

Our Ref. : DD106 Lot 136 RP
Your Ref. : TPB/A/YL-KTS/1145

The Secretary,
Town Planning Board,
15/F, North Point Government Offices,
333 Java Road,
North Point, Hong Kong

By E-mail

24 July 2026

Dear Sir,

Supplementary Information

**Proposed Temporary Warehouse (excluding Dangerous Goods Godown)
with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "Agriculture" Zone,
Lots 136 RP (Part) and 2149 (Part) in D.D. 106 and Adjoining Government Land,
Kam Tin, Yuen Long, New Territories**

(S.16 Planning Application No. A/YL-KTS/1145)

We write to submit supplementary information with the following documents in support of the captioned application:

- drainage proposal (**Annex 1**);
- structural design report for drainage modification works (**Annex 2**); and
- revised page of the application form and the supplementary statement (**Annex 3**).

Should you require more information, please contact the undersigned directly at (852) 5964 4378 at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Planning Limited



Christian CHIM
Town Planner

cc DPO/FSYLE, PlanD

(Attn.: Ms. Selena SIN
(Attn.: Mr. Travis KWOK

email: symsin@pland.gov.hk)
email: ttkkwoki@pland.gov.hk)



Annex 1

Drainage proposal

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS, LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

Drainage Proposal

Jul 2026



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1 Introduction

1.1 Background

- 1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Lots 136 RP (Part) and 2149 (Part) in D.D. 106 and adjoining Government Land (GL), Kam Tin, Yuen Long, New Territories (the Site) for 'Proposed Temporary Warehouse (excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years'.
- 1.1.2 This report aims to support the development in drainage aspect.

1.2 Application Site

- 1.2.1 The application site is situated beside Kam Ho Road near Pat Heung Depot. It has an area of approx. 2,128 m². The site location is shown in **Figure 1**.
- 1.2.2 A existing site was unpaved. The existing site levels are approx. from +8.8mPD to +15 mPD. It is proposed raised the site levels to + 10.2 mPD (or rise with 0.2m concrete if higher than +10.2) to match with the nearby road levels and for formation of structures, parking and L/UL space and circulation area.
- 1.2.3 There is an existing 1.7m channel which would eventually discharge to 3 cells 7000 (W) x 3600 (H) box culvert at the east. **Figure 2** indicate the existing drainage system of the area.

2 Development Proposal

2.1 The Proposed Development

- 2.1.1 The total site area is approximately 2,128 m². After the development the site would be fully paved. The catchment plan is shown in **Figure 4**.

Proposed Development	
Total Site Area (m ²)	2,128
Paved Area after Development (m ²)	2,128

Table 1 – Site Development Area

3 Assessment Criteria

- 3.1.1 The Recommended Design Return Period based on Flood Level from SDM (Table 10) is adopted for this report. The recommendation is summarized in **Table 2** below.

Description	Design Return Periods
Intensively Used Agricultural Land	2 – 5 Years
Village Drainage Including Internal Drainage System under a polder Scheme	10 Years
Main Rural Catchment Drainage Channels	50 Years
Urban Drainage Trunk System	200 Years
Urban Drainage Branch System	50 Years

Table 2– Design Return Periods under SDM

- 3.1.2 The proposed drainage system intended to collect runoff from internal site and external catchment. 1 in 50 years return period is adopted for the drainage design.

3.1.3 Stormwater drainage design will be carried out in accordance with the criteria set out in the Stormwater Drainage Manual published by DSD. The proposed design criteria to be adopted for design of this stormwater drainage system and factors which have been considered are summarised below.

1. Intensity-Duration-Frequency Relationship – The Recommended Intensity-Duration-Frequency relationship is used to estimate the intensity of rainfall. It can be expressed by the following algebraic equation.

$$i = \frac{a}{(t_d + b)^c}$$

The site is located within the HKO Zone. Therefore, for 50 years return period, the following values are adopted.

a	=	505.5
b	=	3.29
c	=	0.355

(Corrigendum No.1/2024)

The development is proposed for temporary use for a period of 3 years. 11.1% rainfall increase due to climate change is considered.

2. The peak runoff is calculated by the Rational Method
i.e. $Q_p = 0.278CiA$

where	Q_p	=	peak runoff in m ³ /s
	C	=	runoff coefficient (dimensionless)
	i	=	rainfall intensity in mm/hr
	A	=	catchment area in km ²

3. The run-off coefficient (C) of surface runoff are taken as follows:

1. Paved Area: C = 0.95
2. Unpaved Area: C = 0.35

4. Manning's Equation is used for calculation of velocity of flow inside the channels:

$$\text{Manning's Equation: } v = \frac{R^{\frac{1}{6}}}{n} R^{\frac{1}{2}} S_f^{\frac{1}{2}}$$

Where,

V = velocity of the pipe flow (m/s)

S_f = hydraulic gradient

n = manning's coefficient

R = hydraulic radius (m)

5. Colebrook-White Equation is used for calculation of velocity of flow inside the pipes:

$$\text{Colebrook-White Equation: } \underline{v} = -\sqrt{32gRS} \log \left(\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS}} \right)$$

where,

V	=	velocity of the pipe flow (m/s)
S _f	=	hydraulic gradient
k _f	=	roughness value (m)
v	=	kinematics viscosity of fluid
D	=	pipe diameter (m)
R	=	hydraulic radius (m)

4 Proposed Drainage System

4.1. Proposed Channels

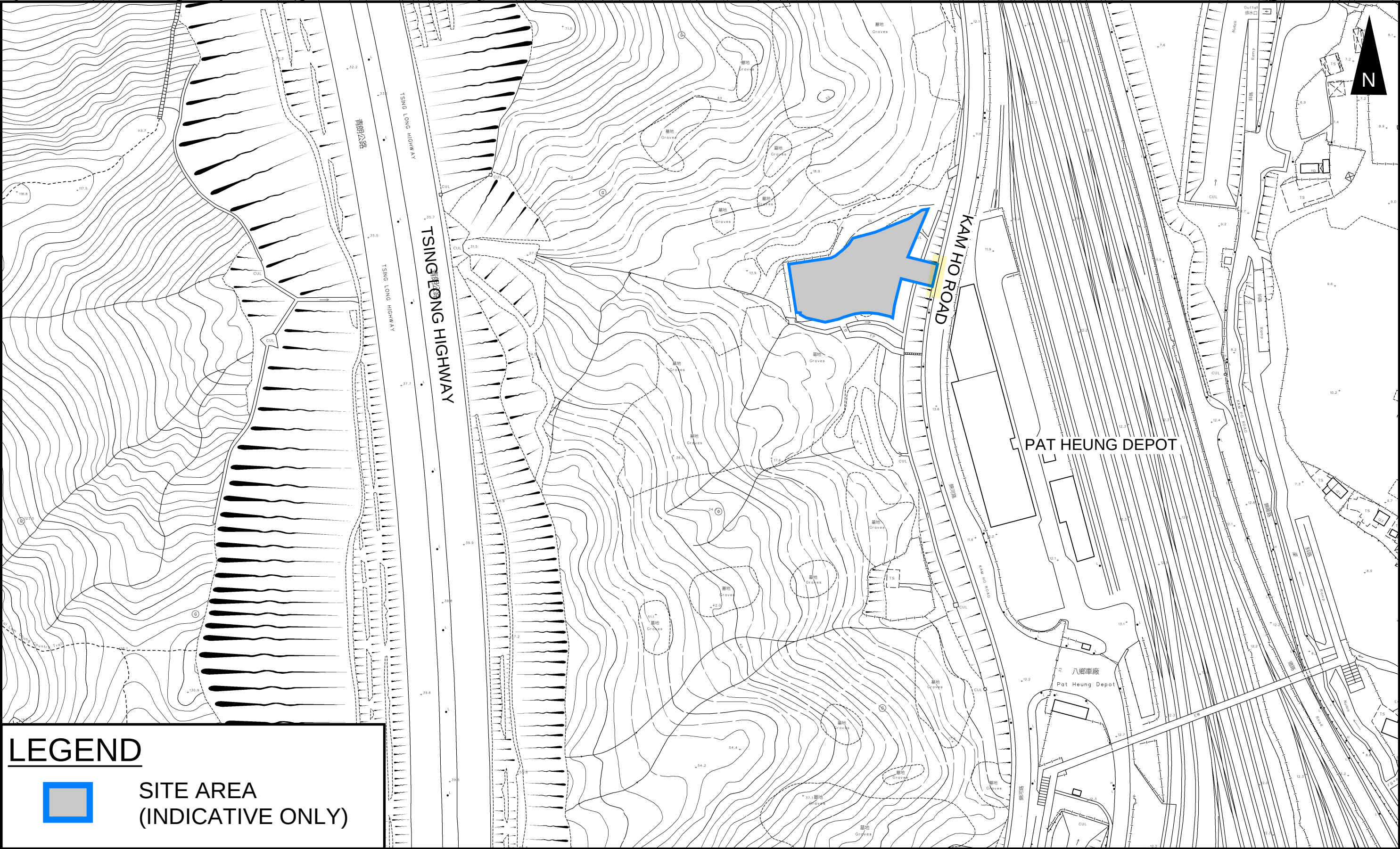
- 4.1.1 Proposed Channels are designed for collection of runoff for internal and external catchment. They are proposed to connect to 3 cells box culvert in the east through 1.7m channel and existing pipe. The utilization of the existing 1.7m channel is 12.6% according to checking in **Appendix A**. It has enough capacity. Existing 1.7m channel covered by proposed run-in/out to be replaced by 1800mm pipe and manhole type S1. The checking of 1800mm pipe is shown in **Appendix A** which has capacity not less than 1.7m channel.
- 4.1.2 The design calculations of proposed UChannel are shown in **Appendix A**.
- 4.1.3 The alignment, size, gradient and details of the proposed drains are shown in **Figure 3**. The catchment plan is shown in **Figure 4**.
- 4.1.5 Reference Drawings are shown in **Appendix C** for reference.

5 Conclusion

- 5.1.1 Drainage review has been conducted for the Proposed Development. The surface runoff will be collected by the proposed drains and discharged to existing drainage system. With implementation of the above drainage system, no unacceptable drainage impact is anticipated.

- End of Text -

FIGURES



LEGEND



**SITE AREA
(INDICATIVE ONLY)**

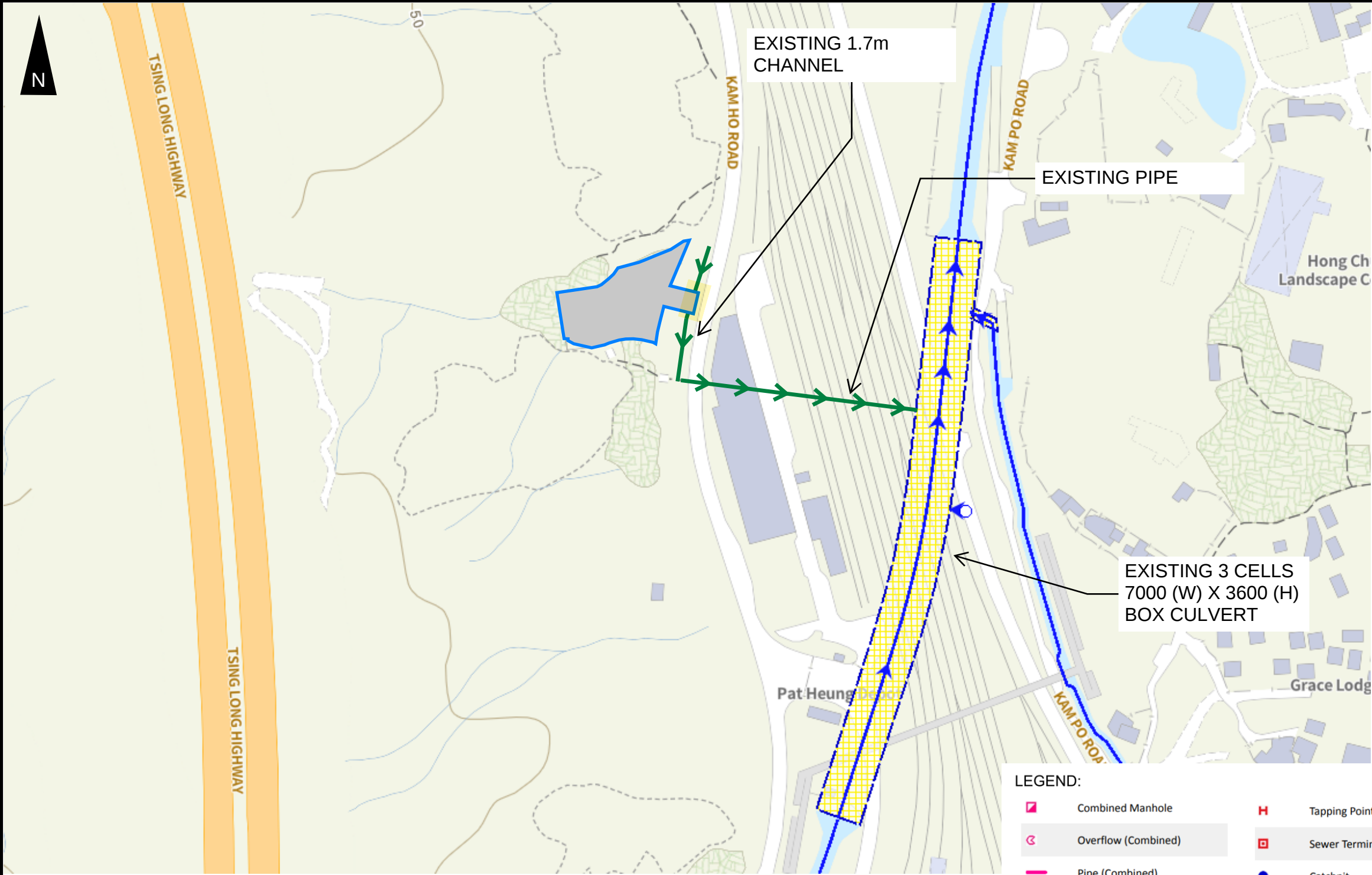
PROJECT:
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
SITE LOCATION PLAN

FIGURE NUMBER
FIGURE 1

LOCATION:
LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
TIN, YUEN LONG, NEW TERRITORIES

VER	DESCRIPTION	DATE
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LEGEND



SITE AREA
(INDICATIVE ONLY)

PROJECT:

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

LOCATION:

LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

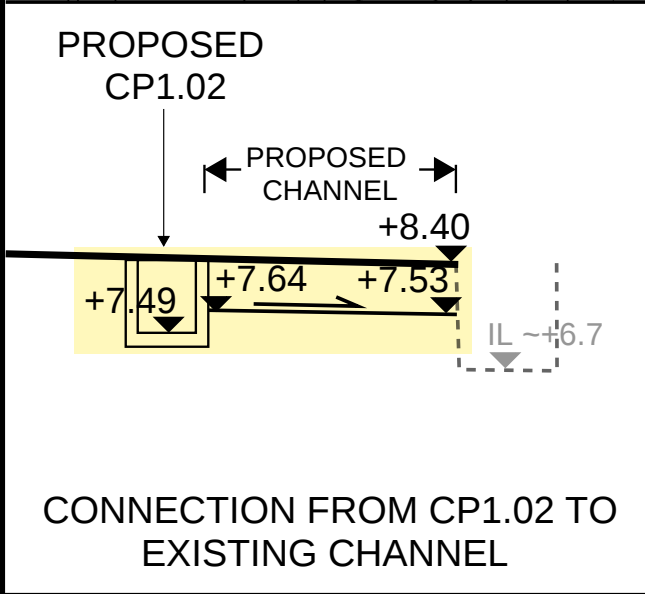
TITLE

EXISTING DRAINAGE PLAN

FIGURE NUMBER		
FIGURE 2		
VER	DESCRIPTION	DATE

LEGEND

	SITE AREA (INDICATIVE ONLY)
	PROPOSED CHANNEL
	PROPOSED STEPPED CHANNEL
	PROPOSED CATCHPIT
	PROPOSED CATCHPIT w/TRAP
	EXISTING DRAIN
	PROPOSED 1800 CONCRETE PIPE (BS5911-1) AND MANHOLE TYPE S1 (DETAILS OF MANHOLE TYPE S1 REFER TO STRUCTURAL REPORT)



