

Company: Handship Engineering Company Limited

Project: Proposed drainage at Lots 1750A4 RP (Par t), 1750A5 RP and 1750A6 RP (Part) in D.D. 107, Fung Kat Heung, Kam Tin, Yuen Long

Date: 2020/7/10

Calculation for Design of Channels:

i = 250 mm/hr

Catchment Area :						С		i		Peak runoff			
	m^2	km^2								liter/min	liter/min	m^3/s	m^3/s
A(Hard-paved)	1370	0.00137	X	0.278	x	0.95		250		5427.3	9096.9	0.090	0.152
A(Soil-paved)	3520	0.00352				0.25		250		3669.6		0.061	
B(Hard-paved)	324	0.000324				0.95		250		1283.5	4799.9	0.021	0.080
B(Soil-paved)	3373	0.003373				0.25	v	250	=	3516.4		0.059	
C(Hard-paved)	864	0.000864				0.95	^	250		3422.7	7086.1	0.057	0.118
C(Soil-paved)	3514	0.003514				0.25		250		3663.3	7000.1	0.061	
D(Hard-paved)	432	0.000432				0.95		250		1711.4	5392.4	0.029	0.090
(Soil-paved)	3531	0.003531				0.25		250		3681.1	3392.4	0.061	
									Total =	26375.3		0.4396	

