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主旨: A/YL-PH/1071
附件: Drainage Proposal for Lot No.2807 and 2808 in DD111 Pat Heung Rev. C Full Set.pdf

致規劃署

附上渠務報告，之後申請成功會向地政署申請 STW。

BEST REGARDS
SUNNY

DRAINAGE PROPOSAL

(STORMWATER)

AT

Lot No. 2807 (Part) and Lot No. 2808 (Part) in DD 111, Pat Heung, Yuen Long, New Territories

Date : Jan 2026

Revision : C

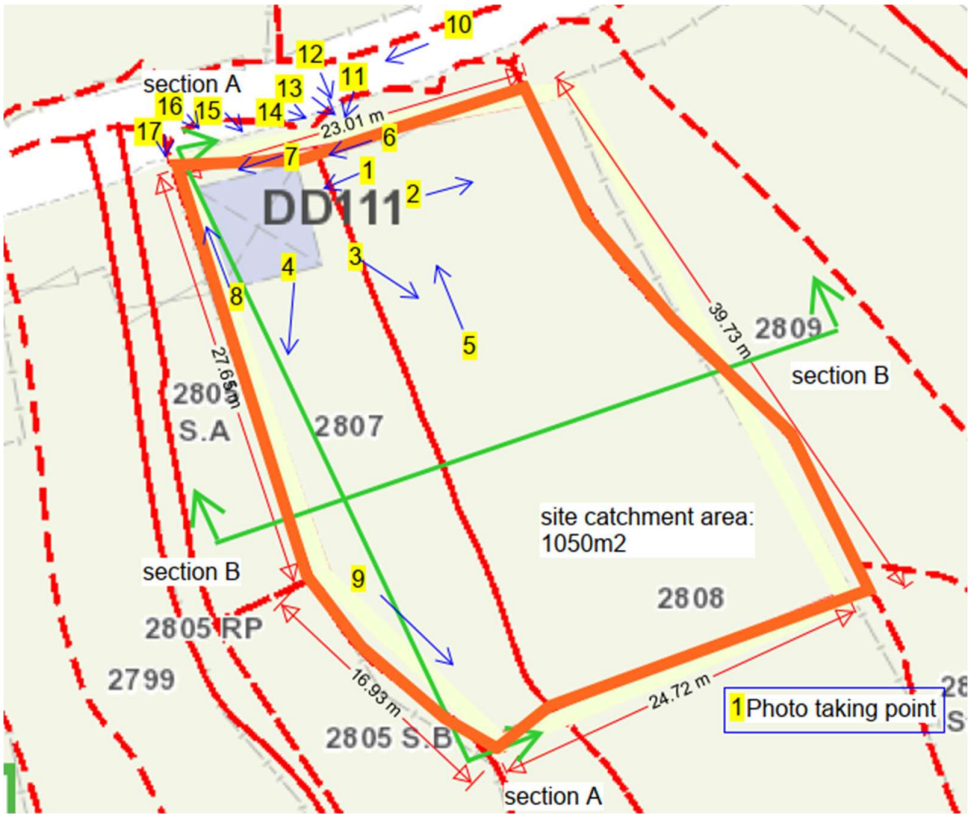
CONTENT

(A) Drainage Proposal

(a) Site Plan (Existing Level Plan of Lot No. 2807 (Part) and Lot No. 2808 (Part) in

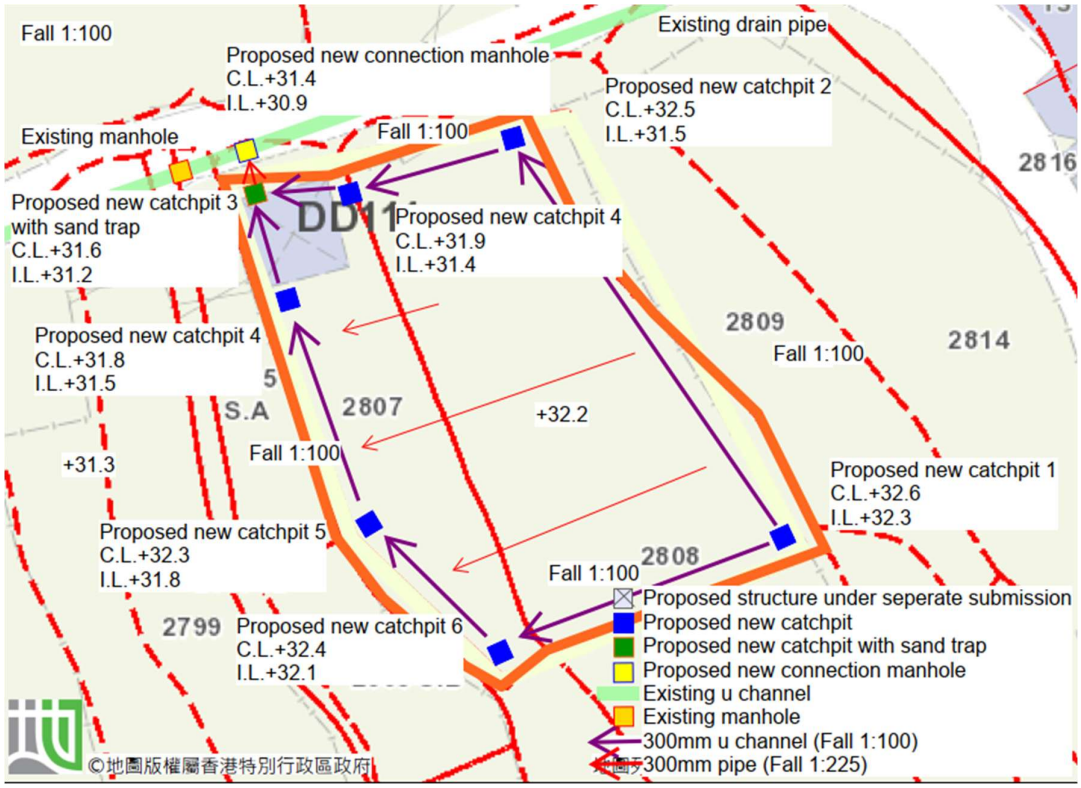
DD 111, Yuen Long)