DRAINAGE SCHEDULE										
US MH/PIT	DS MH/PIT	US GL	DS GL	Size mm	Gradient 1 in	Type	US IL	DS IL	U/S MH/PIT TYPE	Remark
SP01	CP1.01	15	12.5	525	Stp. Ch.	UC- Stepped	14.09	11.84	SP	#SP: Start Point
CP1.01	CP1.02	12.5	8.8	525	Stp. Ch.	UC- Stepped	11.59	8.14	CP	
CP1.02	EXISTING 1700 CHANNEL	8.8	8.4	600	100	UC	7.64	7.53	CP	
SP02	CP2.01	15.0	10.3	525	Stp. Ch.	UC- Stepped	14.09	9.64	SP	
CP2.01	CP1.02	10.3	8.8	600	71	UC	9.14	8.15	CP	

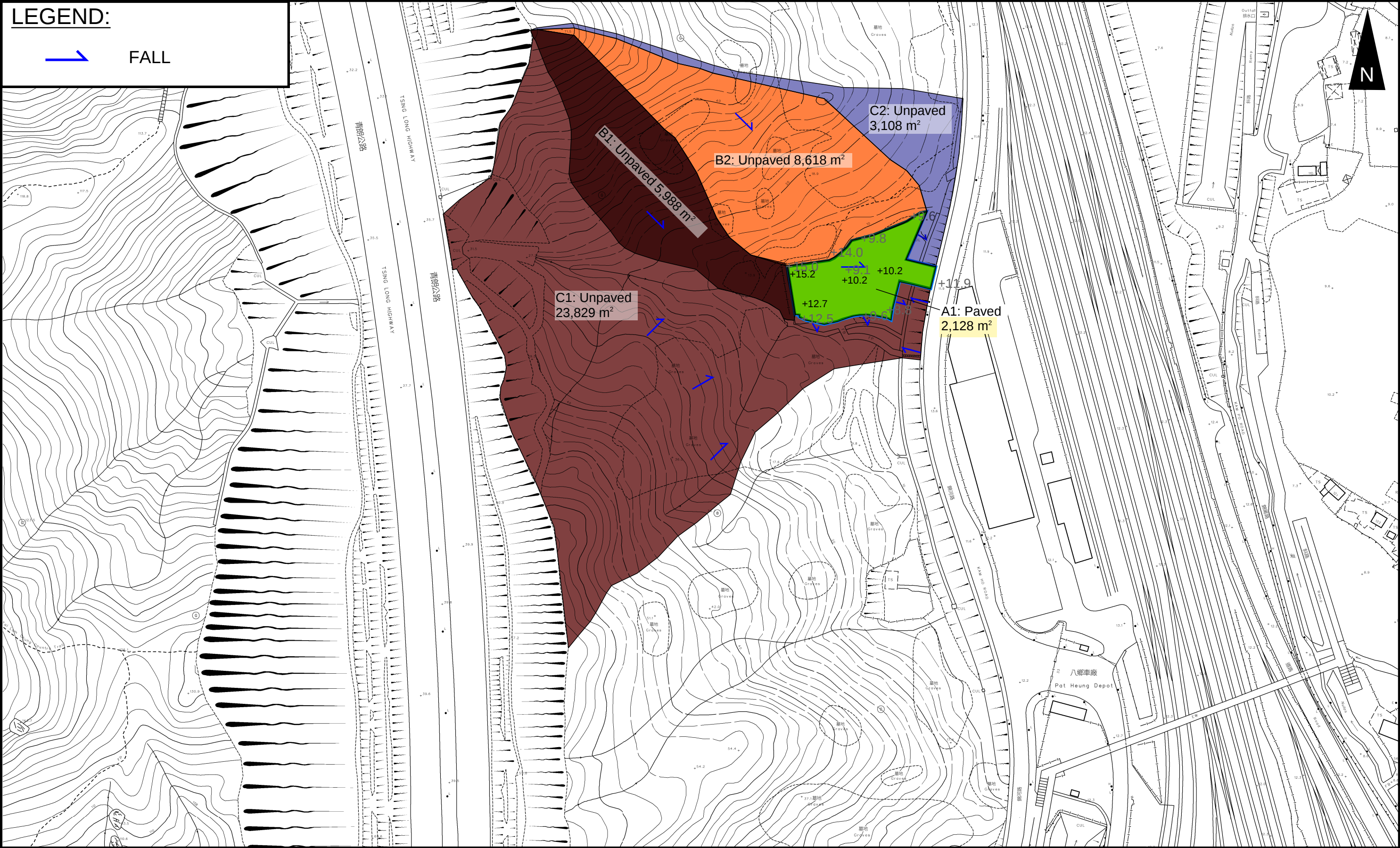
NOTES:

1. ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.P.D.) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
3. LOCATION OF CATCHPITS ARE APPROX. ONLY.
4. CONNECTION LEVELS ARE APPROX. ONLY AND SHALL BE VERIFIED ON SITE.

TITLE
PROPOSED DRAINAGE
SYSTEM

LOCATION:
LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
TIN, YUEN LONG, NEW TERRITORIES

VER	DESCRIPTION	DATE



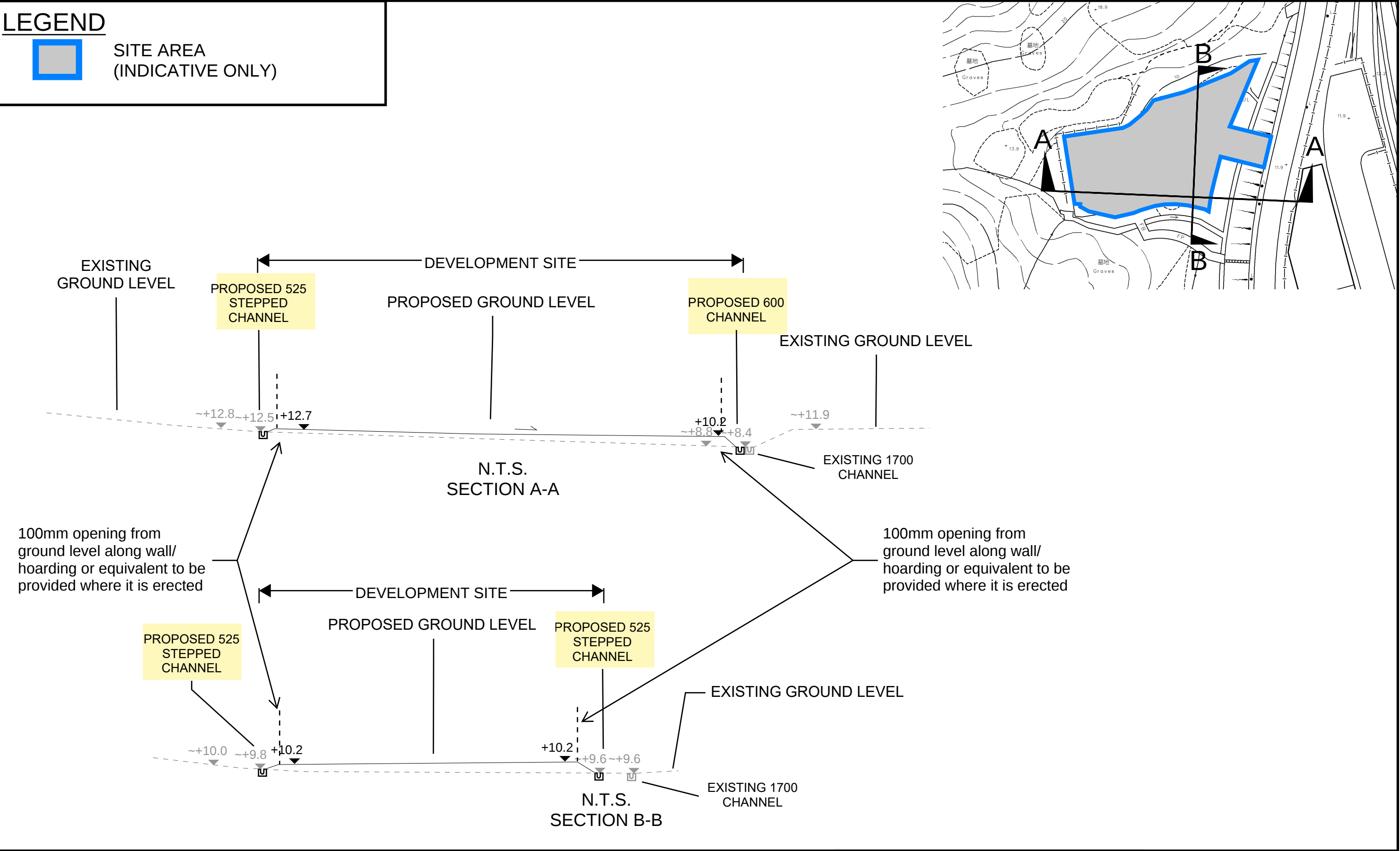
PROJECT:
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
CATCHMENT PLAN

FIGURE NUMBER
FIGURE 4

LOCATION:
LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
TIN, YUEN LONG, NEW TERRITORIES

VER	DESCRIPTION	DATE



PROJECT:

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE

SECTIONS

FIGURE NUMBER

FIGURE 5

LOCATION:

LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

APPENDIX

Appendix A: Design Calculation

Zone	HKO	Return Period	1 in	50	years	n	0.014	Storm Constant	HKO a	505.5
						Ks	0.15		HKO b	3.29
						Viscosity	0.000001		HKO c	0.355

Catchment	A1	B1	B2	C1	C2													
Total Area	2128	5988	8618	23829	3108													
Hard Paved Area	2128	0	0	0	0													
Unpaved Area	0	5988	8618	23829	3108													
Equival. Area	2021.6	2095.8	3016.3	8340.15	1087.8													

Pavement Type	Hard Paved	Unpaved
Runoff Coefficient	0.95	0.35

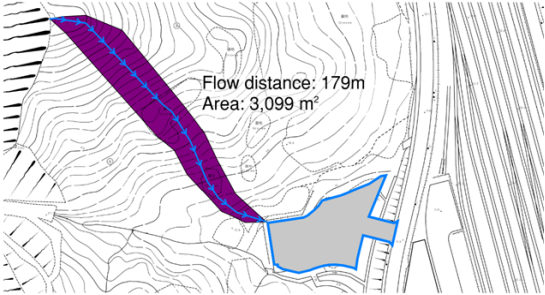
Calculation Table of Drainage System

US MH/PIT	DS MH/PIT	US GL	DS GL	Size mm	Gradient 1 in	Type	US IL	DS IL	U/S MH/PIT TYPE	Length m	V m/s ^{##}	Capacity m ³ /s	Catchments	Total Equivalent Area m ²	ToC min	Intensity mm/hr ^{##}	Total Discharge m ³ /s	Utilization	Remark
SP01	CP1.01	15.00	12.50	525	Stp. Ch.	UC-Stepped	14.09	11.84	SP	21.2	Stp. Ch.	0.43	A1,B1	4117.40	5.80	257	0.29	68.3%	
CP1.01	CP1.02	12.50	8.80	525	Stp. Ch.	UC-Stepped	11.59	8.14	CP	46	Stp. Ch.	0.43	A1,B1	4117.40	5.84	256	0.29	68.2%	
CP1.02	EXISTING 1700 CHANNEL	8.80	8.40	600	100	UC	7.64	7.53	CP	10.8	2.34	0.68	A1,B1,B2	7133.70	6.39	251	0.50	73.5%	
SP02	CP2.01	15.00	10.30	525	Stp. Ch.	UC-Stepped	14.09	9.64	SP	73.6	Stp. Ch.	0.43	A1,B2	5037.90	5.80	257	0.36	83.6%	
CP2.01	CP1.02	10.30	8.80	600	71	UC	9.14	8.15	CP	69.8	2.78	0.80	A1,B2	5037.90	5.97	255	0.36	44.4%	
EXISTING 1700 CHANNEL				1700	200	UC					3.31	7.69	A1,B1,B2,C1,C2	16561.65	6.46	250	1.15	15.0%	
Proposed 1800 pipe		10.20	10.20	1800	200	PIPE		6.70			3.62	8.29	A1,B1,B2,C1,C2	16561.65	6.46	250	1.15	13.9%	Cap no less than existing 1700 Channel
IL match with existing levels																			

#SP: Start Point
: With 11.1% rainfall increase as per Table 28 of SDM Corrigendum No. 1/2022.
###: 10% reduction of Area as per SDM section 9.3

Time of Concentration Checking

Catchment	Flow Distance	Highest Level	Lowest Level	Gradient (per 100m) = (H1-H2)/L x 100	to (min) = 0.14465L/ (H ^{0.2} A ^{0.1})	tc = to + tf
A	L	H1	H2			
(m2)	(m)	(mPD)	(mPD)		(min)	(min)
3099	179	72	15	31.844	5.8	5.8

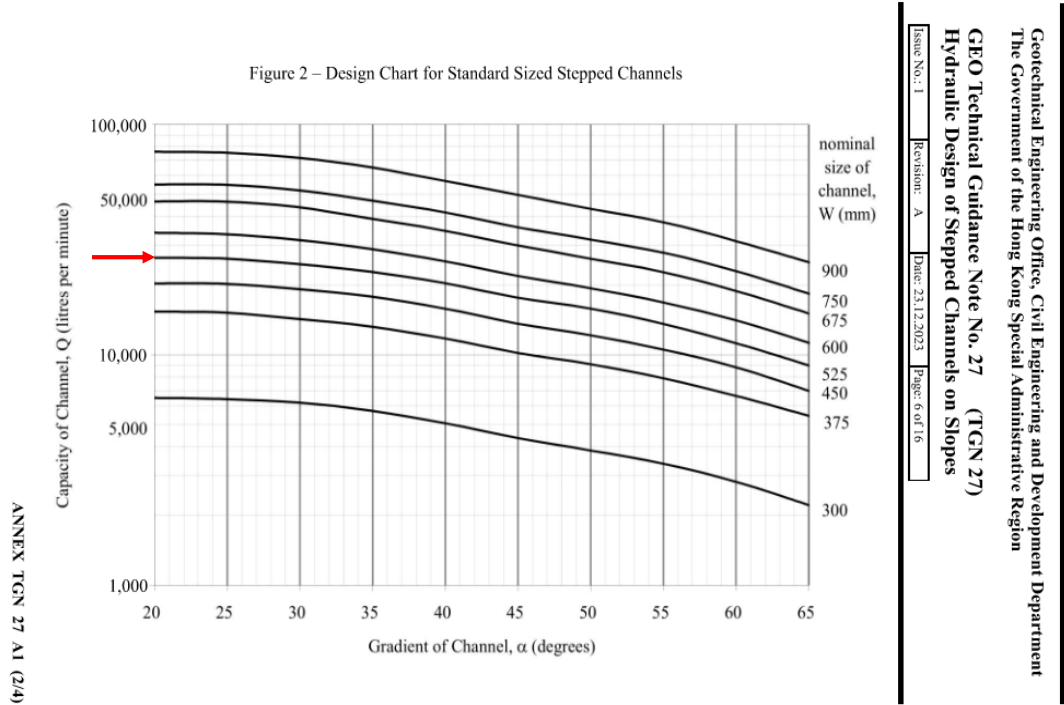


GEO Technical Guidance Note No. 27
Hydraulic Design of Stepped Channels

Refer to : Figure 2 - Design Chart for Standard Sized Stepped Channels

US MH/PIT	DS MH/PIT	US GL	DS GL	US IL	DS IL	Length m	Size mm	Cap ** L/min	Cap m ³ /s	GL angle deg	Gradient α (provided) deg	Note*
SP01	CP1.01	15.00	12.50	14.09	11.84	21.2	525	25800	0.43	6.73	6.73	Less than 20 deg, take 20 deg for checking
CP1.01	CP1.02	12.50	8.80	11.59	8.14	46	525	25800	0.43	4.60	4.60	Less than 20 deg, take 20 deg for checking
SP02	CP2.01	15.00	10.30	14.09	9.64	73.6	525	25800	0.43	3.65	3.65	Less than 20 deg, take 20 deg for checking

** : GEO TGN 27 Figure 2 ref., Cap increase while gradient decrease. When gradient less than 20 deg take gradient as 20 deg for conservative purpose
** : GEO TGN 27 Figure 2 ref.