According to (Figure 8.7 - Chart for the Rapid Design of Channels),

For gradient 1:150, 375UC or above will be suitable for A

For gradient 1:150, 300UC or above will be suitable for B

For gradient 1:150, 375UC or above will be suitable for C

For gradient 1:150, 300UC or above will be suitable for D

Total Peak runoff for B and C = 11886.0 liter/min

For gradient 1:150, 375UC or above will be suitable for B and C

Total Peak runoff for C and D = 12478.5 liter/min

For gradient 1:150, 375UC or above will be suitable for B and C

Total Peak runoff for A and B = 13896.7 liter/min

For gradient 1:150, 450UC or above will be suitable for A and B

Total Peak runoff for the whole site = 26375.3 liter/min

For gradient 1:150, 525UC or above will be suitable for B and C

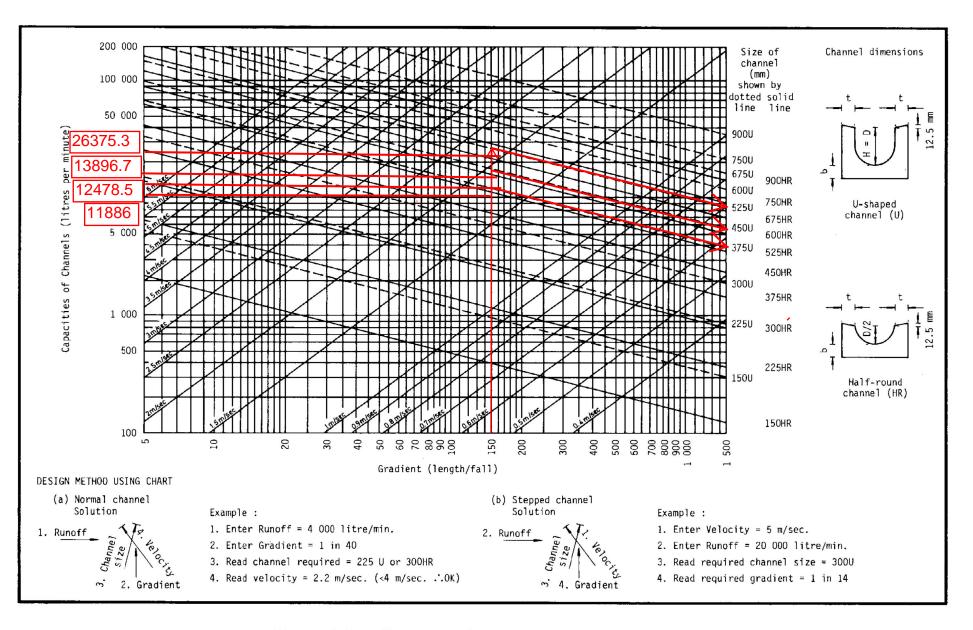


Figure 8.7 - Chart for the Rapid Design of Channels

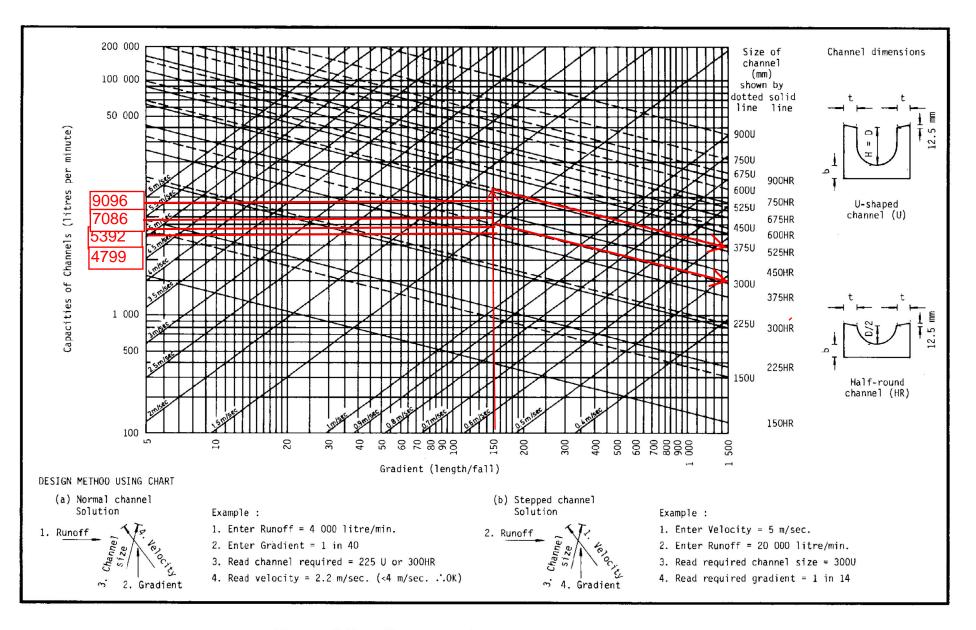
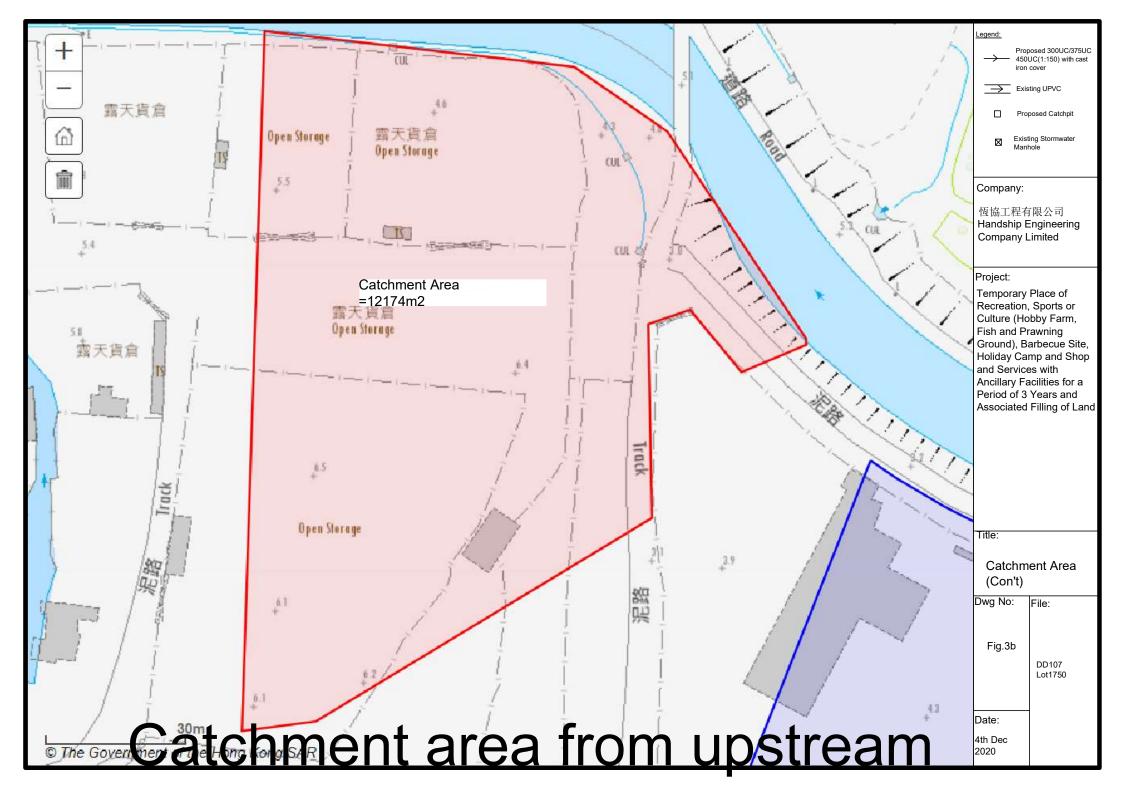