Layout Plan



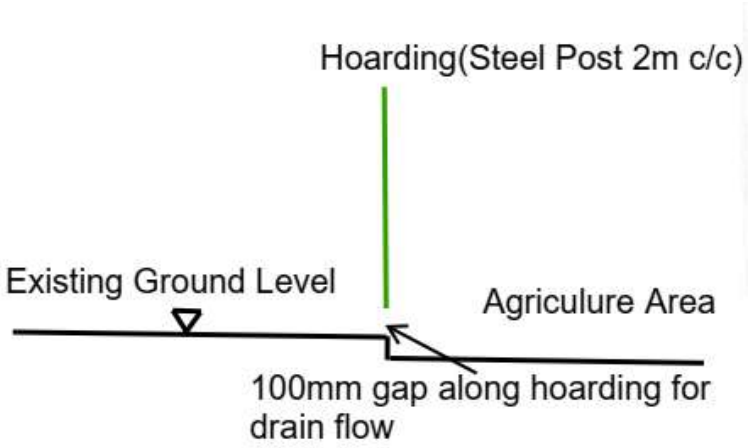
Part Plan

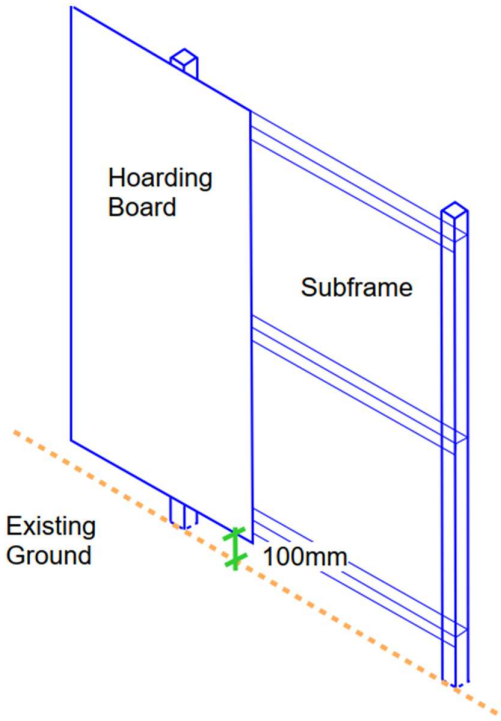
(b)Proposed Drainage Plan



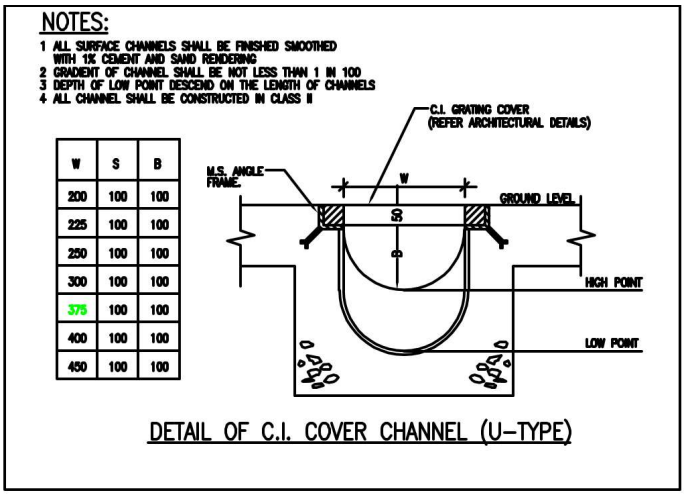
(c)Standard Details for catchpit and hoarding opening