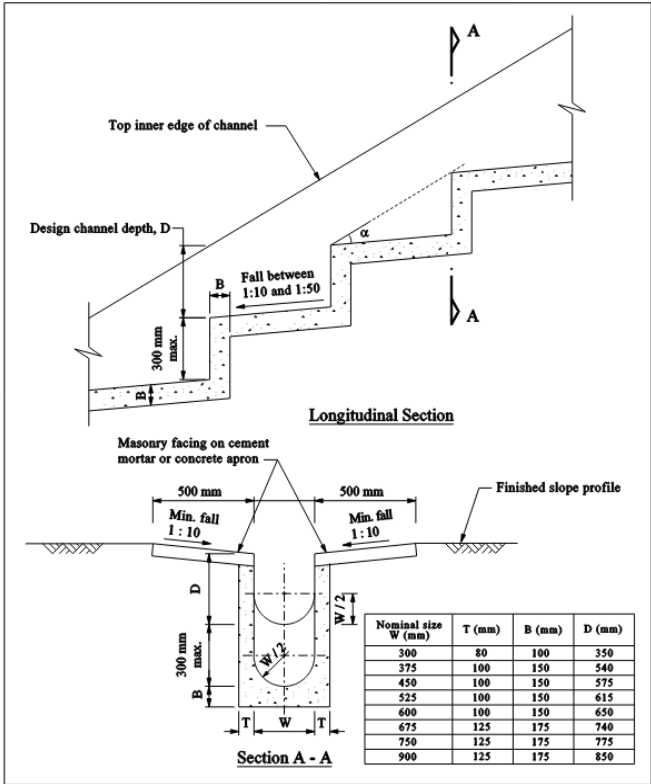


Geotechnical Engineering Office, Civil Engineering and Development Department
The Government of the Hong Kong Special Administrative Region

GEO Technical Guidance Note No. 27 (TGN 27)
Hydraulic Design of Stepped Channels on Slopes

Issue No.: 1 Revision: A Date: 23.12.2023 Page: 5 of 16

Figure 1 – Details of Standard Sized Stepped Channels



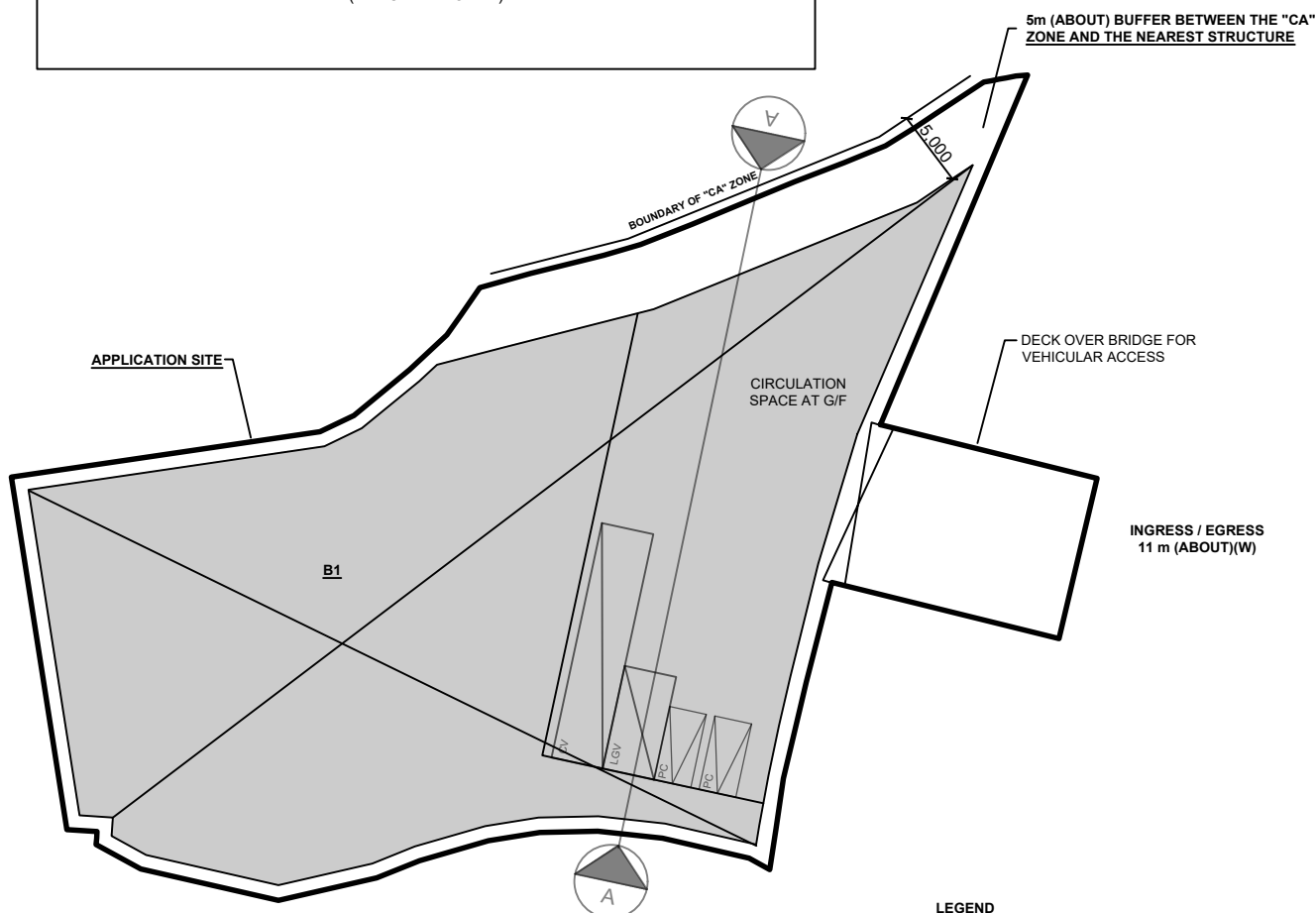
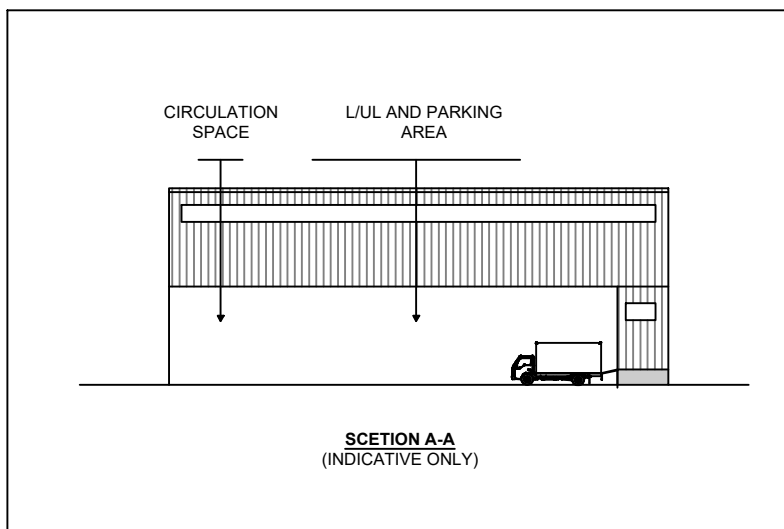
ANNEX TGN 27 A1 (1/4)

APPENDIX B - PROPOSED SITE LAYOUT PLAN

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 2,128 m ²	(ABOUT)
COVERED AREA	: 1,630 m ²	(ABOUT)
UNCOVERED AREA	: 498 m ²	(ABOUT)
PLOT RATIO	: 1.5	(ABOUT)
SITE COVERAGE	: 77 %	(ABOUT)
NO. OF STRUCTURE	: 1	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 3,260 m ²	(ABOUT)
TOTAL GFA	: 3,260 m ²	(ABOUT)
BUILDING HEIGHT	: 13 m	(ABOUT)
NO. OF STOREY	: 2	

STRUCTURE	USE	COVERED AREA	GROSS FLOOR AREA	BUILDING HEIGHT
B1 (G/F)	WAREHOUSE (EXCLUDING D.G.G.)	1,630 m ² (ABOUT)	1,630 m ² (ABOUT)	13 m (ABOUT)(2-STOREY)
(1/F)	SITE OFFICE AND WASHROOM		1,630 m ² (ABOUT)	
	WAREHOUSE (EXCLUDING D.G.G.)			
TOTAL		1,630 m ² (ABOUT)	3,260 m ² (ABOUT)	



PARKING AND LOADING/UNLOADING PROVISIONS

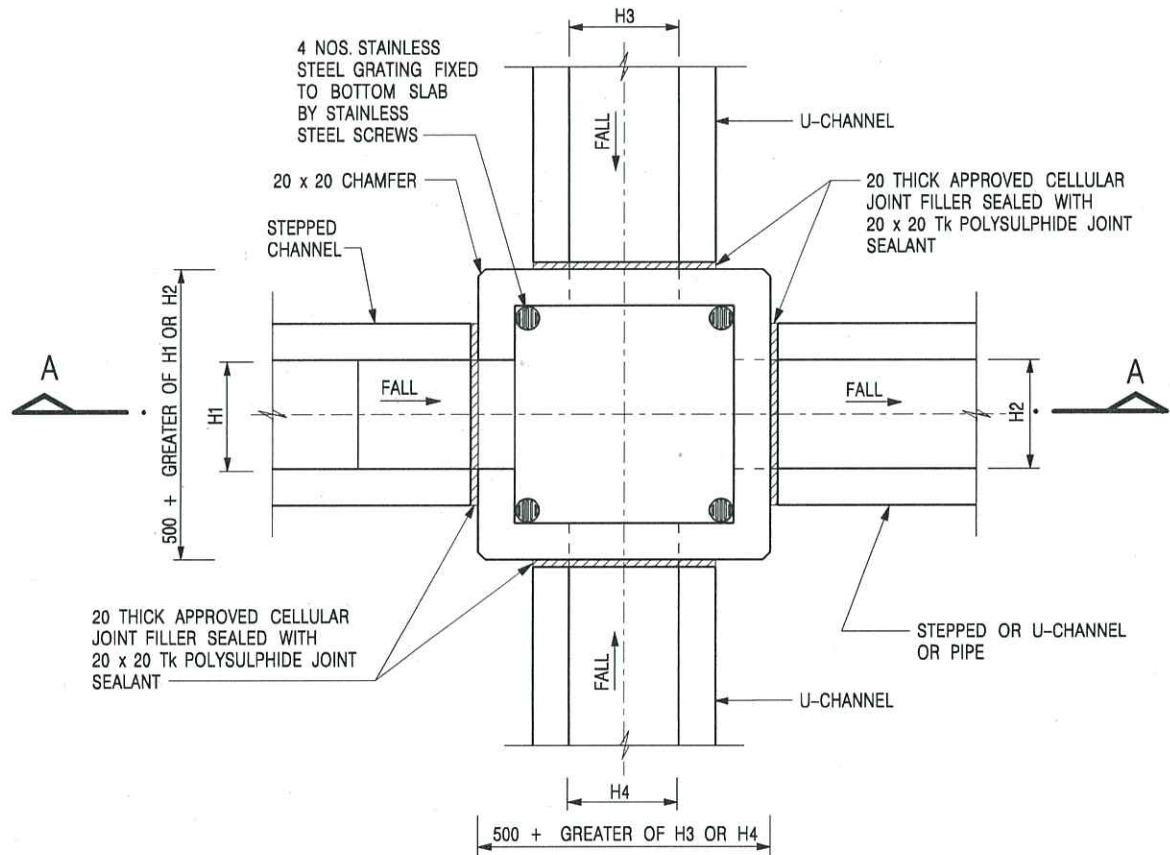
NO. OF PRIVATE CAR PARKING SPACE	: 2
DIMENSION OF PARKING SPACE	: 5 m (L) X 2.5 m (W)
NO. OF L/UL SPACE FOR LIGHT GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 7 m (L) X 3.5 m (W)
NO. OF L/UL SPACE FOR CONTAINER VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 16 m (L) X 3.5 m (W)

LEGEND

	APPLICATION SITE
	STRUCTURE
	PARKING SPACE (PC)
	LOADING/UNLOADING SPACE (LGV)
	LOADING/UNLOADING SPACE (CV)
	INGRESS / EGRESS

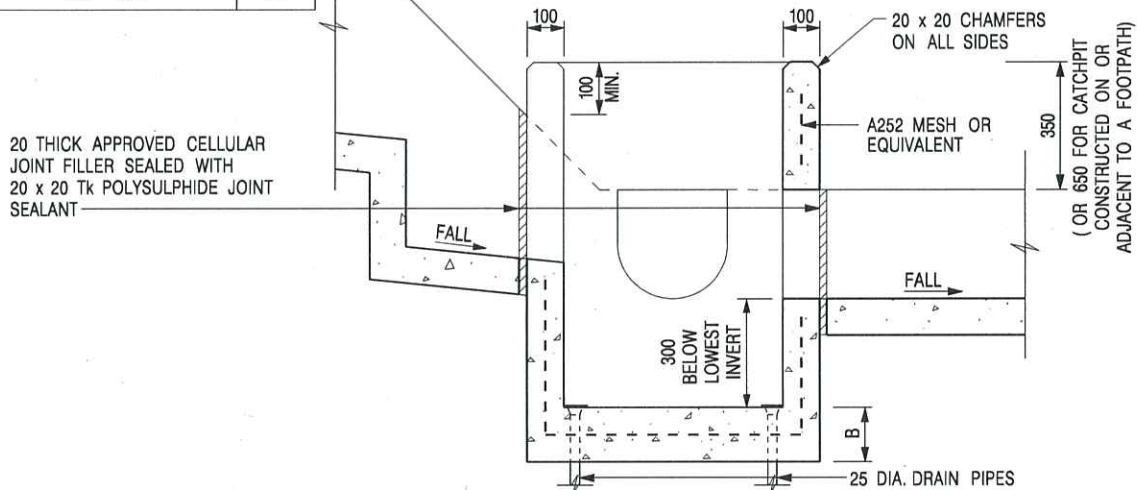
PLANNING CONSULTANT 	PROJECT PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS	ADDRESS LOTS 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES	SCALE 1 : 500 @ A4	TITLE LAYOUT PLAN	NORTH
			DRAWN BY CC	DATE 4.3.2026	
			REVISED BY	DATE	
			DWG NO. F12 P04	VER. 001	

Appendix C - Reference Drawings



PLAN

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



SECTION A - A

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. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE



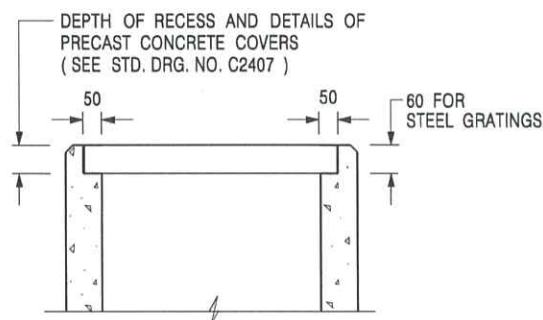
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2406 /1



**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.
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 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 c/c 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. C2405 /4.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

A	MINOR AMENDMENT.	Original Signed	04.2016
-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