Figure 8.7 - Chart for the Rapid Design of Channels



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Date: 2020/12/4

CHECK EXISTING 600mm dia pipes (SWD1065691)

Upstream flow from 375UC and 600UC

Upstream, Catchment Area = 12174 m^2

0.012174 km^2

Peak runoff in m³/s = 0.278 x 0.25 x 250 mm/hr x 0.012174 km²

= 0.211523 m^3/s = 12691 liter/min

For gradient 1:100, existing 375UC has adequate capacity for stormwater collection system

Total Peak runoff to SWD1065691 = 0.7 m^3/s = 39067 liter/min

(Site catchment and upstream area)

Check existing 600mm dia. Pipes (SWD1065691) by Colebrook-White Equation

$$V = -\sqrt{(8gDs)} \log(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}})$$

where : V

mean velocity (m/s) g 9.81 m/s2 gravitational acceleration (m/s2) 0.6 internal pipe diameter (m) D m ks 0.00015 m hydraulic pipeline roughness (m) 1.14E-06 m2/s kinematic viscosity of fluid (m2/s) ٧ S

s = 0.01 hydraulic gradient Pip area = 0.282743 m2

10% reduction of flow area = 0.254469 m2

Therefore, design V of pipe capacity = 2.8059 m/s > Design velocity = 0.6511 m3/s / 0.254469 = 2.302833 m/s ===>**0.K**.

(Table 5, from DSD Sewerage Manual, concrete pipe)

Exsiting 600mm dia. Pipe have spare capacity to accommodate the flow from the application site