Typical details for along hoarding

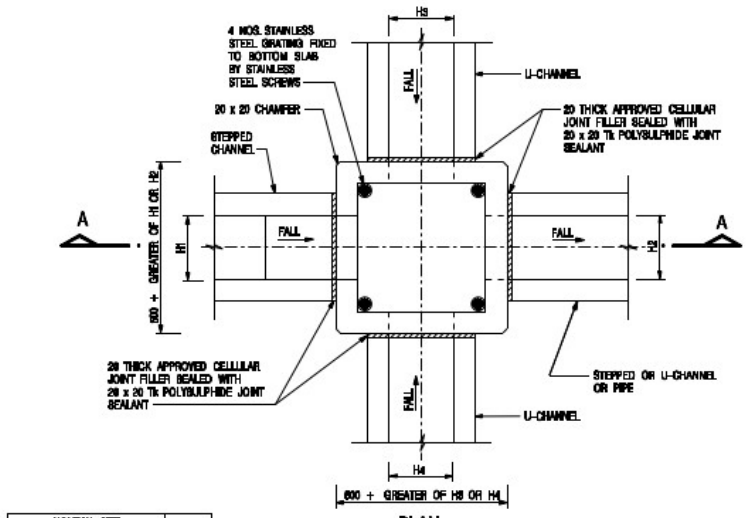




Standard Details for Proposed U channel



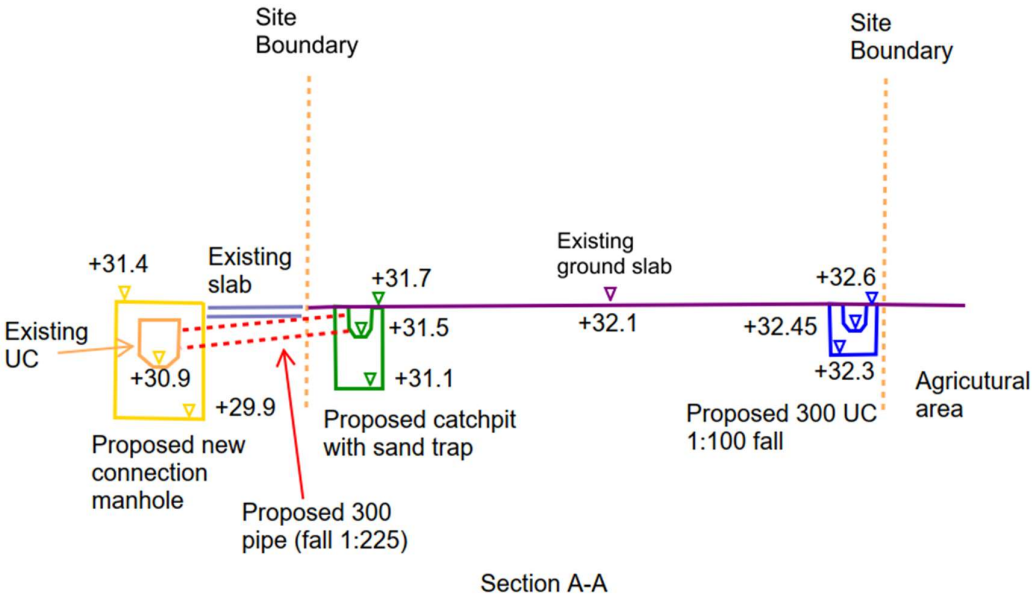
Standard Details for Catch Pit with Sand Trap



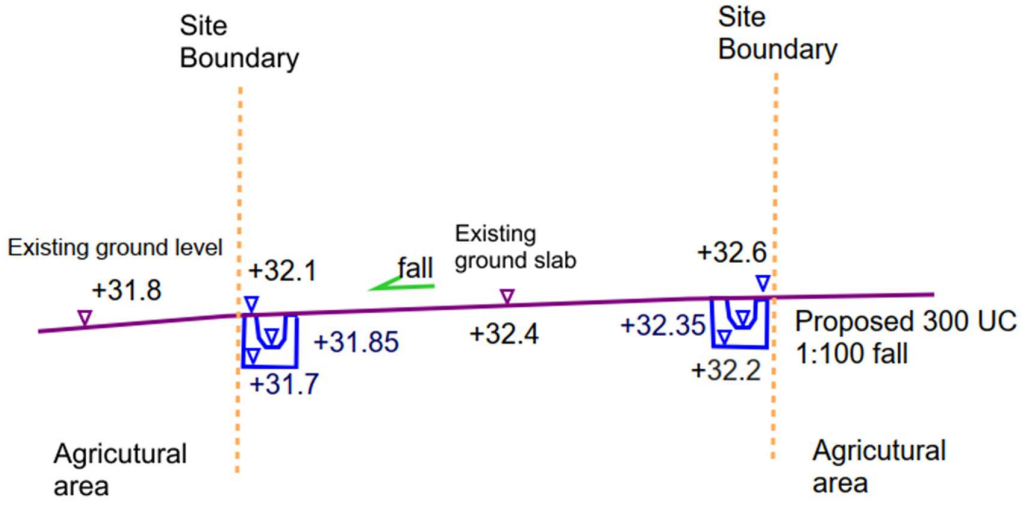
NOTES:

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

(d)Cross section of existing and proposed ground levels



Section A-A



Section B-B

(e)Existing Site Photo


3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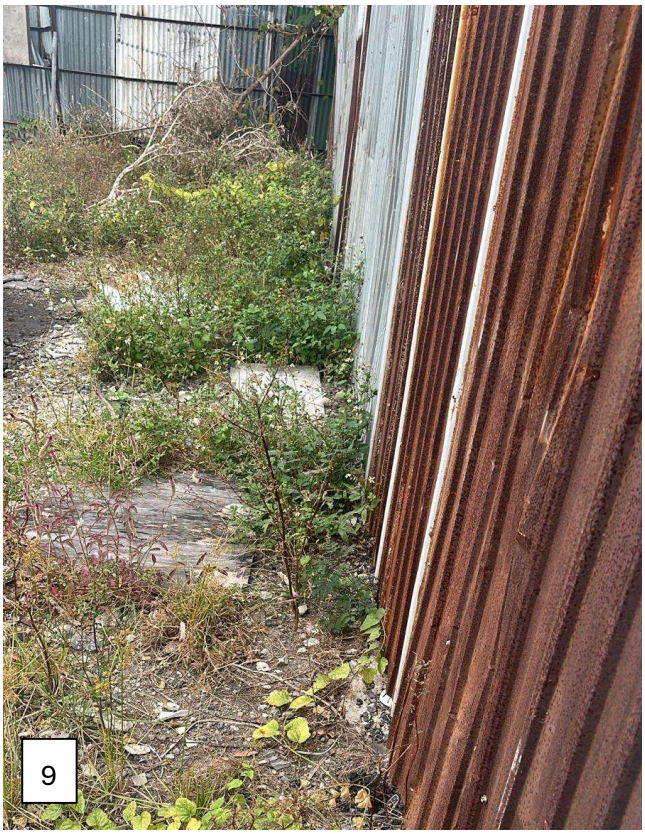
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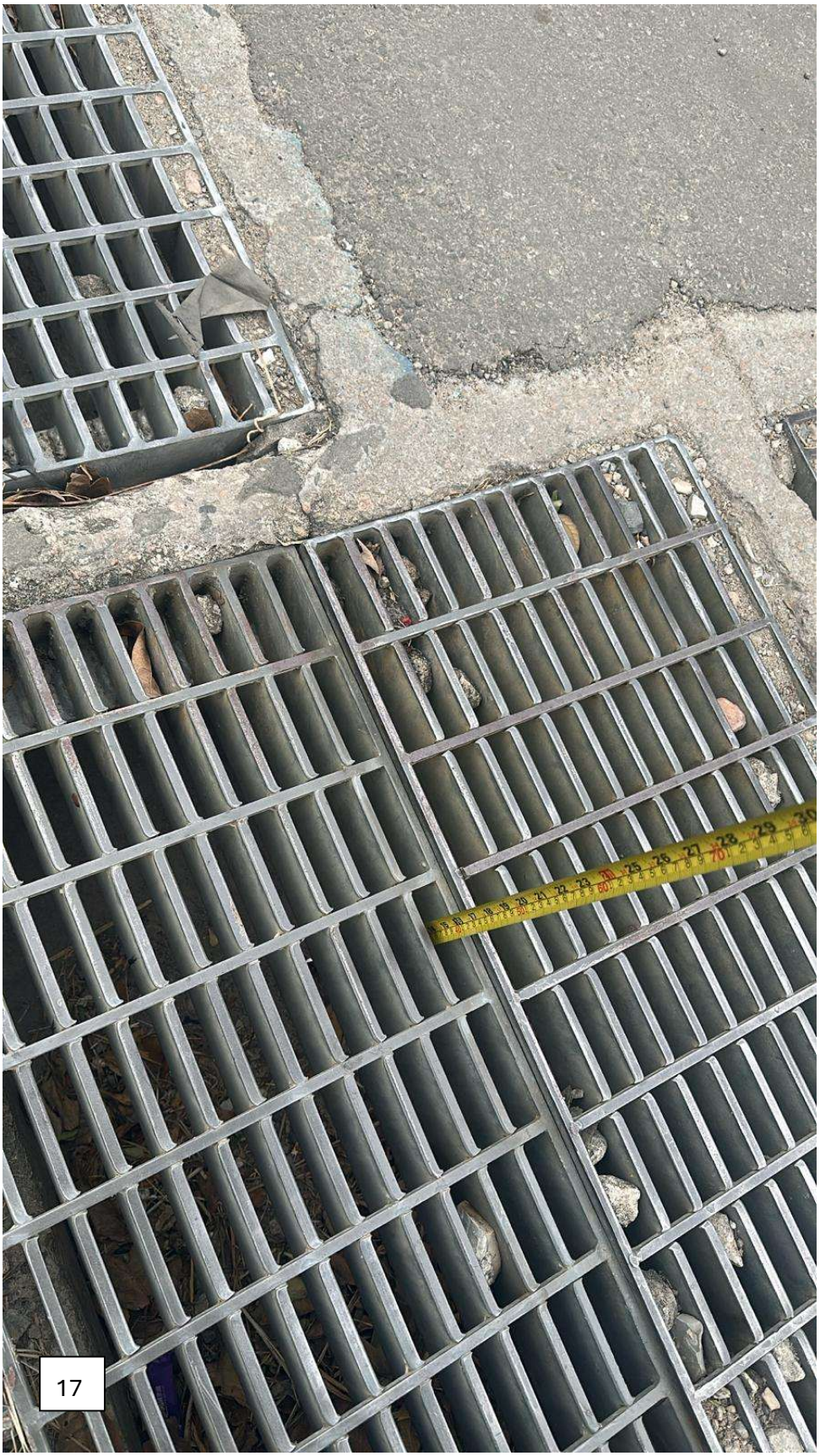

17

(f) R to C table

Lot No. 2807 (Part) and Lot No. 2808 (Part) in DD 111, Yuen Long

Submission of Drainage Proposal

Planning Application No. A/YL-PH/1071 Date: 10 Nov 2025	
Comments from the Drainage Department	
Comment	**Responses**
i. Please advise if any site formation/levelling works to be carried out under this application. Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given. Referring to cross sections A-A and B-B, the proposed peripheral surface channels shall be provided along the site boundary at the original/existing ground level (instead of the revised ground level) to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands. Please review.	No site formation/levelling works to be carried out under this application. Noted and revised.
ii. According to the drainage plan, the proposed invert level of CP3 at the downstream (+31.3) is higher than CP4 at the upstream (+31.1), which is not desirable from public drainage point of view. Please review.	Noted and revised.
iii. Please confirm whether the gradient of all the proposed 300mm U-channels is 1:100 and it should be clearly indicated on the drainage plan for clarity.	Confirmed and indicated.
iv. Please indicate the size and gradient of the existing drainage facilities to be discharged from the site on the drainage plan for review. Please check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development.	Noted and indicated.
v. Please provide a clear connection details at the discharge point with C.L. and I.L. (including plan view and cross section(s)) for further comments. The gradient and the size of	Noted.

the proposed discharge drainage facility (i.e. pipe or u-channel, etc.) should be shown on the drainage plan.	
vi. The submitted photos cannot demonstrate the existing/internal condition of the existing drainage facilities. Please provide more site photos at different locations and views for reference. Please also advise the locations for photos taken for review. Besides, please indicate clearly 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).	Noted and revised.
vii. The existing drainage facility, to which you proposed to discharge the storm water from the subject site was not maintained by this office. Please resolve any conflict/disagreement arisen for discharging the runoff from the application site(s) to the proposed discharge point(s). Moreover, please ensure that this drainage system and the existing downstream drains/channels/streams have adequate capacity to convey the additional runoff from the application site(s). Regular maintenance should be carried out to avoid blockage of the system.	Noted.
viii. It is noted that a 100mm gap will be provided at the toe of the proposed hoarding. Please provide its details for further review.	Noted and provided.
ix. The development should neither obstruct overland flow and nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted.
x. Please resolve any conflict/disagreement with relevant lot owner(s) and seek permission from DLO/YL 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.