**CATCHPIT WITH TRAP
(SHEET 2 OF 2)**



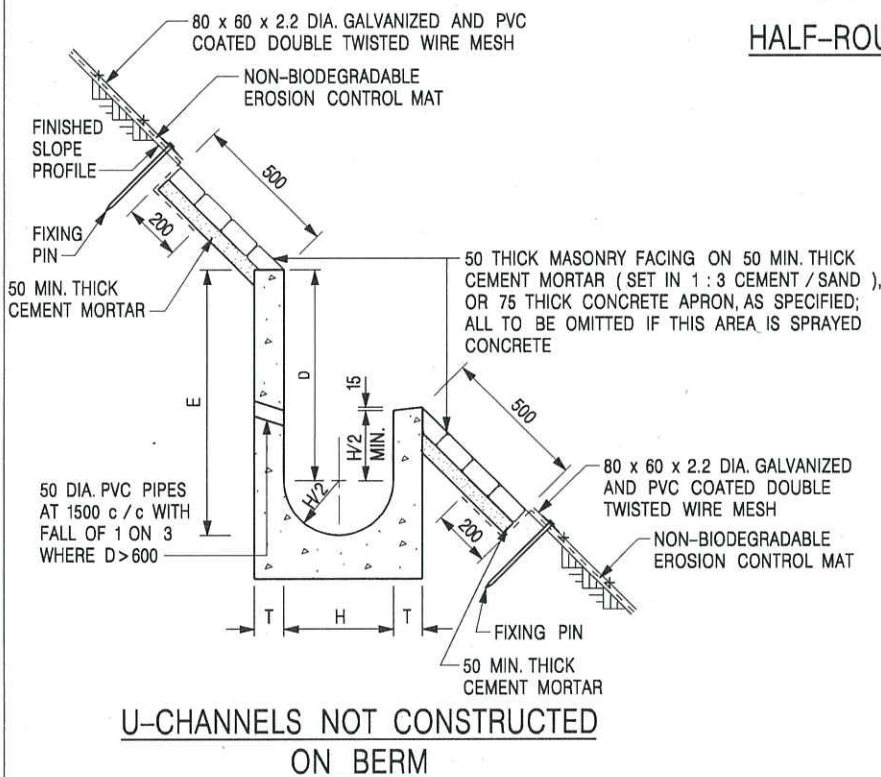
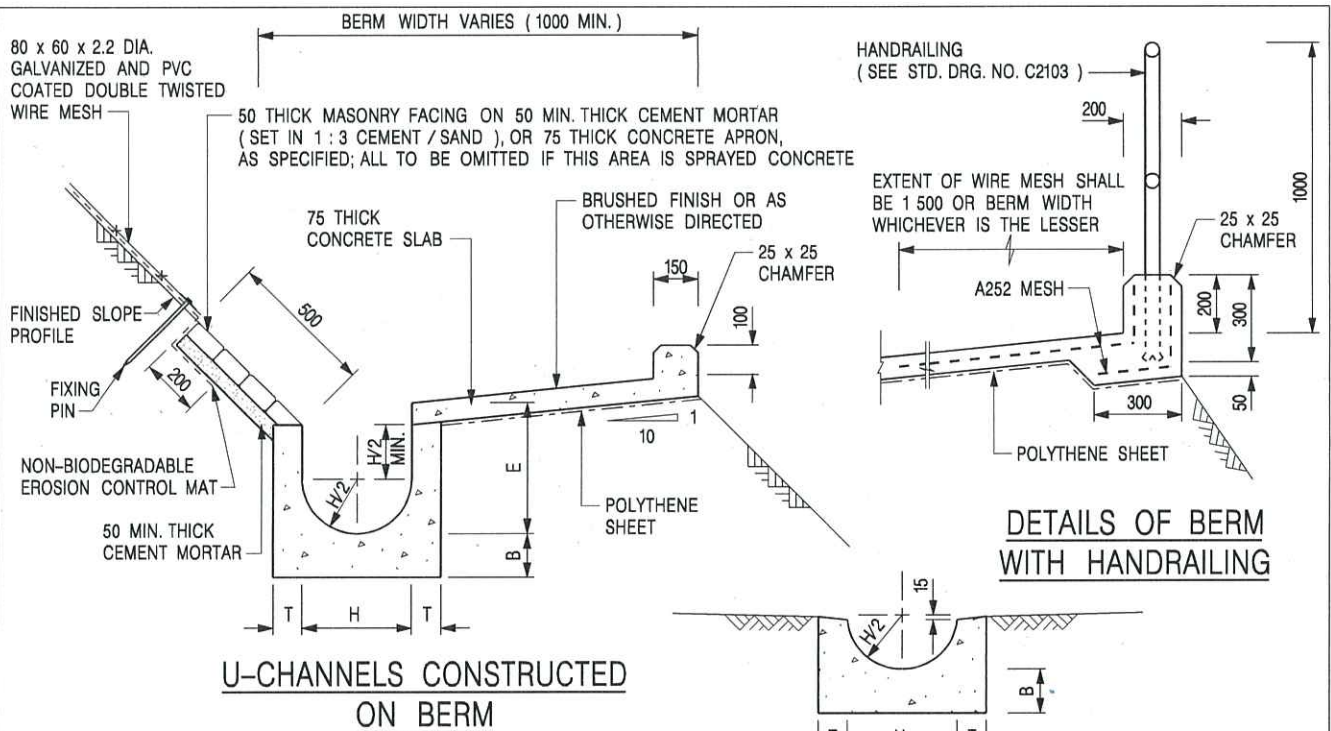
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2406 /2A



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 / 20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. BIODEGRADABLE EROSION CONTROL MAT IF REQUIRED, SEE STD. DRG. NO. C2511/E.
8. CONCRETE TO BE COLOURED AS SPECIFIED.
9. CONCRETE U-CHANNEL CAN BE CAST IN-SITU OR PRECAST CONCRETE SUBJECT TO THE ENGINEER'S AGREEMENT ON THE DETAILS.
10. DETAILS OF EROSION CONTROL MAT AND WESH MESH ON BERM. (SEE STD DRG. NO. C2511/E)

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E > 650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

I	MINOR AMENDMENT.	Original Signed	07.2018
H	THICKNESS OF MASONRY FACING AMENDED.	Original Signed	01.2005
G	MINOR AMENDMENT.	Original Signed	01.2004
F	GENERAL REVISION.	Original Signed	12.2002
E	DRAWING TITLE AMENDED.	Original Signed	11.2001
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENTS.	Original Signed	3.94
REF.	REVISION	SIGNATURE	DATE

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON)



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 25

DRAWING NO.

DATE JAN 1991

C2409I

U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT

U-CHANNELS NOT CONSTRUCTED ON BERM
WITH NON-BIODEGRADABLE
EROSION CONTROL MAT

U-CHANNELS CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT

U-CHANNELS NOT CONSTRUCTED ON BERM
WITH BIODEGRADABLE
EROSION CONTROL MAT

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
 2. ALL CONCRETE TO BE GRADE 20 /20.
 3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
 4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
 5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
 6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
 7. FOR TYPICAL FIXING PIN DETAILS, SEE STD. DRG. NO. C2511/2.
 8. MINIMUM SIZE OF 25 x 50 x 300mm SHALL BE PROVIDED FOR WOODEN PEG.
 9. MINIMUM SIZE OF 10mm DIAMETER WITH 200mm LONG SHALL BE PROVIDED FOR BAMBOO STICK.
 10. THE FIXING DETAILS OF NON-BIODEGRADABLE AND BIODEGRADABLE EROSION CONTROL MATS ON EXISTING BERM SHALL REFER TO STD. DRG. NO. C2511/1.

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E > 650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

I	MINOR AMENDMENT.	Original Signed	07.2018
H	FIXING DETAILS OF BIODEGRADABLE EROSION CONTROL MAT ADDED.	Original Signed	12.2017
G	DIMENSION TABLE AMENDED.	Original Signed	01.2005
F	MINOR AMENDMENT.	Original Signed	01.2004
E	GENERAL REVISION.	Original Signed	12.2002
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	10.92
REF.	REVISION	SIGNATURE	DATE

DETAILS OF HALF-ROUND AND
U-CHANNELS (TYPE B – WITH
EROSION CONTROL MAT APRON)

卓越工程 建設香港



**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

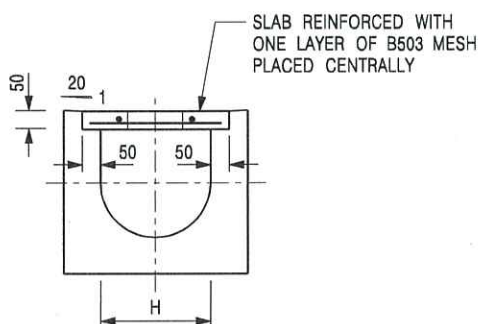
SCALE DIAGRAMMATIC

DATE JAN 1991

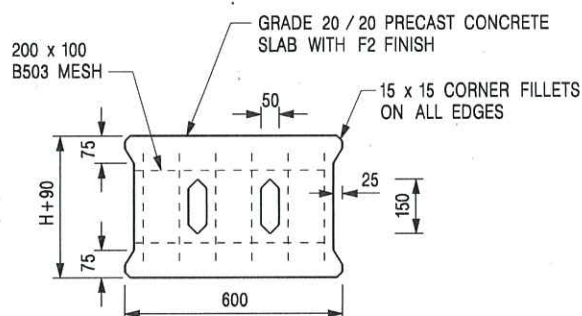
DRAWING NO.

C24101

We Engineer Hong Kong's Development



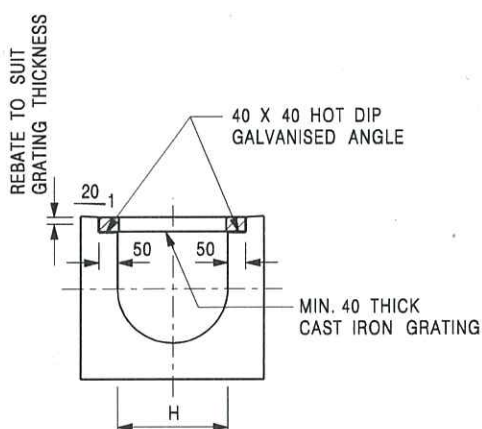
TYPICAL SECTION



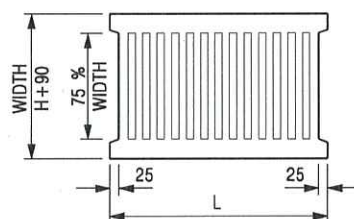
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

CAST IRON GRATING

(DIMENSIONS ARE FOR GUIDANCE ONLY, CONTRACTOR MAY SUBMIT EQUIVALENT TYPE)

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. H = NOMINAL CHANNEL SIZE.
3. ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
4. 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



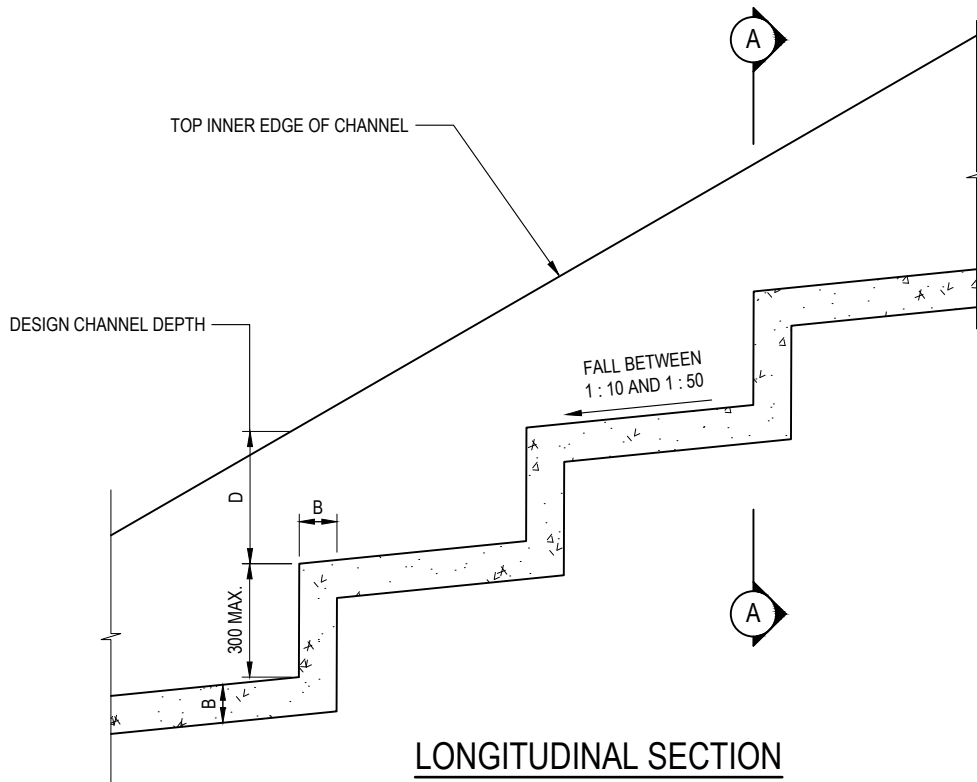
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

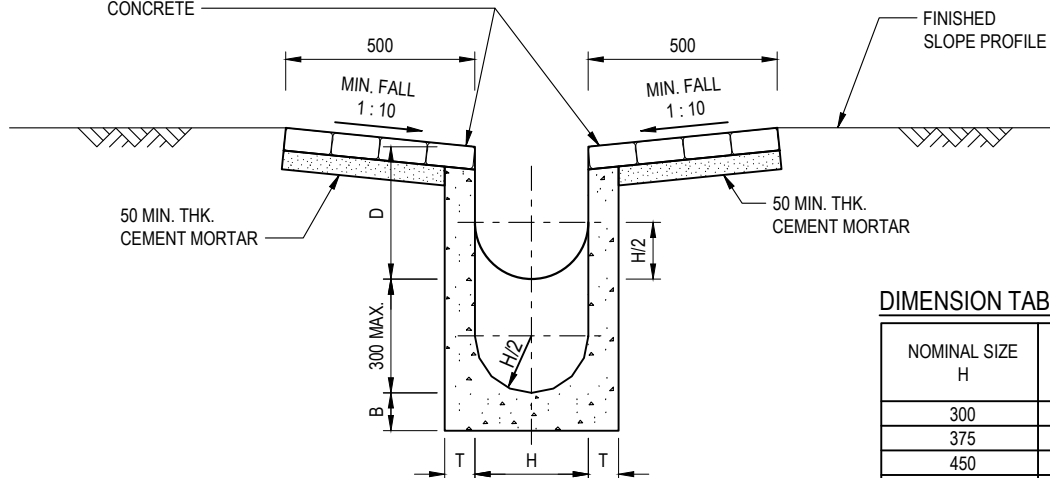
DATE JAN 1991

DRAWING NO.

C2412E



60 THK. MASONRY FACING ON 50 MIN. THK. CEMENT MORTAR (SET IN 1 : 3 CEMENT / SAND) OR 75 THK. CONCRETE APRON, AS SPECIFIED; ALL TO BE OMITTED IF THIS AREA IS SPRAYED CONCRETE



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.

H	BIM OBJECT REVISION.	Original Signed	12.2025
G	GENERAL REVISION.	Original Signed	08.2006
F	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
E	NOTE 6 AMENDED.	Original Signed	01.2004
D	GENERAL REVISION.	Original Signed	12.2002
C	MINOR AMENDMENT.	Original Signed	08.2001
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	11.92
REF.	REVISION	SIGNATURE	DATE

DETAILS OF STEPPED CHANNEL



CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.

C2411H



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4

PROJECT:
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
 ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

LOCATION:
 LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
 TIN, YUEN LONG, NEW TERRITORIES

SITE PHOTOS

APPENDIX D

VER	DESCRIPTION	DATE

Annex 2

Structural design report for drainage modification works

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS, LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

Structural Design Report for Drainage Modification Works

Jul 2026



Table of Contents

1	Introduction	1
1.1	Background	1
2	Design Assumptions for R.C.	1

List of Figure

Figure A – Manhole Type S1 General Arrangement

Figure B - Manhole Type S1 RC Details

Figure C - Transition

List of Appendix

Appendix I – Design Calculation

Appendix II – Extract of Drainage design for manhole depth and pipe size

1 Introduction

1.1 Background

- 1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Lots 136 RP (Part) and 2149 (Part) in D.D. 106 and adjoining Government Land (GL), Kam Tin, Yuen Long, New Territories (the Site) for 'Proposed Temporary Warehouse (excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years'.
- 1.1.2 This report provides structural design for Manhole Type S1 for 1800 pipe (max.4m depth) to support the application.

2 Design Assumptions for R.C.

2.1 R.C. Design of Manholes

2.1.1 Design Parameters

Design is in accordance with the Building (Construction) Regulations 1990 and the following standards and code of practices: -

- Code of Practice for Structural Use of Concrete 2013
- Guide to Retaining Wall Design Geoguide 1 (GEO, 1993)
- Code of Practice for Foundations 2017
- Code of Practice for Dead and Imposed Loads 2011

2.1.2 Concrete

Concrete mixes and cover to reinforcement for individual elements comply with Building (Construction) Regulations 1990, CS1:2010, Code of Practice for the Structural Use of Concrete 2013.

Unless noted otherwise, concrete shall be designed mix with the following minimum grades 30D and maximum aggregate size of 20mm.

2.1.3 Steel Reinforcement

Steel reinforcements shall comply with CS2:2010 with the following minimum yield strength:
For high yield deformed bar reinforcements, (Grade 500B or 500C)

$$f_y = 500 \text{ N/mm}^2$$

2.1.4 Concrete Cover

Unless noted otherwise, concrete cover to main reinforcement shall be 40mm or diameter of bar, whichever is greater.