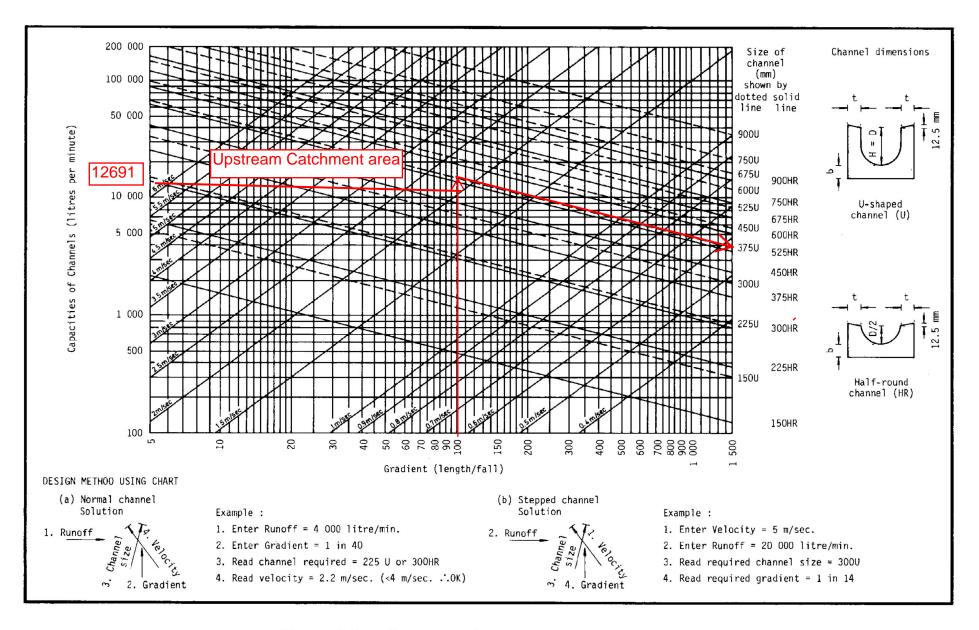
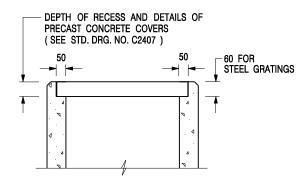


Figure 8.7 - Chart for the Rapid Design of Channels



ALTERNATIVE TOP SECTION FOR PRECAST CONCRETE COVERS / GRATINGS

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. C2413.
- 5. CONCRETE TO BE COLOURED AS SPECIFIED.
- 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.
- FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405) 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 'G' ON STD. DRG. NO. C2405; 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 1 000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
- 10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1 000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1 000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 ℃ STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
- FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'F' ON STD. DRG. NO. C2405.
- SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

- FORMER DRG. NO. C2406J. Original Signed 03.2015
REF. REVISION SIGNATURE DATE

CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

CATCHPIT WITH TRAP (SHEET 2 OF 2)

卓越工程 建設香港

 SCALE 1:20
 DRAWING NO.