(B)Stormwater Drain Calculation

(g)Stormwater Discharge Calculation

(i) Design Date

Return year : 1 in 50 years

Run off coefficient : C = 1.0

Approximate Catchment = 1050m2

Duration : 5 min

The Rational Method

Estimation of Storm water run-off, Q=0.278 x C x i x A

Where Q = Peak run-off in m3/s

C = Run-off coefficient

i = Rainfall intensity in mm/hr

A = Area of catchment in m2

(ii) Rainfall Intensity

Referring to Stormwater Drainage Manual (SDM) :

The delineation of Rainfall zones = HKO Headquarters

(Refer to SDM, Figure 3)

The rainfall intensity = 218 mm/h (Refer to SDM, Table 2a)

Rainfall Increase due to Climate Change.

The rainfall increase = End of 21st Century = 16% (Refer to

SDM, Table 28)

Rainfall Increase due to Design Allowance.

The rainfall increase = End of 21st Century = 12.1% (Refer to SDM, Table 31)

Therefore, the rainfall increase = 218mm/h x (16%+12.1%)

= 61.258mm/h

= 218mm/h + 61.258mm/h

= 279.258mm/h

(iii) Maximum run-off from the discharge point

For Domestic structure:

Qp = 0.278 x 1 x 279.258 x 1050 x 10-6

= 0.0815 m3/s

= 81.5 L/s.

300 mm U channel with gradient 1 in 100 at velocity at 1.824 m/s, can accommodate for 128.91 L/s (Please refer Appendix b).

Drainage Capacity

128.91L/s > 81.5L/s (63.2% Capacity Occupied)

(with over 10% reduction in flow area)