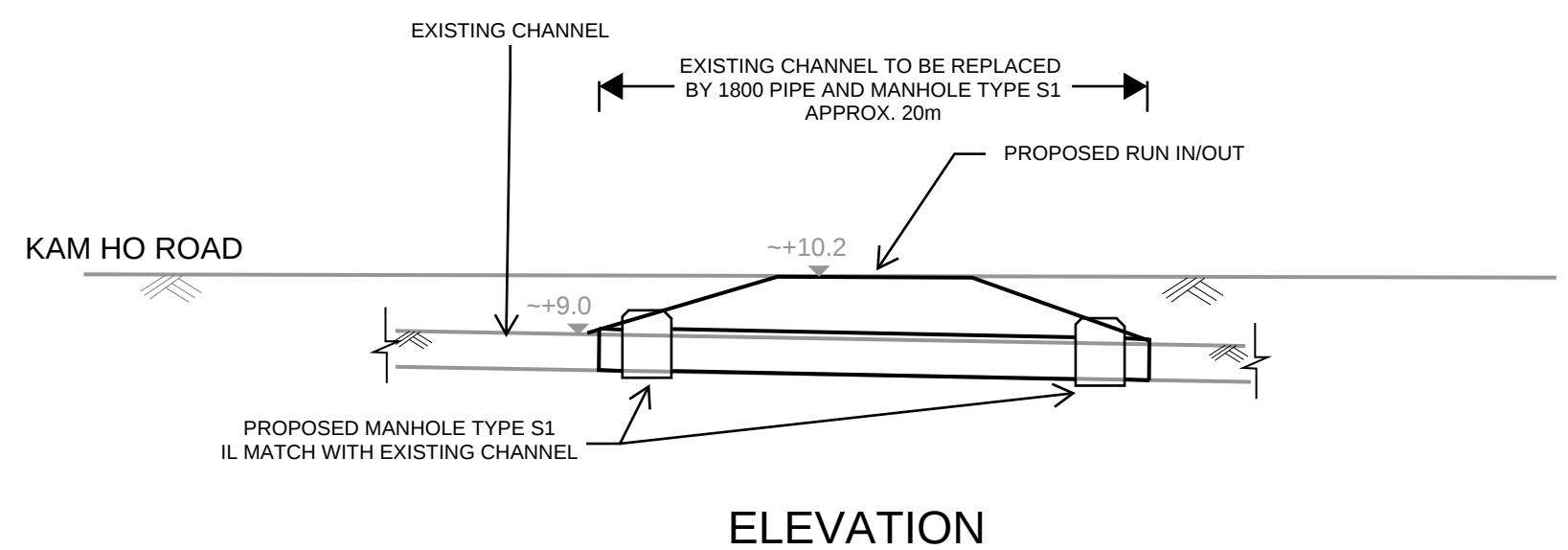
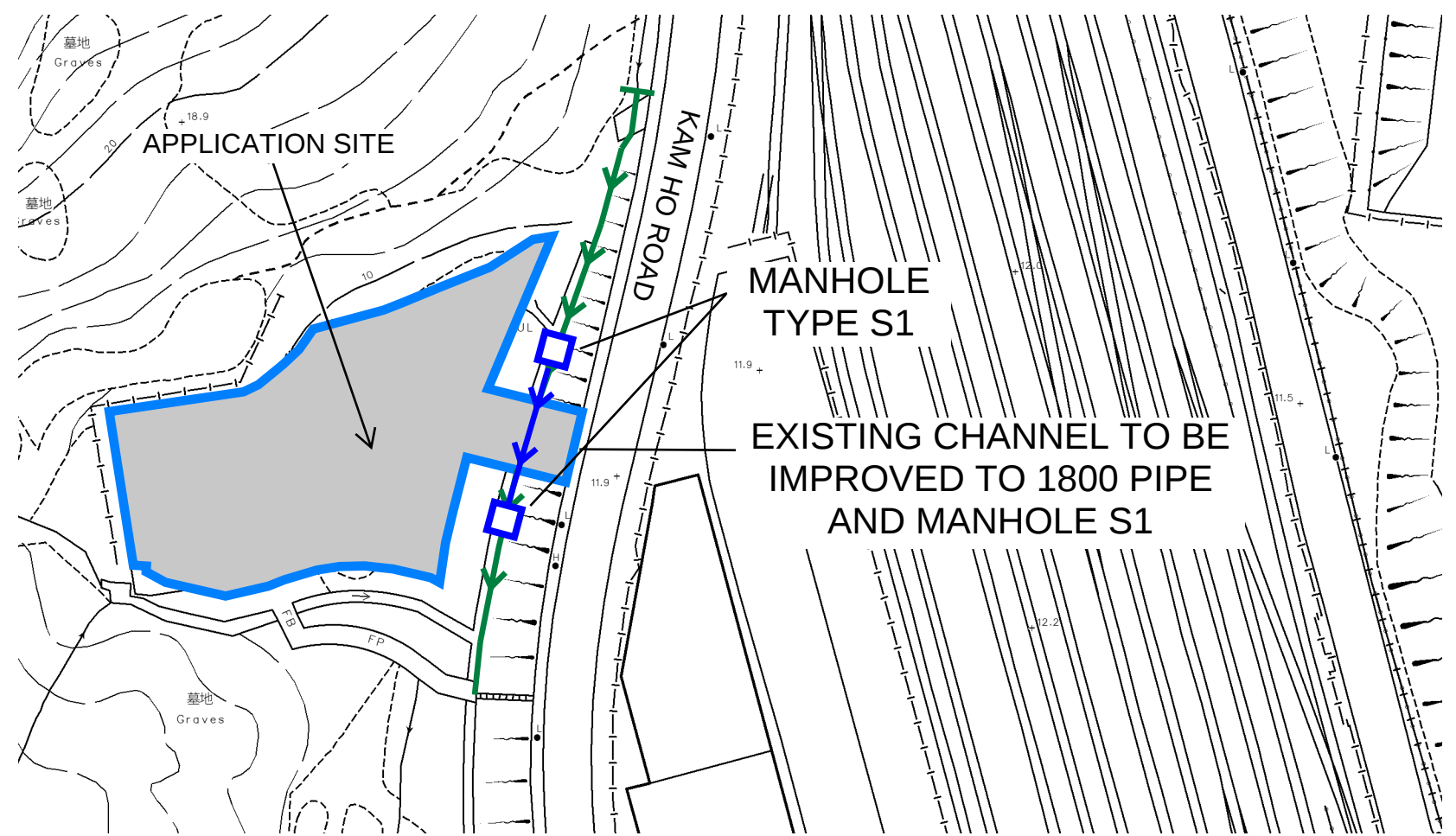
2.1.5 Lap Length and Anchorage Length

Unless noted otherwise, minimum lap lengths and minimum anchorage lengths shall be 40 times bar diameter.

End of Text

FIGURES

- NOTES:**
- 1.ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.P.D.) UNLESS NOTED OTHERWISE.
 - 2.ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - 3.ALL EXPOSED CONRNNERS SHALL HAVE 25 X 25mm CHAMFER.
 - 4.75mm THICK BLINDING LYER WITH CONCRETE GRADE C20/20 SHALL BE PROVIDED FOR MANHOLE.
 - 5.CONCRETE SHALL COMPLY WITH SECTION 16 OF GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS (2020 EDITION) AND CS1:2010. AND CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE 2013.
 - 6.UNLESS OTHERWISE SPECIFIED, GRADES OF CONCRETE SHALL BE C30/20.
 - 7.THE REACTIVE ALKALI OF CONCRETE EXPRESSED AS THE EQUIVALENT SODIUM OXIDE PER CUBIC METRE OF CONCRETE HSALL NOT EXCEED 3.0 KG.
 - 8.STEEL REINFORCEMENT SHALL COMPLY WITH SECTION 15 OF GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS (2020 EDITION) WITH CURRENT CORRIGENDA. AND CS2:2012 WITH MINIMUM YIELD STRENGTHS OF 500 N/mm².
 - 9.UNLESS OTHER SPECIFIED, MINIMUM LAP LENGTH (L.L.) AND MINIMUM ANCHORAGE LENGTH (A.L.) SHALL BE 40D, WHERE D IS BAR DIAMETER.
 - 10. NOMINAL COVER TO ALL REINFORCEMENT SHALL BE 40mm UNLESS OTHERWISE SPECIFIED.



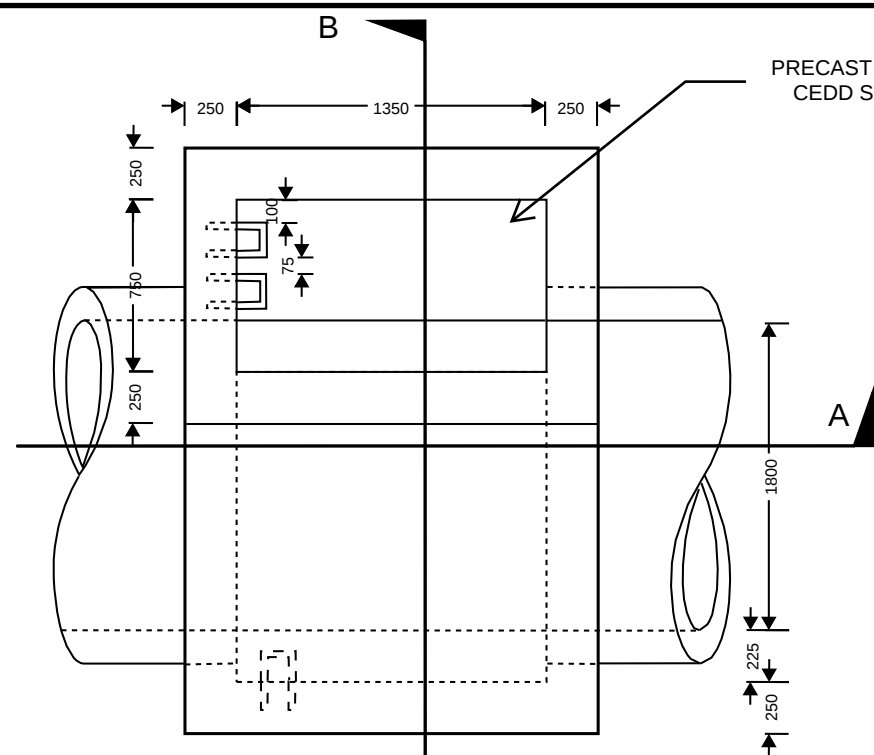
PROJECT:
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
LOCATION PLAN

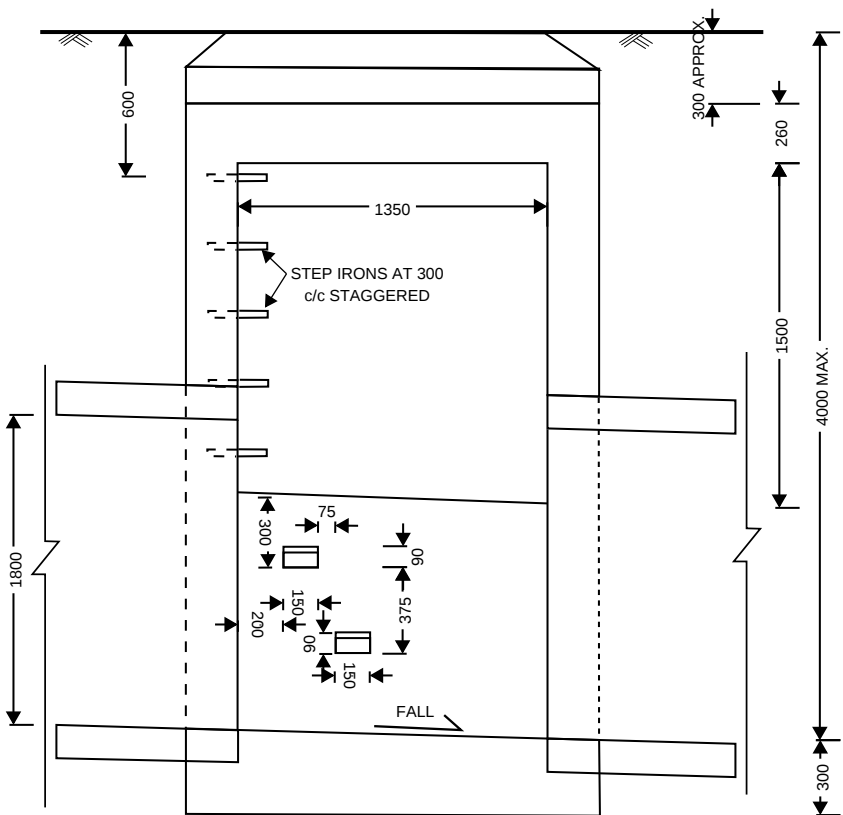
FIGURE NUMBER
FIGURE A

LOCATION:
LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM TIN, YUEN LONG, NEW TERRITORIES

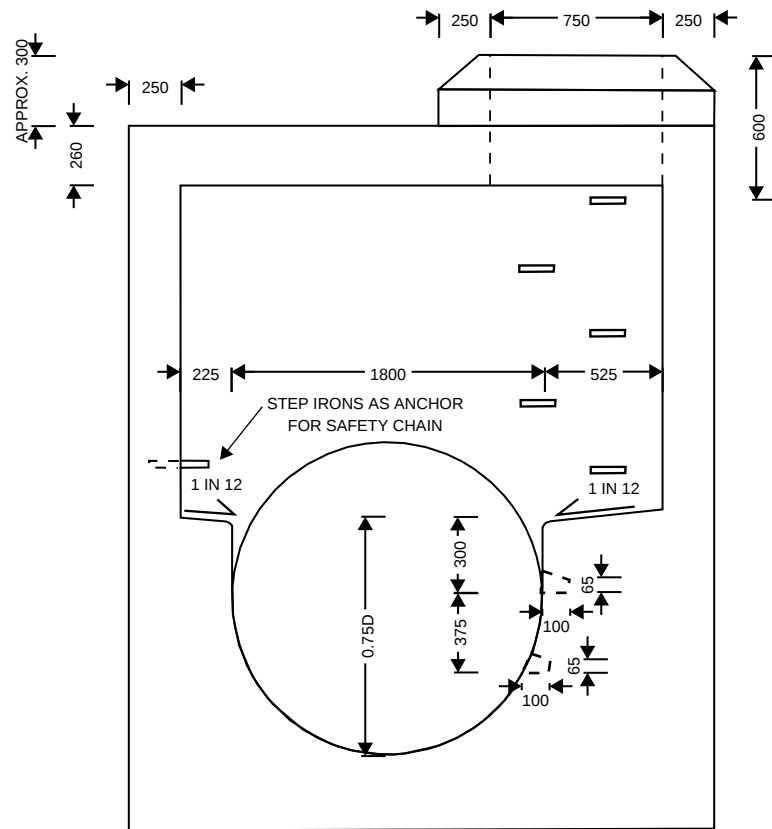
VER	DESCRIPTION	DATE



PLAN



SECTION A



SECTION B

- NOTES:**
- 1.ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.P.D.) UNLESS NOTED OTHERWISE.
 - 2.ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - 3.NOTES REFER TO FIGURE A.