 DATE JAN 1991
 C2406 /2

We Engineer Hong Kong's Development

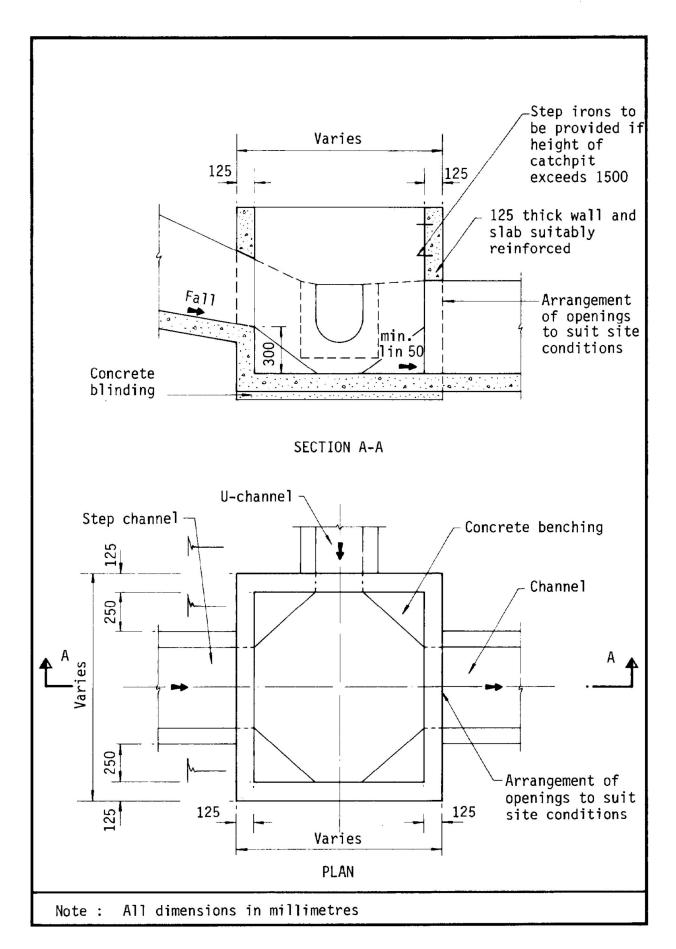


Figure 8.10 - Typical Details of Catchpits

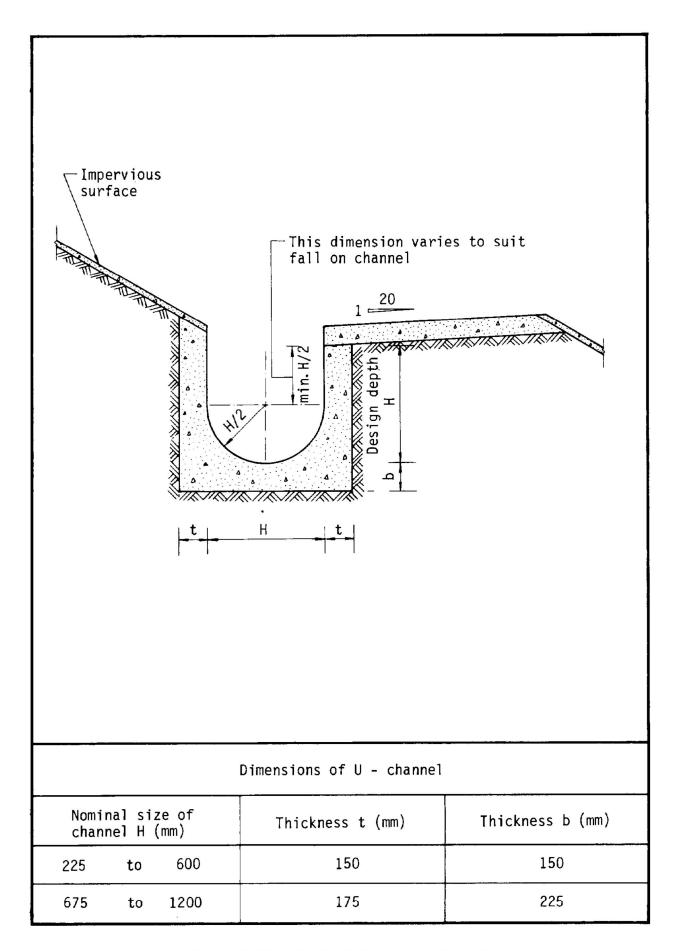
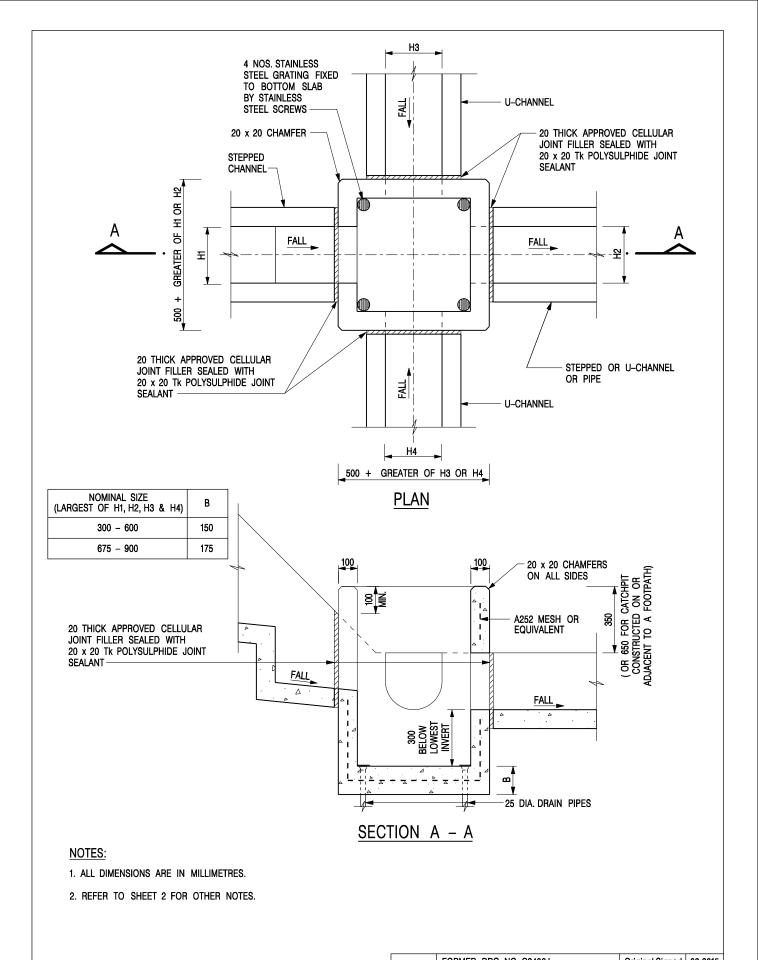


