Yes
(19) The applicant should check flow velocity of the proposed drainage facilities. The flow velocity is suggested to be within a range, i.e. 0.75 m/s to 3.0 m/s.	Yes
(20) Catchpit should be provided at where a proposed surface channel changes direction / gradient.	Yes
(21) The applicant should provide construction details of the proposed drainage facilities.	Yes
(22) The applicant should provide details for connection of the proposed and existing drainage facilities.	Yes
(23) The applicant should employ a qualified engineer (Registered Professional Engineer (R.P.E.) in the Civil Engineering discipline) to prepare for drainage submission. The drainage submission should be signed and certified by a qualified engineer.	Yes
(B) DSD's Reminders	Fulfilled in the submission? (Yes / No)
(1) Any existing drainage facilities within/outside the application site should not be disturbed or interfered with until any necessary diversion works, which have been accepted by the owner of the existing drainage facilities, have been satisfactorily completed. Such diversion works should be carried out by the applicant at his/her own cost. Moreover, sufficient allowance for future maintenance of the existing drainage facilities should be provided.	Yes
(2) The applicant should be reminded to minimize the possible adverse environmental impacts on any existing watercourses in his design and during construction. DEP and DAFC should be consulted on possible environmental and/or ecological impacts of the proposed development which is in the vicinity of any existing watercourses.	Yes

(3) The applicant is required to rectify/modify the drainage system if they are found to be inadequate or ineffective during operation. The applicant shall also be liable for and shall indemnify claims and demands arising out of damage or nuisance caused by a failure of the drainage system.	Yes
(4) For the construction details of the proposed drainage facilities, reference should be made to current CEDD's standard drawings.	Yes
(5) Precast concrete pipe should generally be used for stormwater connection.	Yes
(6) Consideration should be given to provide grating for the surface channels.	Yes
(7) For any proposed connection to DSD's drainage facilities, the applicant should submit form HBP1 to this Division for application of technical audit. Upon our acceptance of the connection application, the applicant shall carry out the proposed connection works in accordance with DSD's Standard Drawings at the resources of the applicant.	Yes
(8) If the existing drainage facilities, to which the applicant proposed to discharge the stormwater from the application site was not maintained by this office, the applicant should identify the owner of the existing drainage facilities and seek agreement from the owner prior to commencement of the proposed works. In the case that it is a local village drains, DO/YL should be consulted.	Yes
(9) Connection to existing drainage facilities should be designed and constructed to prevent back flows at the drainage outlet when water level at the existing drainage facilities is high.	Yes
(10) Connection of the proposed and existing drainage facilities shall be designed and constructed such that there is no water leakage at the proposed connection.	Yes
(11) The applicant should consult DLO/YL and seek consent from the relevant owners for any drainage works to be carried out outside his lot boundary before commencement of the drainage works.	Yes
(12) Comments from HyD, TD and RMO shall be sought if drainage works are proposed to be carried out within highway polygon or on carriageway.	Yes