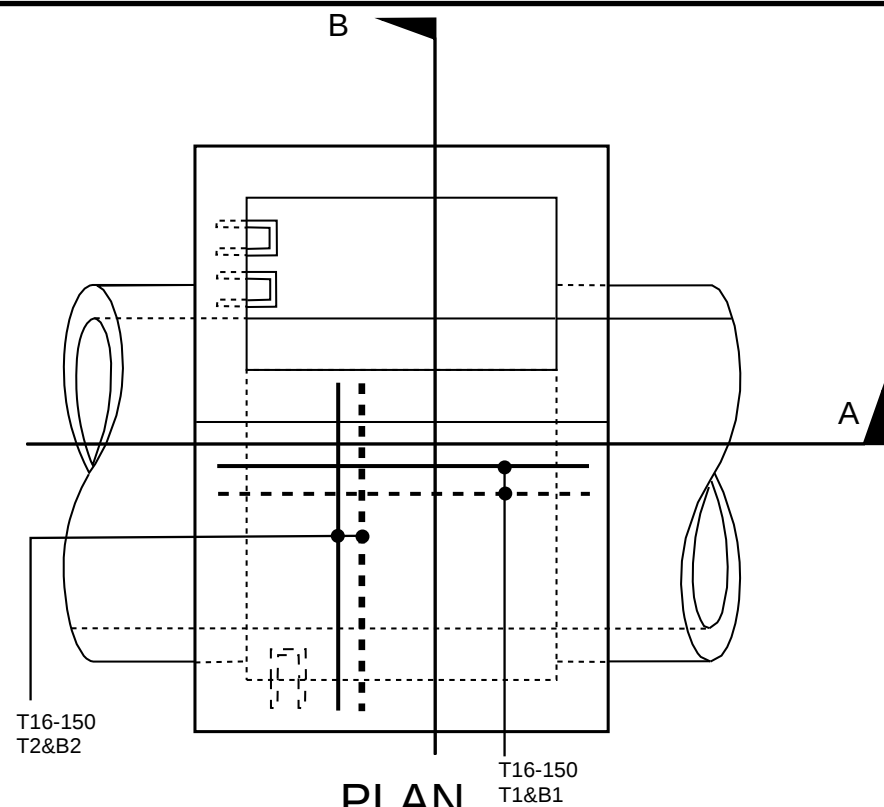
PROJECT:
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
 ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
 MANHOLE TYPE S1
 GENERAL ARRANGEMENT

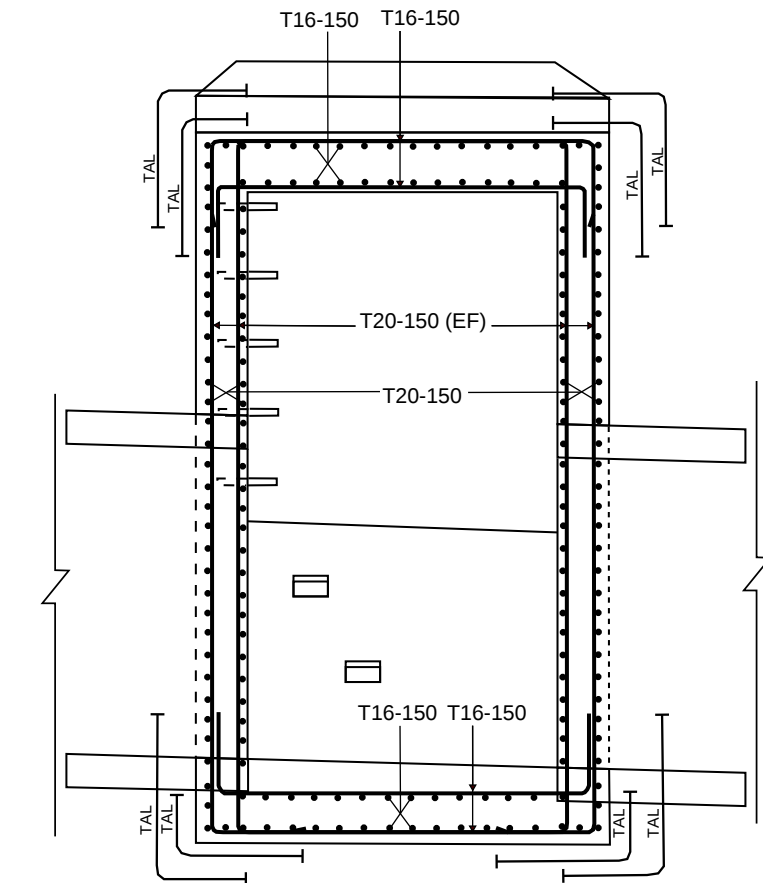
FIGURE NUMBER
 FIGURE B

LOCATION:
 LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
 TIN, YUEN LONG, NEW TERRITORIES

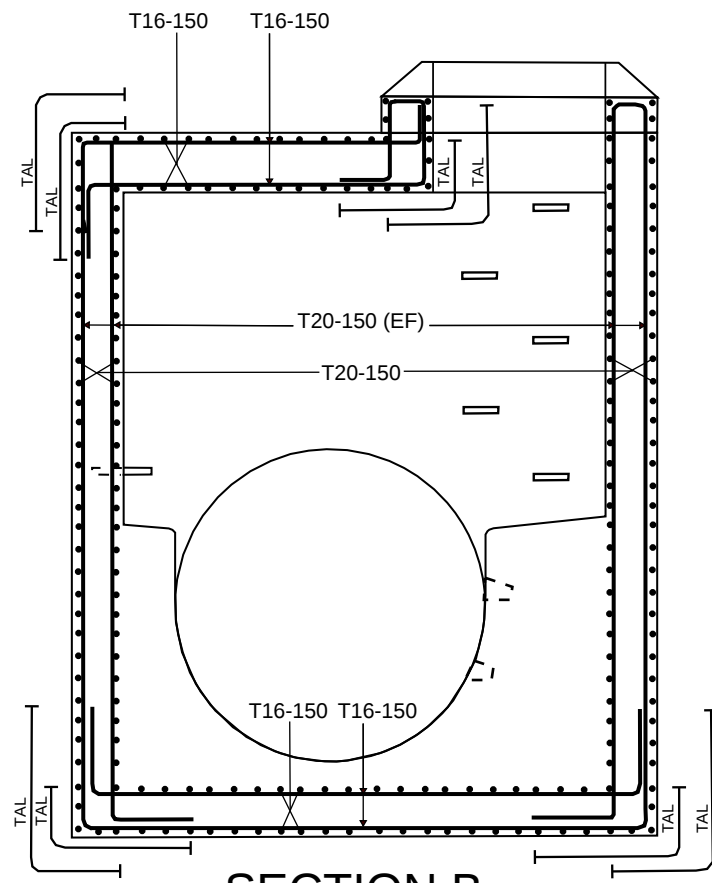
VER	DESCRIPTION	DATE



PLAN



SECTION A



SECTION B

NOTES:
 1.ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.P.D.)
 UNLESS NOTED OTHERWISE.
 2.ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 3.NOTES REFER TO FIGURE A.

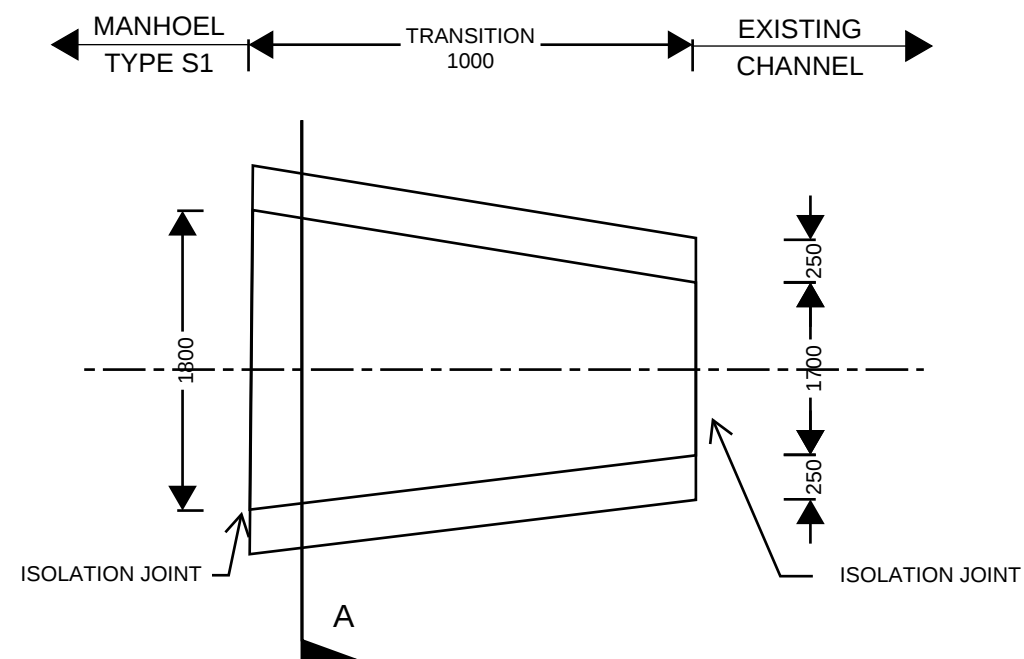
PROJECT:
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
 ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
 MANHOLE TYPE S1
 RC DETAILS

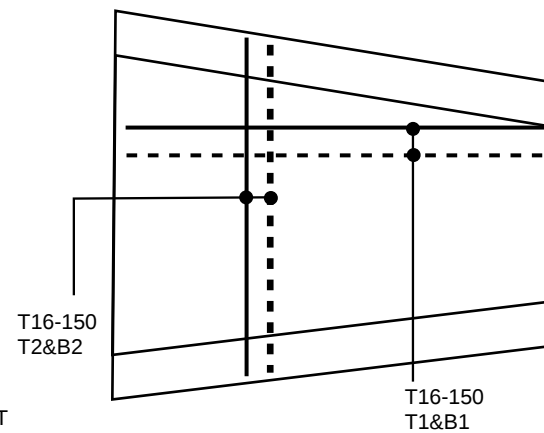
FIGURE NUMBER
 FIGURE C

LOCATION:
 LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
 TIN, YUEN LONG, NEW TERRITORIES

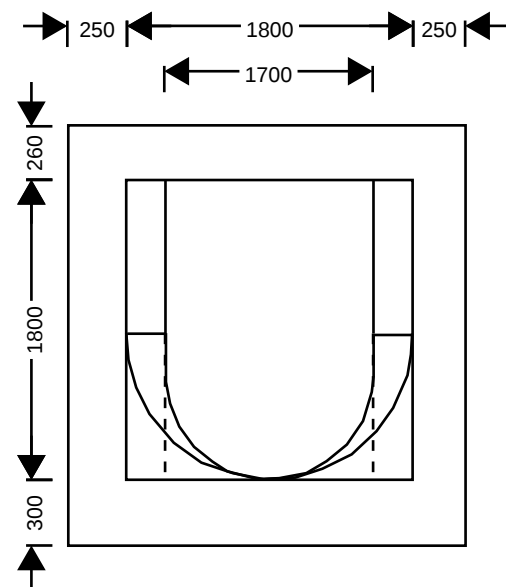
VER	DESCRIPTION	DATE



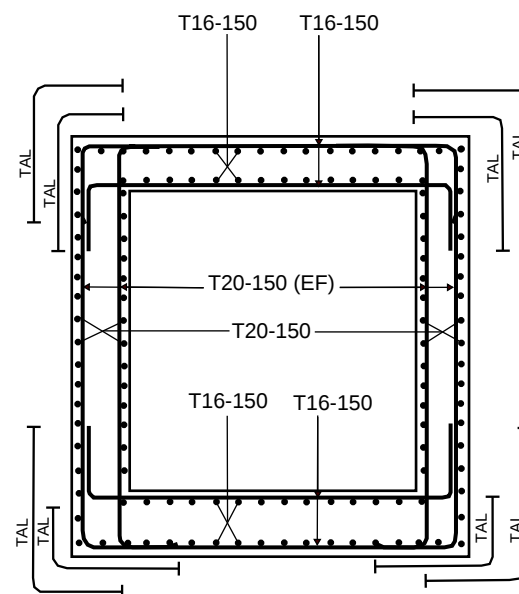
PLAN



RC DETAILS
PLAN



SECTION A



RC DETAILS
SECTION A

NOTES:

- 1.ALL LEVELS ARE IN METRES TO HONG KONG PRINCIPAL DATUM (m.P.D.) UNLESS NOTED OTHERWISE.
- 2.ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- 3.NOTES REFER TO FIGURE A.

PROJECT:
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH
ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

TITLE
TRANSITION

FIGURE NUMBER
FIGURE D

LOCATION:
LOT 136 RP (PART) AND 2149 (PART) IN D.D. 106 AND ADJOINING GOVERNMENT LAND, KAM
TIN, YUEN LONG, NEW TERRITORIES

VER	DESCRIPTION	DATE

APPENDIX

Appendix A - Manhole R.C. Calculation

1. Design Parameters

1 Angle of resistance of soil	$\Phi =$	30 deg	
2 Coefficient of earth pressure at rest	$K_0 =$	0.5	
3 Unit weight of filling materials	$\gamma_s =$	19 kN/m ³	
4 Surcharge	$W_s =$	5 kN/m ²	Outside C/W
5 Water Density	$\gamma_w =$	9.8 kN/m ³	
6 Unit weight of reinforced concrete	$\gamma_c =$	24.5 kN/m ³	

2. Design Assumptions

- 1 Water table is assumed to be at +10.2 mPD.
- 2 Backfilling material is homogenous over the entire depth of the manhole
- 3 Founding material of the manhole base is FILL.

3. References

- 1 Code of Practice for Structural Use of Concrete 2013
- 2 Guide to Retaining Wall Design Geoguide 1 (GEO, 1993)
- 3 Code of Practice for Foundations 2017
- 4 Code of Practice for Dead and Imposed Loads 2011

4. Reinforcement Summary

Vertical	<u>Wall</u>	<u>Slab</u>	
	Horizontal	Top	Bottom
T20-150	T20-150	T16-150	T16-150

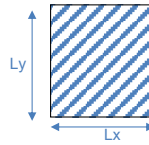
Top Slab

Top Slab Design

1. Sizing



Lx= 2050 mm
Ly= 4100 mm
h= 260 mm



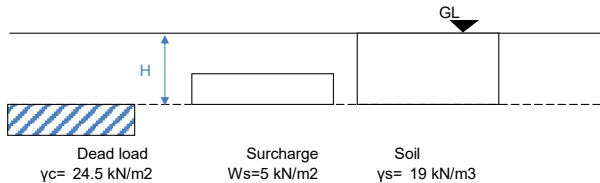
Section

$$\frac{L_y}{L_x} = \frac{4100}{2050} = 2.00 > 2$$

Plan

Therefore, design the wall as a-1 way slab.

2. Loadings

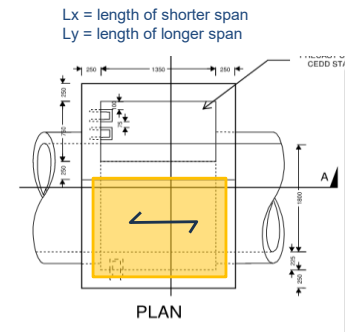


Angle of resistance for soil
Coefficient of earth pressure at rest
Depth @ slab top
Thickness of the slab

$\Phi = 30 \text{ deg}$
 $K_0 = 0.5$
 $H = 2 \text{ m}$
 $h = 0.26 \text{ m}$

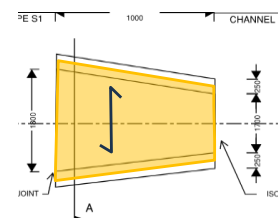
Soil P = $\gamma_s H = 38 \text{ kN/m2}$
Slab Self-weight $\gamma_c h = 6.37 \text{ kN/m2}$
Surcharge P= $W_s = 5 \text{ kN/m2}$

Adopt Factor of Safety = 1.4 (DL) + 1.6 (LL)
Factored Total Pressure n = $1.4 \times (38+6.37) + 1.6 \times 5 = 70.1 \text{ kN/m2}$



PLAN

0.15m cover



max. 2m cover

Top Slab

3. Design Moment and Shear

Length of Span Lx	=	2.050 m
Consider one meter run slab as a simply-supported beam under UDL = n		
Moment @ mid-span	Msx =	36.8 kNm/m
Shear Force @ support	Vx =	71.9 kN/m

4. Bending Reinforcement

fcu	=	30 MPa
fy	=	500 MPa
Cover	=	40 mm
b	=	1000 mm
h	=	260 mm
As min	= 0.13%bh =	338 mm ²

Table 4.2 Concrete 2013

cl. 9.3.1.1 (a)
Concrete 2013

4.1 Reinforcement

Try Re-bar	=	16 mm	Diameter
d ₁	=	260 - 40 - 16 / 2	
	=	212 mm	
K	=	Msx / (fcu × b × d ₁ ²)	
	=	0.027 < 0.156	
Therefore, no compression reinforcement required			
z	=	min[(0.5 + (0.25 - K/0.9) ² × 0.5) × d, 0.95d]	
	=	201.4 mm	
As	=	Msx / (0.87 × fy × z)	
	=	420 mm ²	> As min
Provide T	=	16	
As	=	1340 mm ²	> 420 mm ² OK!

Eq 6.7-8
Concrete 2013

Eq 6.13
Concrete 2013

Eq 6.12
Concrete 2013

Top Slab

5. Shear Reinforcement

$(100 * A_s / (b_v * d))$	=	0.63	<	3	Table 6.3
	Adopt	0.63			Concrete 2013
$(400/d)$	=	1.89	>	1	
	Adopt	1.89			
$(f_{cu}/25)^{(1/3)}$	=	1.06			
vc	=	0.68	N/mm2		
v	=	V/bd			
	=	0.34	N/mm2	<	vc

Therefore, no shear reinforcement required.