Figure 8.11 - Typical U-channel Details



	-	FORMER DRG. NO. C2406J.		Original Signed	03.2015	
	REF.	REVISION		SIGNATURE	DATE	
CATCHPIT WITH TRAP	CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT					
(CHEET 1 OF 0)	SCAL	E 1 : 20	DRAWING NO.			
(SHEET 1 OF 2)	DATE	JAN 1991	C24	106 /1		
卓越工程 建設香港	V	le Engineer Hong k	(ong's De	velopment		

FIRE SERVICES NOTES:

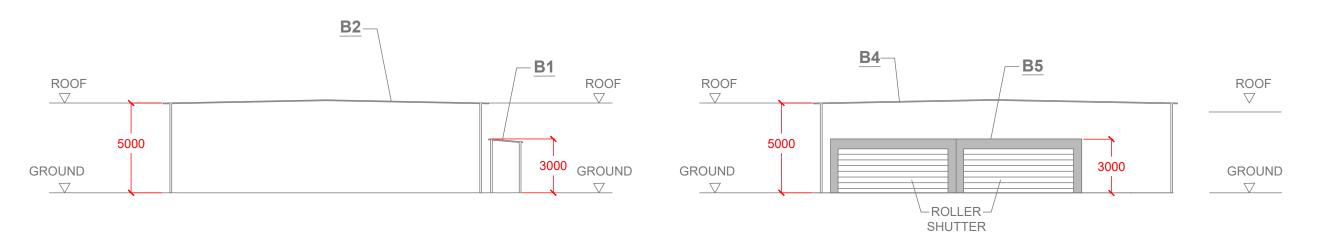
- 1. HOSE REEL SYSTEM
- 1.1 HOSE REEL SHALL BE PROVIDED AT POSITIONS AS INDICATED ON PLANS.
- 1.2 THERE SHALL BE SUFFICIENT HOSE REELS TO ENSURE THAT EVERY PART OF THE BUILDING CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30M OF HOSE REEL TUBING. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE TO BE LOCATED AT EACH HR POINT. THE ACTUATING POINT SHOULD INCLUDE FACILITIES FOR THE FIRE PUMP START DEVICE INITIATION.
- 1.3 A MODIFIED HOSE REEL SYSTEM OF 2,000 LITRES WATER TANK TO BE PROVIDED FOR THE ENTIRE BUILDING AS INDICATED ON PLAN.
- 1.4 NO FIRE SERVICES INLET TO BE PROVIDED FOR THE MODIFIED HOSE REEL SYSTEM.
- 1.5 WATER SUPPLY FOR THE MODIFIED HOSE REEL SYSTEM TO BE SINGLE END FEED FROM THE GOVERNMENT TOWN MAIN.
- 1.6 TWO FIXED FIRE PUMPS (DUTY/STANDBY) TO BE PROVIDED AT F.S. & PUMP ROOM.
- 1.7 THE HR SYSTEM INSTALLED SHOULD BE IN ACCORDANCE WITH PARA. 5.14 OF THE CODE OF PRACTICE FOR MINIMUM FIRE SERVICE INSTALLATION AND EQUIPMENT 2022.
- 1.8 AN INSTRUCTION PLATE SHALL BE PROVIDED NEXT TO THE BREAK GLASS UNIT FOR OPERATION OF HOSE REEL.