(C) Reference

a) Storm Water Drainage Manual

STORMWATER DRAINAGE MANUAL

Update in the fifth edition highlighted in blue

Planning, Design and Management

Fifth Edition, January 2018

DRAINAGE SERVICES DEPARTMENT

Government of the Hong Kong Special Administrative Region

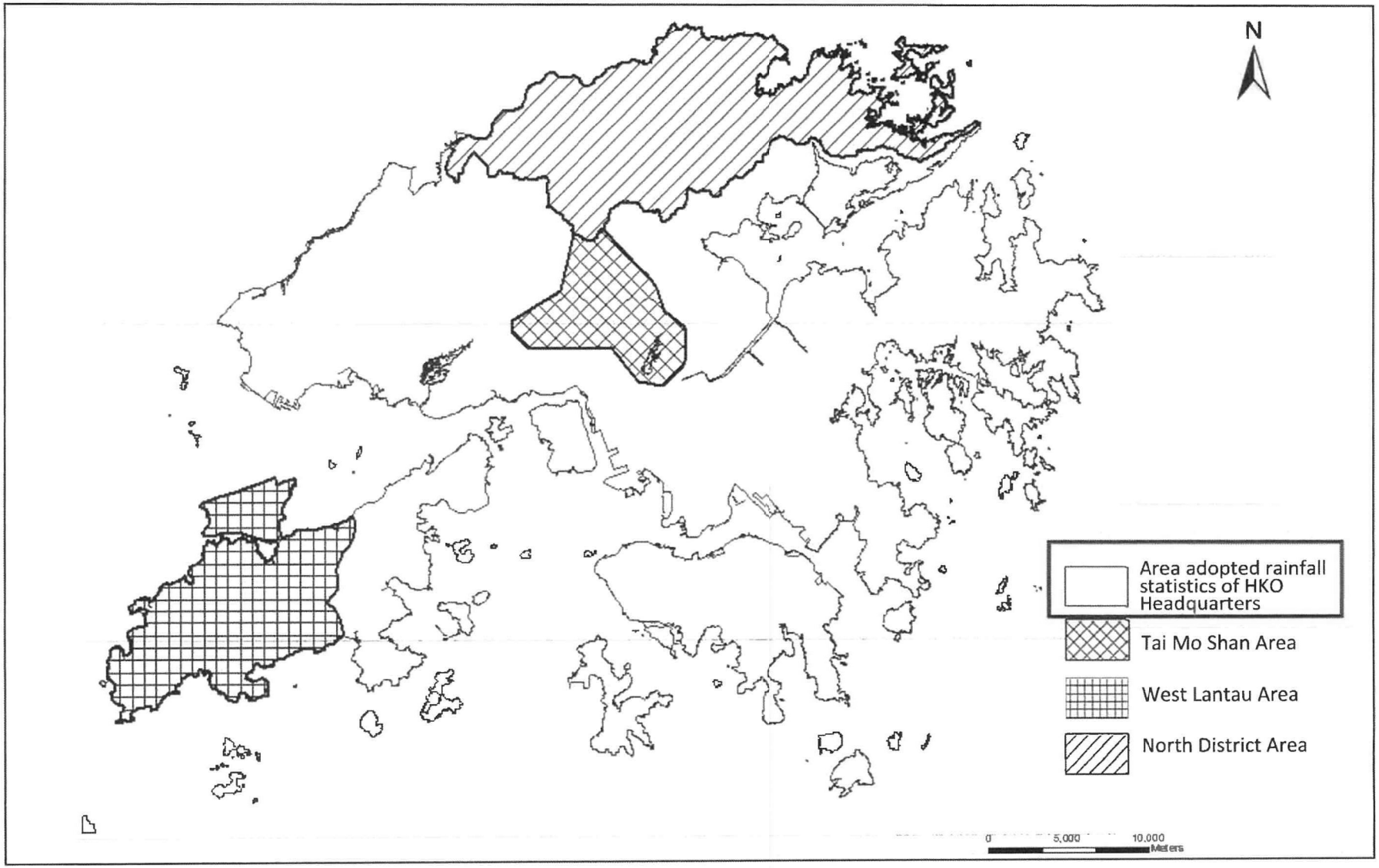

Figure 3 Delineation of Rainfall Zones

Table 2a – Intensity-Duration-Frequency (IDF) Relationship of HKO Headquarters
for durations not exceeding 240 minutes

Duration (min)	**Parameters**			**Extreme Intensity x (mm/h) for various Return Periods T(year)**								
	ξ **(mm/h)**	**α**	**κ**	2	5	10	20	50	100	200	500	1000
240**	26.00	9.30	-0.009	29.4	40.0	47.1	54.0	62.9	69.7	76.4	85.4	92.2
120++	43.79	14.56	0.081	49.1	64.4	73.7	82.2	92.5	99.7	107	115	121
60++	64.42	19.34	0.092	71.4	91.5	104	115	128	137	145	156	163
30++	84.48	20.28	0.141	91.7	112	124	134	145	153	160	168	174
15++	106.47	21.34	0.157	114	135	147	157	169	176	183	191	197
10	*122.53	*24.90	*0.198	131	155	168	179	190	198	204	212	216
5	*145.27	*28.54	*0.235	155	181	195	206	218	226	232	239	243
2	*175.33	*34.18	*0.285	187	217	232	244	256	263	269	275	279
1	*198.07	*39.17	*0.322	212	245	261	273	285	292	298	303	307
0.50	*220.81	*44.90	*0.360	236	273	290	303	315	322	327	332	335
0.25+++	244.85	52.05	0.404	263	303	322	335	347	354	359	363	366

Notes:

1. For interpolation/extrapolation, $x = \xi + \left(\frac{\alpha}{\kappa}\right)\left\{1 - \left[-log\left(\frac{T-1}{T}\right)\right]^{\kappa}\right\}$
2. ++ based on continuous rainfall recorded at HKO Headquarters (1947 – 2014)
3. +++ based on Jardi rate-of-rainfall records at King's Park (1952 – 2014)
4. * interpolated data
5. ** based on hourly rainfall records at HKO Headquarters (1884 – 1939; 1947 – 2014)

(k) Table 28 Rainfall Increase due to Climate Change

Replace the table with the following:

Table 28 – Rainfall Increase due to Climate Change

	Rainfall Increase
Mid 21st Century	11.1%
End of 21st Century	16.0%

Notes:
1. The rainfall increase is relative to the average of 1995-2014.
2. Mean projection values are adopted in the table.
3. Mid 21st century refers to years 2041 – 2060; end of 21st century refers to years 2081 – 2100.

(l) Table 29 Mean Sea Level Rise due to Climate Change

Add the following table:

Table 29 – Mean Sea Level Rise due to Climate Change

	Mean Sea Level Rise
Mid 21st Century	0.20 m
End of 21st Century	0.47 m

Notes:
1. The mean sea level rise is relative to the average of 1995-2014.
2. Median projection values are adopted in the table.
3. Mid 21st century refers to period around 2050; end of 21st century refers to period around 2090.

(m) Table 30 Storm Surge Increase due to Climate Change

Add the following table:

Table 30 –Storm Surge Increase due to Climate Change

Table 30a Storm Surge Increase in Mid 21st Century

Return Period (Years)	**North Point/ Quarry Bay (m)**	**Tai Po Kau (m)**	**Tsim Bei Tsui (m)**	**Tai O (m)**
2	0.04	0.05	0.05	0.03
5	0.05	0.07	0.06	0.05
10	0.06	0.08	0.08	0.05
20	0.07	0.10	0.09	0.06
50	0.08	0.13	0.11	0.08
100	0.09	0.15	0.12	0.09
200	0.10	0.17	0.13	0.10

Notes: Mid 21st century refers to period around 2050.

Table 30b Storm Surge Increase in End of 21st Century

Return Period (Years)	North Point/ Quarry Bay (m)	Tai Po Kau (m)	Tsim Bei Tsui (m)	Tai O (m)
2	0.06	0.09	0.09	0.06
5	0.09	0.14	0.12	0.09
10	0.10	0.17	0.15	0.10
20	0.12	0.20	0.17	0.12
50	0.14	0.25	0.20	0.14
100	0.16	0.29	0.23	0.16
200	0.18	0.34	0.26	0.18

Notes: End of 21st century refers to period around 2090.