6. Deflection Checking

Unfactored M_s	=	25.93	kNm/m
$M_s / (b * d^2)$	=	0.58	N/mm2

Modification Factors

M_{fs}	=	4.88	>1	(Long-span modification)	Table 7.4 Concrete 2013
	Adopt	1			
f_s	=	333	MPa		Table 7.4 Concrete 2013
M_{ft}	=	1.36	<2		Table 7.4 Concrete 2013
M_{fc}	=	1		(Because no compression reinforcement)	Table 7.5 Concrete 2013
M_{fi}	=	1			

Type C-Cantilever/ S-Simply Supported/ Ct-Continuous

Basic Span-Depth Ratio	=	20	Table 7.3 Concrete 2013
Span-Depth Ratio Required	=	27.2	
Actual Span-Depth Ratio	=	7.9	
	<	27.2	OK!

Top Slab

7. Crack Width Checking

Thermal Crack

Coefficient of thermal contraction of mature concrete α	=	1.00E-05	cl. 5.2.3 SDM 2013
fct/fb	=	0.67	cl. 5.5.2 (6) SDM 2013
Bar Size	=	16 mm	
h	=	260 mm	
Area of Steel	As	2680.8257 mm ²	
Area of Concrete	Ac	260000 mm ²	
T1	=	35 °C	cl. 5.5.2 (13) SDM 2013
Minimum Steel Ratio	As/Ac min	fct/fyk	cl. 5.5.2 (2) SDM 2013
	=	0.00262	
Steel Ratio ρ	As/Ac	0.01031 > 0.00262	ok!
Thermal Crack Spacing	s	517.3 mm	cl. 5.5.2 (6) SDM 2013
Thermal Crack Width	w	0.09 mm	cl. 5.5.2 (11) SDM 2013

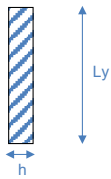
Flexural Crack

Distance from the point considered to the surface of the nearest tension steel a_{cr}	=		Crack @ surface of the wall
	=	81.0 mm	
Es	=	200 GPa	
Ec	=	22.2 GPa	Table 5.1 SDM 2013
N	=	Es/(Ec/2)	
	=	18.02	
x	=	$1/b \cdot [-N \cdot As + ((N \cdot As)^2 + 2N \cdot As \cdot b \cdot d)^{1/2}]$	
	=	79.9 mm	
fst	=	Ms/(d-x)/As	
	=	104.38 N/mm ²	
ϵ_1	=	fst/Es*(h-x)/(d-x)	
	=	0.0007115	
Distance from the compression face to the crack a'	=	260 mm	Crack @ slab surface
ϵ_2	=	$b \cdot (h-x) \cdot (a'-x) / (3EsAs(d-x))$	
	=	0.0003053	
ϵ_m	=	$\epsilon_1 - \epsilon_2$	Eq 7.2
	=	0.0004062	Concrete 2013
w	=	$3 \cdot a_{cr} \cdot \epsilon_m / (1 + 2 \cdot (a_{cr} - c_{min}) / (h-x))$	Eq 7.1
	=	0.068 mm	Concrete 2013
Therefore, Flexural Crack Width	=	0.068 mm	
Total Crack Width	=	0.158 mm	
	<	0.25 mm	OK!

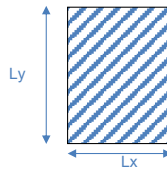
Wall

Wall Design

1. Dimensions



Lx= 2800 mm
Ly= 5600 mm
h= 250 mm



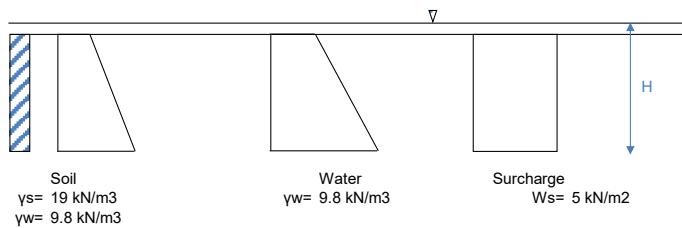
Section

$$\frac{L_y}{L_x} = \frac{5600}{2800} = 2.00 > 2$$

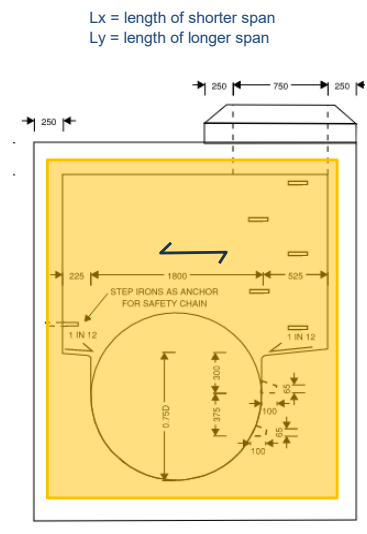
Therefore, design the wall as a-1 way slab.

Elevation

2. Loadings



Angle of resistance for soil	Φ	=	30 deg	
Coefficient of earth pressure at rest	K_0	=	0.5	
Depth @ wall toe	H	=	4	m
Soil P =	$K_0 \gamma' H$	=	18.4	kN/m ²
Water P=	$\gamma_w H$	=	39.2	kN/m ²
Surcharge P=	$K_0 W_s$	=	2.5	kN/m ²
Adopt Factor of Safety		=	1.4 (DL) + 1.6 (LL)	
Factored Total Pressure n		=	$1.4 \times (18.4 + 39.2) + 1.6 \times 2.5$	
		=	113.2	kN/m ²



Wall

3. Design Moment and Shear

Length of Short Span L_x	=	2.800 m
Consider one meter run slab as a simply-supported beam under UDL = n		
Moment @ mid-span	M_{sx}	= 110.9 kNm/m
Shear Force @ support	V_x	= 158.5 kN/m

4. Bending Reinforcement

f_{cu}	=	30 MPa	Table 4.2 Concrete 2013
f_y	=	500 MPa	
Cover	=	40 mm	
b	=	1000 mm	
h	=	250 mm	
$A_{s \text{ min}}$	= $0.13\%bh$	325 mm ²	cl. 9.3.1.1 (a) Concrete 2013

4.1 Reinforcement

Try Re-bar	=	20 mm	Diameter	
d_1	=	250 - 40 - 20 / 2		
	=	200 mm		
K	=	$M_{sx}/(f_{cu} \times b \times d_1^2)$		Eq 6.7-8
	=	0.092 < 0.156		Concrete 2013
Therefore, no compression reinforcement required				
z	=	$\min[(0.5 + (0.25 - K/0.9)^{(0.5)}) \times d, 0.95d]$		Eq 6.13
	=	176.75312 mm		Concrete 2013
A_s	=	$M_{sx}/(0.87 \times f_y \times z)$		Eq 6.12
	=	1443 mm ²	> $A_{s \text{ min}}$	Concrete 2013
Provide T	=	20	-	
A_s	=	2094 mm ²	> 1443 mm ²	OK!

Wall

5. Shear Reinforcement

$(100 \cdot A_s / (b_v \cdot d))$	=	1.05	<	3	Table 6.3 Concrete 2013
Adopt		1.05			
$(400/d)$	=	2.00	>	1	
Adopt		2.00			
$(f_{cu}/25)^{(1/3)}$	=	1.06			
v_c	=	0.81	N/mm ²		
$v_c (2d)$	=	$2d / a_v \times v_c$			cl 6.1.2.5 (g) Concrete 2013
(where a_v is assumed to be	=	2.6	N/mm ²		
		125	mm	)	
v	=	V/bd			
	=	0.79	N/mm ²	<	$v_c (2d)$

Therefore, no shear reinforcement required.

6. Deflection Checking

Unfactored M_s	=	58.90	kNm/m		
$M_s / (b \cdot d^2)$	=	1.47	N/mm ²		
<u>Modification Factors</u>					
M_{fs}	=	3.57	>1	(Long-span modification)	Table 7.4 Concrete 2013
Adopt		1			
f_s	=	333	MPa		Table 7.4 Concrete 2013
M_{ft}	=	1.05	<2		Table 7.4 Concrete 2013
M_{fc}	=	1		(Because no compression reinforcement)	Table 7.5 Concrete 2013
M_{fi}	=	1			
Type C-Cantilever/ S-Simply Supported/ Ct-Continuous					
Basic Span-Depth Ratio	=		20		Table 7.3 Concrete 2013
Span-Depth Ratio Required	=		21.1		
Actual Span-Depth Ratio	=		11.2	<	
					21.1 OK!

Wall

7. Crack Width Checking

Thermal Crack

Coefficient of thermal contraction of mature concrete α	=	1.00E-05	cl. 5.2.3 SDM 2013
f_{ct}/f_b	=	0.67	cl. 5.5.2 (6) SDM 2013
Bar Size	=	20 mm	
h	=	250 mm	
Area of Steel A_s	=	4188.7902 mm ²	
Area of Concrete A_c	=	250000 mm ²	
T1	=	35 °C	cl. 5.5.2 (13) SDM 2013
Minimum Steel Ratio $A_s/A_c \text{ min}$	=	f_{ct}/f_{yk} 0.00262	cl. 5.5.2 (2) SDM 2013
Steel Ratio ρ	A_s/A_c =	0.01676 > 0.00262	OK!
Thermal Crack Spacing s	=	397.9 mm	cl. 5.5.2 (6) SDM 2013
Thermal Crack Width w	=	0.07 mm	cl. 5.5.2 (11) SDM 2013

Flexural Crack

Distance from the point considered to the surface of the nearest tension steel a_{cr}	=		Crack @ surface of the wall
	=	80.1 mm	
E_s	=	200 GPa	
E_c	=	22.2 GPa	Table 5.1 SDM 2013
N	=	$E_s/(E_c/2)$ 18.02	
x	=	$1/b \cdot [-N \cdot A_s + ((N A_s)^2 + 2 N A_s b d)^{1/2}]$ 90.8 mm	
fst	=	$M_s/(d-x/3)/A_s$ 165.68 N/mm ²	
ϵ_1	=	$f_{st}/E_s \cdot (h-x)/(d-x)$ 0.0012077	
Distance from the compression face to the the crack a'	=	250 mm	Crack @ slab surface
ϵ_2	=	$b \cdot (h-x)(a'-x)/(3 E_s A_s (d-x))$ 0.0001847	
ϵ_m	=	$\epsilon_1 - \epsilon_2$ 0.0010229	Eq 7.2 Concrete 2013
w	=	$3 \cdot a_{cr} \cdot \epsilon_m / (1 + 2 \cdot (a_{cr} - c_{min}) / (h-x))$ 0.163 mm	Eq 7.1 Concrete 2013
Therefore, Flexural Crack Width	=	0.163 mm	
Total Crack Width	=	0.233 mm	
	<	0.25 mm	OK!

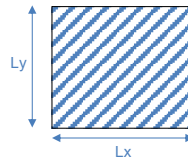
Bottom Slab

Bottom Slab Design

1. Dimensions



Lx= 1100 mm
Ly= 2800 mm
h= 300 mm



Lx = length of shorter span
Ly = length of longer span

Section

$$\begin{aligned} \text{Ly} / \text{Lx} &= 2800/1100 \\ &= 2.55 > 2 \end{aligned}$$

Therefore, design the wall as a-1 way slab.

Plan

2. Loadings

Weight of Walls	=	159.86	kN		
Weight of Top Slab	=	10.96	kN		
Weight of Bottom Slab	=	22.64	kN		
Benching	=	9.53	kN		
Soil Cover	=	8.78	kN		
Bottom Water Pressure	=	90.55	kN		
Surcharge	=	15.40	kN		
Adopt Factor of Safety	=	1.4	DL	+	1.6 IL
Factored Total Pressure n	=	447.9	/	(2.8×1.1)	
	=	145.4	kN/m2		

Bottom Slab

3. Design Moment and Shear

Length of Short Span L_x	=	1.100 m	
(+ve) β_{sx}	=	0.123	Table 6.6
β_{sy}	=	0.056	Concrete 2013
(-ve) β_{sx}	=	---	
β_{sy}	=	---	
β_{vx}	=	0.47	Table 6.7
β_{vy}	=	0.33	Concrete 2013
(+ve) Short Span Moment	M_{sx}	= $\beta_{sx} \times n \times L_x^2$ = 21.62 kNm/m	Eq 6.28 Concrete 2013
(-ve) Short Span Moment	M_{sx}	= $\beta_{sx} \times n \times L_x^2$ = --- kNm/m	
(+ve) Long Span Moment	M_{sy}	= $\beta_{sy} \times n \times L_x^2$ = 9.85 kNm/m	Eq 6.29 Concrete 2013
(-ve) Long Span Moment	M_{sy}	= $\beta_{sy} \times n \times L_x^2$ = --- kNm/m	
Short Span Shear	V_{sx}	= $\beta_{sx} \times n \times L_x$ = 75.18 kN/m	Eq 6.33 Concrete 2013
Long Span Shear	V_{sy}	= $\beta_{sy} \times n \times L_x$ = 52.79 kN/m	Eq 6.34 Concrete 2013

4. Bending Reinforcement

f_{cu}	=	30 MPa	
f_y	=	500 MPa	
Cover	=	40 mm	Table 4.2 Concrete 2013
b	=	1000 mm	
h	=	300 mm	
$A_{s \text{ min}}$	= $0.13\%bh$	390 mm ²	cl. 9.3.1.1 (a) Concrete 2013

4.1 Reinforcement @ Short Span

Try Re-bar	=	16 mm	Diameter
d_1	=	$300 - 40 - 16/2$	
	=	252 mm	
K	=	$M_{sx}/(f_{cu} \times b \times d_1^2)$	Eq 6.7-8
	=	0.011 < 0.156	Concrete 2013
Therefore, no compression reinforcement required			
z	=	$\min[(0.5 + (0.25 - K/0.9)^{0.5}) \times d, 0.95d]$	Eq 6.13
	=	239.4 mm	Concrete 2013
A_s	=	$M_{sx}/(0.87 \times f_y \times z)$	Eq 6.12
	=	208 mm ²	Concrete 2013
		< $A_{s \text{ min}}$	
Provide T	=	16	
A_s	=	1340 mm ²	
		> 390 mm ²	OK!

Bottom Slab

4.2 Reinforcement @ Long Span

Try Re-bar	=	16 mm	Diameter	
d_2	=	$300 - 40 - 16 - 16 / 2$		
	=	236 mm		
K	=	$M_{sy} / (f_{cu} \times b \times d_2^2)$		Eq 6.7-8
	=	0.006 < 0.156		Concrete 2013
Therefore, no compression reinforcement required				
z	=	$\min[(0.5 + (0.25 - K/0.9)^{0.5}) \times d, 0.95d]$		Eq 6.13
	=	224.2 mm		Concrete 2013
As	=	$M / (0.87 \times f_y \times z)$		Eq 6.12
	=	101 mm ²	<	As min
				Concrete 2013
Provide T	=	16	-	
As	=	1340 mm ²	>	150 mm ² OK!

5. Shear Reinforcement

$(100 \times A_s / (b_v \times d))$	=	0.53	<	3	Table 6.3
	Adopt	0.53			Concrete 2013
$(400/d)$	=	1.59	>	1	
	Adopt	1.59			
$(f_{cu}/25)^{1/3}$	=	1.06			
vc	=	0.61		N/mm ²	
vc (2d)	=	$2d / a_v \times vc$			cl 6.1.2.5 (g) Concrete 2013
	=	2.5		N/mm ²	
(where a_v is assumed to be		125		mm)	
v	=	V/bd			
	=	0.30		N/mm ² < vc (2d)	

Therefore, no shear reinforcement required.

6. Deflection Checking

Unfactored M_s	=	15.33	kNm/m
$M_s / (b \times d^2)$	=	0.24	N/mm ²

Modification Factors

M_{fs}	=	9.09 > 1	(Long-span modification)	Table 7.4 Concrete 2013
	Adopt	1		
f_s	=	333 MPa		Table 7.4 Concrete 2013
M_{ft}	=	1.60 < 2		Table 7.4 Concrete 2013
M_{fc}	=	1	(Because no compression reinforcement)	Table 7.5 Concrete 2013
M_{fi}	=	1		

Type C-Cantilever/ S-Simply Supported/ Ct-Continuous				
Basic Span-Depth Ratio	=	20		Table 7.3 Concrete 2013
Span-Depth Ratio Required	=	32.0		
	=	3.7		
Actual Span-Depth Ratio	<	32.0 ok!		