2. FIRE ALARM SYSTEM

- 2.1 FIRE ALARM SYSTEM SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDING IN ACCORDANCE WITH BS 5839-1: 2017 AND FSD CIRCULAR LETTER N0.6/2021. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE SHOULD BE LOCATED AT EACH HOSE REEL POINT. THE ACTUATION POINT SHOULD INCLUDE FACILITIES FOR FIRE PUMP START AND AUDIO / VISUAL WARNING DEVICE INITIATION.
- 2.2 AN ADDRESSABLE TYPE FIRE ALARM PANEL TO BE PROVIDED AND LOCATED INSIDE G/F F.S. PUMP ROOM.

3. MISCELLANEOUS F.S. INSTALLATION

- 3.1 PORTABLE FIRE EXTINGUISHER WITH SPECIFIED TYPE AND CAPACITY TO BE PROVIDED AT LOCATIONS AS INDICATED ON PLANS.
- 3.2 SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDINGS/STRUCTURES IN ACCORDANCE WITH BS 5266-1:2016, BS EN 1838:2013 AND FSD CL 4/2021.
- 3.3 SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266: PART 1 AND FSD CIRCULAR LETTER 5/2008.
- 3.4 NO EMERGENCY GENERATOR TO BE PROVIDED FOR SERVING THE EMERGENCY POWER. DUPLICATED POWER SUPPLIES FOR ALL FIRE SERVICES INSTALLATIONS COMPRISING A CABLE CONNECTED FROM ELECTRICITY MAINS DIRECTLY BEFORE THE MAIN SWITCH.
- 3.5 WHEN A VENTILATION/ AIR CONDITIONING CONTROL SYSTEM TO A BUILDING IS PROVIDED, IT SHALL STOP MECHANICALLY INDUCED AIR MOVEMENT WITHIN A DESIGNATED FIRE COMPARTMENT.
- 3.6 NO DYNAMIC SMOKE EXTRACTION SYSTEM SHALL BE PROVIDED SINCE FIRE COMPARTMENT NOT EXCEEDING 7000 CUBIC METRES AND THE AGGREGATE AREA OF OPENABLE WINDOWS OF THE RESPECTIVE COMPARTMENT EXCEEDS 6.25% OF THE FLOOR AREA OF THAT COMPARTMENT.



SECTION PLAN OF STRUCTURE B1 - B2 AND B4 - B5

(INDICATIVE ONLY)



PLANNING CONSULTANT



TEMPORARY PLACE OF RECREATION, SPORTS OR CULTURE (HOBBY FARM FISHING AND PRAWNING GROUND), BARBECUE SITE HOLIDAY CAMP AND SHOP AND SERVICES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

TE LOCATION

VARIOUS LOTS IN D.D. 107, KAM TIN, YUEN LONG, NEW TERRITORIES

FSIs PROPOSAL (1/2)

001

DWG NO.
APPENDIX II





R-Riches

TEMPORARY PLACE OF RECREATION, SPORTS OR CULTURE (HOBBY FARM, FISHING AND PRAWNING GROUND), BARBECUE SITE, HOLIDAY CAMP AND SHOP AND SERVICES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND

VARIOUS LOTS IN D.D. 107, KAM TIN, YUEN LONG, NEW TERRITORIES

1 : 500 @ A3 12.8.2024 FSIs PROPOSAL (2/2)

APPENDIX II