(n) Table 31 Design Allowance

Add the following table:

Table 31 Design Allowance in End of 21st Century

Rainfall Increase	Extreme Sea Level Rise (Sum of Mean Sea Level Rise and Storm Surge Increase)				
	Return Period (Years)	North Point/ Quarry Bay (m)	Tai Po Kau (m)	Tsim Bei Tsui (m)	Tai O (m)
12.1%	2	0.20	0.22	0.20	0.19
	5	0.21	0.24	0.22	0.20
	10	0.22	0.25	0.23	0.21
	20	0.22	0.27	0.23	0.22
	50	0.24	0.29	0.25	0.22
	100	0.24	0.31	0.26	0.23
	200	0.25	0.34	0.27	0.24

Note:

1. End of 21st century refers to period around 2090.
2. Design allowance was derived from the projection difference (median values) between very high greenhouse gas emissions scenario [SSP5-8.5] and intermediate greenhouse gas emissions scenario [SSP2-4.5]. For design allowance in mid 21st century, designers can make reference to the table as shown in Appendix 2.

(o) Appendices 1 and 2

Add Appendices 1 and 2 in the following pages:

(b) *Δ values.* Common Δ values are given in the following table:

Material	*Δ*
dense sand, gravel	1.65
concrete	1.2 to 1.4
asphalt concrete	1.3 to 1.4
granite	1.5 to 2.1

(c) *K_β values.* K_β adjusts for reduced shear stress on the bank and reduced stabilizing forces due to side slope. This factor is not applicable to the bed, for which a factor of 1 can be assumed.

$$K_\beta = \sqrt{1 - \frac{\sin^2 \beta}{\sin^2 \phi}} \frac{1}{0.8}$$

where β = side slope of river bank in degrees
ϕ = angle of repose in degrees

(d) *$K\gamma$ values.* Lane suggested the following table for $K\gamma$ to account for river sinuosity:

Degree of Sinuosity	*$K\gamma$*
straight canal	1.00
slightly sinuous river	0.90
moderately sinuous river	0.75
very sinuous river	0.60

The sizing of armouring stones for wave resistance in the estuarine reach of drainage channels can be carried out in accordance with guidelines in CED (1996).

9.3 VELOCITY DESIGN IN CHANNELS AND PIPES

Deposition of sediment in stormwater channels and pipes is inevitable and suitable allowance should be made in the design. For the permissible degradation between desilting cycles, the following guideline is proposed to take into account the effects to flow capacity due to materials deposited on the bed:

(a) 5% reduction in flow area if the gradient is greater than 1 in 25.
(b) 10% reduction in flow area in other cases

(C) Reference

b) Hydraulic Research Paper 8th Edition Table A16

A16

(p.5 of 6)

$k_s = 0{\cdot}150$ mm
S = 0·01000 to 0·03000

ie hydraulic gradient =
1 in 100 to 1 in 33·3

Water (or sewage) at 15°C;
full bore conditions.

velocities in ms^{-1}
discharges in litres/sec

Gradient	(Equivalent) Pipe diameters in mm													
	150	200	225	250	275	300	350	375	400	450	500	525	600	630
0·01000	1·173	1·411	1·521	1·626	1·726	1·824	2·009	2·097	2·183	2·349	2·508	2·584	2·806	2·892
1/ 100	20·728	44·321	60·461	79·798	102·55	128·91	193·26	231·63	274·36	373·61	492·36	559·44	793·39	901·35
0·01050	1·203	1·447	1·559	1·667	1·770	1·870	2·060	2·150	2·238	2·408	2·571	2·649	2·877	2·964
1/ 95	21·259	45·450	61·999	81·825	105·15	132·18	198·15	237·48	281·29	383·03	504·76	573·53	813·34	924·01
0·01100	1·232	1·482	1·597	1·707	1·813	1·915	2·109	2·202	2·292	2·466	2·632	2·713	2·946	3·035
1/ 91	21·777	46·554	63·501	83·805	107·69	135·37	202·93	243·20	288·06	392·24	516·87	587·28	832·82	946·13
0·01150	1·261	1·516	1·634	1·747	1·855	1·959	2·158	2·253	2·345	2·523	2·693	2·775	3·013	3·105
1/ 87	22·284	47·633	64·970	85·741	110·17	138·49	207·59	248·79	294·67	401·23	528·71	600·73	851·87	967·75
0·01200	1·289	1·550	1·670	1·785	1·896	2·002	2·205	2·302	2·396	2·578	2·752	2·836	3·079	3·172
1/ 83	22·781	48·688	66·408	87·635	112·60	141·54	212·16	254·26	301·14	410·03	540·30	613·89	870·50	988·92
0·01250	1·317	1·583	1·706	1·823	1·936	2·045	2·252	2·351	2·447	2·632	2·810	2·895	3·143	3·239
1/ 80	23·267	49·722	67·816	89·491	114·98	144·53	216·63	259·61	307·48	418·65	551·65	626·78	888·76	1009·6
0·01300	1·344	1·615	1·740	1·860	1·975	2·086	2·297	2·398	2·496	2·685	2·866	2·954	3·207	3·304
1/ 77	23·743	50·736	69·196	91·309	117·32	147·46	221·02	264·86	313·70	427·11	562·77	639·41	906·65	1030·0
0·01350	1·370	1·647	1·774	1·896	2·014	2·127	2·342	2·445	2·545	2·738	2·922	3·011	3·269	3·368
1/ 74	24·211	51·731	70·550	93·094	119·61	150·33	225·32	270·02	319·79	435·40	573·68	651·80	924·20	1049·9
0·01400	1·396	1·678	1·808	1·932	2·052	2·167	2·386	2·491	2·592	2·789	2·976	3·067	3·330	3·431
1/ 71	24·670	52·707	71·880	94·846	121·86	153·16	229·54	275·07	325·78	443·53	584·40	663·97	941·43	1069·5
0·01450	1·422	1·708	1·841	1·967	2·089	2·206	2·429	2·536	2·639	2·839	3·030	3·122	3·389	3·492
1/ 69	25·121	53·667	73·186	96·567	124·07	155·93	233·69	280·04	331·66	451·53	594·92	675·92	958·36	1088·7
0·01500	1·447	1·738	1·873	2·002	2·125	2·245	2·471	2·580	2·685	2·888	3·083	3·177	3·448	3·553
1/ 67	25·564	54·609	74·470	98·258	126·24	158·65	237·77	284·92	337·44	459·39	605·27	687·67	974·99	1107·6
0·01600	1·496	1·797	1·936	2·069	2·197	2·320	2·554	2·666	2·775	2·985	3·185	3·283	3·563	3·671
1/ 63	26·429	56·450	76·975	101·56	130·47	163·97	245·73	294·45	348·71	474·72	625·45	710·59	1007·5	1144·4
0·01700	1·543	1·854	1·997	2·134	2·266	2·393	2·634	2·750	2·862	3·078	3·285	3·385	3·674	3·786
1/ 59	27·268	58·234	79·404	104·76	134·58	169·13	253·44	303·69	359·64	489·59	645·02	732·81	1038·9	1180·2
0·01800	1·589	1·909	2·056	2·197	2·333	2·464	2·712	2·831	2·946	3·169	3·382	3·485	3·783	3·897
1/ 56	28·082	59·966	81·762	107·87	138·57	174·14	260·93	312·66	370·26	504·02	664·02	754·39	1069·5	1214·9
0·01900	1·634	1·962	2·114	2·259	2·398	2·532	2·788	2·910	3·029	3·257	3·476	3·582	3·888	4·005
1/ 53	28·875	61·651	84·057	110·89	142·45	179·01	268·21	321·38	380·58	518·06	682·49	775·37	1099·2	1248·6
0·02000	1·678	2·015	2·170	2·319	2·462	2·600	2·862	2·987	3·109	3·343	3·568	3·676	3·990	4·111
1/ 50	29·647	63·293	86·291	113·83	146·22	183·75	275·31	329·88	390·64	531·74	700·49	795·81	1128·2	1281·5
0·02100	1·720	2·066	2·225	2·378	2·524	2·665	2·933	3·062	3·187	3·427	3·657	3·768	4·090	4·214
1/ 47·6	30·400	64·894	88·471	116·71	149·91	188·38	282·23	338·17	400·45	545·08	718·05	815·75	1156·4	1313·5
0·02200	1·762	2·115	2·279	2·435	2·584	2·729	3·004	3·135	3·263	3·509	3·744	3·858	4·187	4·314
1/ 45·5	31·135	66·458	90·600	119·51	153·51	192·89	288·99	346·26	410·03	558·10	735·19	835·22	1184·0	1344·9
0·02300	1·803	2·164	2·331	2·491	2·644	2·791	3·072	3·207	3·337	3·589	3·830	3·946	4·283	4·412
1/ 43·5	31·854	67·986	92·681	122·25	157·03	197·31	295·60	354·17	419·39	570·83	751·95	854·25	1210·9	1375·5
0·02400	1·842	2·212	2·382	2·545	2·702	2·853	3·140	3·277	3·410	3·668	3·913	4·032	4·376	4·508
1/ 41·7	32·557	69·482	94·718	124·94	160·47	201·63	302·07	361·91	428·56	583·29	768·35	872·88	1237·3	1405·4
0·02500	1·881	2·258	2·432	2·599	2·758	2·912	3·205	3·345	3·482	3·744	3·995	4·116	4·467	4·603
1/ 40·0	33·247	70·947	96·712	127·56	163·84	205·87	308·40	369·50	437·53	595·50	784·42	891·12	1263·1	1434·7
0·02600	1·920	2·304	2·482	2·651	2·814	2·971	3·270	3·413	3·552	3·819	4·075	4·199	4·557	4·695
1/ 38·5	33·922	72·384	98·668	130·14	167·15	210·02	314·61	376·93	446·33	607·46	800·16	909·00	1288·4	1463·5
0·02700	1·957	2·349	2·530	2·703	2·869	3·029	3·333	3·479	3·620	3·893	4·154	4·280	4·645	4·785
1/ 37·0	34·585	73·793	100·59	132·67	170·39	214·09	320·70	384·22	454·96	619·19	815·60	926·54	1313·3	1491·7
0·02800	1·994	2·393	2·577	2·753	2·922	3·085	3·395	3·544	3·688	3·966	4·231	4·360	4·731	4·874
1/ 35·7	35·235	75·176	102·47	135·15	173·57	218·08	326·67	391·38	463·43	630·71	830·77	943·75	1337·7	1519·4
0·02900	2·030	2·436	2·624	2·803	2·975	3·141	3·456	3·607	3·754	4·037	4·307	4·438	4·816	4·961
1/ 34·5	35·875	76·535	104·32	137·59	176·70	222·01	332·55	398·41	471·75	642·03	845·66	960·67	1361·6	1546·6
0·03000	2·066	2·479	2·669	2·852	3·027	3·195	3·516	3·670	3·819	4·107	4·381	4·515	4·899	5·047
1/ 33·3	36·503	77·871	106·14	139·98	179·77	225·87	338·32	405·32	479·93	653·15	860·30	977·29	1385·1	1573·3
	0·83	0·85	0·85	0·86	0·86	0·87	0·88	0·88	0·89	0·89	0·90	0·90	0·91	0·91

$V_{r(0·5)medial}$ for half-full circular pipes.

$k_s = 0{\cdot}150$ mm S = 0·01000 to 0·03000