Bottom Slab

7. Crack Width Checking

Thermal Crack

Coefficient of thermal contraction of mature concrete α	=	1.00E-05	cl. 5.2.3 SDM 2013
f_{ct}/f_b	=	0.67	cl. 5.5.2 (6) SDM 2013
Bar Size	=	16 mm	
h	=	300 mm	
Area of Steel A_s	=	2680.826 mm ²	
Area of Concrete A_c	=	300000 mm ²	
T_1	=	35 °C	cl. 5.5.2 (13) SDM 2013
Minimum Steel Ratio $A_s/A_c \text{ min}$	=	f_{ct}/f_{yk} 0.00262	cl. 5.5.2 (2) SDM 2013
Steel Ratio ρ A_s/A_c	=	0.00894 > 0.00262	ok!
Thermal Crack Spacing s	=	596.8 mm	cl. 5.5.2 (6) SDM 2013
Thermal Crack Width w	=	0.10 mm	cl. 5.5.2 (11) SDM 2013

Flexural Crack

Distance from the point considered to the surface of the nearest tension steel a_{cr}	=		Crack @ surface of the wall
	=	81.0 mm	
E_s	=	200 GPa	
E_c	=	22.2 GPa	Table 5.1 SDM 2013
N	=	$E_s/(E_c/2)$ 18.02	
x	=	$1/b \cdot [-N \cdot A_s + ((N A_s)^2 + 2 N A_s b d)^{1/2}]$ 88.8 mm	
f_{st}	=	$M_s/(d-x)/A_s$ 51.43 N/mm ²	
ϵ_1	=	$f_{st}/E_s \cdot (h-x)/(d-x)$ 0.000333	
Distance from the compression face to the crack a'	=	300 mm	Crack @ slab surface
ϵ_2	=	$b \cdot (h-x)(a'-x)/(3 E_s A_s (d-x))$ 0.00034	
ϵ_m	=	$\epsilon_1 - \epsilon_2$ -7.05E-06	Eq 7.2 Concrete 2013
w	=	$3 \cdot a_{cr} \cdot \epsilon_m / (1 + 2 \cdot (a_{cr} - c_{min})/(h-x))$ -0.001 mm	Eq 7.1 Concrete 2013
Therefore, Flexural Crack Width	=	0.000 mm	
Total Crack Width	=	0.104 mm	
	<	0.25 mm	ok!

Appendix II - Extract of Drainage design for manhole depth and pipe size

Appendix A: Design Calculation

Zone

HKO

Return Period	1 in	50	years
---------------	------	----	-------

n	0.014
Ks	0.15
Viscosity	0.000001

Storm Constant	HKO a	505.5
	HKO b	3.29
	HKO c	0.355

Catchment Area Table (Area in m²)

Catchment	A1	B1	B2	C1	C2													
Total Area	2128	5988	8618	23829	3108													
Hard Paved Area	2128	0	0	0	0													
Unpaved Area	0	5988	8618	23829	3108													
Equival. Area	2021.6	2095.8	3016.3	8340.15	1087.8													

Pavement Type	Hard Paved	Unpaved
Runoff Coefficient	0.95	0.35

Calculation Table of Drainage System

US MH/PIT	DS MH/PIT	US GL	DS GL	Size mm	Gradient 1 in	Type	US IL	DS IL	U/S MH/PIT TYPE	Length m	V m/s ^{###}	Capacity m ³ /s	Catchments	Total Equivalent Area m ²	ToC min	Intensity mm/hr ^{##}	Total Discharge m ³ /s	Utilization	Remark
SP01	CP1.01	15.00	12.50	525	Stp. Ch.	UC-Stepped	14.09	11.84	SP	21.2	Stp. Ch.	0.43	A1,B1	4117.40	5.80	257	0.29	68.3%	
CP1.01	CP1.02	12.50	8.80	525	Stp. Ch.	UC-Stepped	11.59	8.14	CP	46	Stp. Ch.	0.43	A1,B1	4117.40	5.84	256	0.29	68.2%	
CP1.02	EXISTING 1700 CHANNEL	8.80	8.40	600	100	UC	7.64	7.53	CP	10.8	2.34	0.68	A1,B1,B2	7133.70	6.39	251	0.50	73.5%	
SP02	CP2.01	15.00	10.30	525	Stp. Ch.	UC-Stepped	14.09	9.64	SP	73.6	Stp. Ch.	0.43	A1,B2	5037.90	5.80	257	0.36	83.6%	
CP2.01	CP1.02	10.30	8.80	600	71	UC	9.14	8.15	CP	69.8	2.78	0.80	A1,B2	5037.90	5.97	255	0.36	44.4%	
EXISTING 1700 CHANNEL				1700	200	UC					3.31	7.69	A1,B1,B2,C1,C2	16561.65	6.46	250	1.15	15.0%	
Proposed 1800 pipe		10.20	10.20	1800	200	PIPE		6.70			3.62	8.29	A1,B1,B2,C1,C2	16561.65	6.46	250	1.15	13.9%	Cap no less than existing 1700 Channel

IL match with existing levels

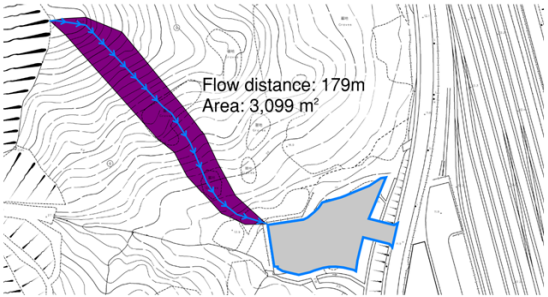
#SP: Start Point
: With 11.1% rainfall increase as per Table 28 of SDM Corrigendum No. 1/2022.
###: 10% reduction of Area as per SDM section 9.3

Pipe size 1800

Depth not more than 3.5m

Time of Concentration Checking

Catchment	Flow Distance	Highest Level	Lowest Level	Gradient (per 100m) = (H1-H2)/L x 100	to (min) = 0.14465L/ (H ^{0.2} A ^{0.1})	tc = to + tf
A	L	H1	H2			
(m2)	(m)	(mPD)	(mPD)		(min)	(min)
3099	179	72	15	31.844	5.8	5.8



Annex 3

Revised page of the application form and the supplementary statement

Proposed operating hours 擬議營運時間 Monday to Saturday from 09:00 to 19:00. No operation on Sunday and public holidays.																																							
(d) Any vehicular access to the site/subject building? 是否有車路通往地盤／有關建築物？	Yes 是 No 否	☒ There is an existing access. (please indicate the street name, where appropriate) 有一條現有車路。(請註明車路名稱(如適用)) Accessible from Kam Ho Road via a local access. ☐ There is a proposed access. (please illustrate on plan and specify the width) 有一條擬議車路。(請在圖則顯示，並註明車路的闊度) ☐																																					
(e) Impacts of Development Proposal 擬議發展計劃的影響 (If necessary, please use separate sheets to indicate the proposed measures to minimise possible adverse impacts or give justifications/reasons for not providing such measures. 如需要的話，請另頁註明可盡量減少可能出現不良影響的措施，否則請提供理據/理由。)																																							
(i) Does the development proposal involve alteration of existing building? 擬議發展計劃是否包括現有建築物的改動？	Yes 是 No 否	☐ Please provide details 請提供詳情 ☒																																					
(ii) Does the development proposal involve the operation on the right? 擬議發展是否涉及右列的工程？	Yes 是 No 否	☒ (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用地盤平面圖顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍) ☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 sq.m 平方米 ☐ About 約 Depth of filling 填塘深度 m 米 ☐ About 約 ☒ Filling of land 填土 Area of filling 填土面積 2,070 sq.m 平方米 ☒ About 約 Depth of filling 填土厚度 not more than 1.1 m 米 ☐ About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積 sq.m 平方米 ☐ About 約 Depth of excavation 挖土深度 m 米 ☐ About 約 ☐																																					
(iii) Would the development proposal cause any adverse impacts? 擬議發展計劃會否造成不良影響？	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">On environment 對環境</td> <td style="width: 10%;">Yes 會 ☐</td> <td style="width: 10%;">No 不會 ☒</td> </tr> <tr> <td>On traffic 對交通</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>On water supply 對供水</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>On drainage 對排水</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>On slopes 對斜坡</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>Affected by slopes 受斜坡影響</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>Landscape Impact 構成景觀影響</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>Tree Felling 砍伐樹木</td> <td>Yes 會 ☒</td> <td>No 不會 ☐</td> </tr> <tr> <td>Visual Impact 構成視覺影響</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>Others (Please Specify) 其他 (請列明)</td> <td>Yes 會 ☐</td> <td>No 不會 ☒</td> </tr> <tr> <td>_____</td> <td></td> <td></td> </tr> <tr> <td>_____</td> <td></td> <td></td> </tr> </table>			On environment 對環境	Yes 會 ☐	No 不會 ☒	On traffic 對交通	Yes 會 ☐	No 不會 ☒	On water supply 對供水	Yes 會 ☐	No 不會 ☒	On drainage 對排水	Yes 會 ☐	No 不會 ☒	On slopes 對斜坡	Yes 會 ☐	No 不會 ☒	Affected by slopes 受斜坡影響	Yes 會 ☐	No 不會 ☒	Landscape Impact 構成景觀影響	Yes 會 ☐	No 不會 ☒	Tree Felling 砍伐樹木	Yes 會 ☒	No 不會 ☐	Visual Impact 構成視覺影響	Yes 會 ☐	No 不會 ☒	Others (Please Specify) 其他 (請列明)	Yes 會 ☐	No 不會 ☒	_____			_____		
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Supplementary Statement

1) Background

- 1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Lots 136 RP (Part) and 2149 (Part) in D.D. 106 and adjoining Government Land (GL), Kam Tin, Yuen Long, New Territories (the Site) for '**Proposed Temporary Warehouse (excluding Dangerous Goods Godown (excl. D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years**' (the proposed development) (**Plan 1**).
- 1.2 In view of the pressing demand for indoor storage space in recent years, the applicant would like to use the Site for warehouse to support the local warehousing and storage industry. The proposed warehouse is intended for storage of miscellaneous goods, i.e. packaged food, apparel, footwear, electronic goods, furniture etc. No dangerous goods and workshop activities will be stored and/or conducted within the Site.

2) Planning Context

- 2.1 The Site currently falls within an area zoned "Agriculture ("AGR") on the Approved Kam Tin South Outline Zoning Plan (OZP) No. S/YL-KTS/15. According to the Notes of the OZP, 'Warehouse' is neither a column 1 nor 2 use within the "AGR" zone, which requires planning permission from the Board (**Plan 2**).
- 2.2 Although the Site falls within the "AGR" zone, it has been left idle for decades and there is no active agricultural use within the Site. The proposed development with low-rise structure is considered not incompatible with the surrounding area, which is predominately in semi-rural character comprising unused land scattered with graves. Hence, approval of the planning application on a temporary basis of 3 years would not frustrate the long-term planning intention of the "AGR" zone and would better utilise precious land resources in the New Territories.
- 2.3 Several similar applications (Nos. A/YL-KTS/959, 997, 1020, 1023, 1032, 1045, 1046, 1048, 1049, 1051, 1062, 1066, 1071, 1083 & 1112) for/party for 'Warehouse' use were approved by the Board in recent years on a temporary basis for a period of 3 years within the "AGR" zone on the same OZP. Therefore, approval of the current application is considered in line with the Board's previous decisions and would not set an undesirable precedent within the "AGR" zone.

3) Development Proposal

- 3.1 The Site occupied an area of 2,128 m² (about), including GL of 230 m² (about) (**Plan 3**). The operation hours of the proposed development are Monday to Saturday from 09:00 to 19:00. There will be no operation on Sunday and public holidays. A two-storey temporary structure is proposed for warehouse (excl. D.G.G.), site office and washroom with total gross floor area (GFA) of 3,260 m² (about) (**Plan 4**). The site office is intended to provide indoor workspace for administrative staff to support the daily operation of the proposed development. It is estimated that the proposed development would accommodate about 5 nos. of staff. As the Site is for 'Warehouse' without any shopfront, no visitor is anticipated at the Site. Details of development parameters are shown at **Table 1** below.

Table 1 – Development Parameters

Site area	2,128 m ² (about), including GL of 230 m ² (about)
Covered area	1,630 m ² (about)
Uncovered area	498 m ² (about)
Plot ratio	1.5 (about)
Site coverage	77% (about)
No. of structure	1
Total GFA	3,260 m ² (about)
- Domestic GFA	Not applicable
- Non-Domestic GFA	3,260 m ² (about)
Building height	13 m (about)
No. of storey	2

- 3.2 The majority of the Site (2,070 m² (about); 96% of the Site) is proposed to be paved with concrete of not more than 1.1 m in depth for site formation of structures and provision of parking, loading/unloading (L/UL) and circulation spaces (**Plan 5**). The hard-paving is considered necessary and has been kept to a minimum for the operation of the proposed development. The existing site level is at +9.1 mPD. Upon completion of the filling of land, the site level of the paved area will be raised to +10.2 mPD. The applicant will strictly follow the scheme, and no further filling of land will be carried out after obtaining the planning permission. Upon its expiry, the applicant will reinstate the Site to an amenity area.

- 3.3 The Site is accessible from Kam Ho Road via a local access (**Plan 1**). A 11 m-wide (about) vehicular ingress/egress is proposed at the eastern part of the Site. A total of 4 parking and L/UL spaces are proposed at the Site. Details of the parking and L/UL provisions are shown at **Table 2** below.

Table 2 – Parking and L/UL provisions

Type of space	No. of space
Parking space for private car (PC) - 2.5 m (W) x 5 m (L)	2
Type of space	No. of space
L/UL space for light goods vehicle (LGV) - 3.5 m (W) x 11 m (L)	1
L/UL space for container vehicle (CV) - 3.5 m (W) x 16 m (L)	1

- 3.4 Sufficient space is provided for vehicle to smoothly manoeuvre within the Site to ensure that no vehicle will turn back onto the local access (**Plan 6**). Details of the trip generation and attraction are shown at **Table 3** below.

Table 3 – Estimated trip generation and attraction

Time period	Estimated trip generation and attraction						
	PC		LGV		CV		2-Way total
	In	Out	In	Out	In	Out	
Trips at <u>AM peak</u> per hour (08:00 – 09:00)	2	0	1	0	1	0	4
Trips at <u>PM peak</u> per hour (18:00 – 19:00)	0	2	0	1	0	1	4
Average trip per hour (09:00 – 18:00)	0	0	1	1	1	1	4

- 3.5 In view of the infrequent trips arising from the proposed development, i.e. ≤4 trips/hour, the applicant proposes to deploy staff to station at the run-in/out to direct incoming/outgoing vehicles to ensure pedestrian and road safety. Signage such as 'BEWARE OF PEDESTRIAN' will also be clearly shown at the run-in/out to further enhance pedestrian safety. As the trip generated/attracted by the proposed development is expected to be minimal, the adverse traffic impact arising from the proposed development is not anticipated.

- 3.6 The applicant has also conducted a sightline review for the proposed run-in/out (**Plan 7**). According to the sightline analysis, adequate visibility with a minimum of 60 m is provided for vehicles at the run-in/out. Hence, it is considered that the proposed run-in/out would not bring adverse road safety concerns to the road users.
- 3.7 A buffer area of 3 m (about) in width will be reserved between the site boundary and the existing nullah to the south of the Site (**Plan 3**). No work will be carried out within the buffer area. Grave-sweepers will be able to get access to the graves scattered on the hillside to the west of the Site via the buffer area.
- 3.8 The Site is mainly covered with overgrown grass. According to the tree details report provided by the applicant, 1 no. of existing tree, namely *Ficus macrocarpa*, was identified near the proposed vehicular ingress/egress within the Site (**Appendix I**). Given that the development scheme is in conflict with its location, it is proposed to be felled. With a view to enhancing the landscape quality of the Site's surrounding and to minimising the landscape impact to the adjacent area zoned "Conservation Area" ("CA"), the applicant proposes to plant 10 nos. of new tree of local species, namely *Elaeocarpus chinensis*, along the northern periphery of the Site.
- 3.9 In order to minimise the disturbance to the area zoned "CA" to the north of the Site, the applicant proposes to provide a 5 m (about) buffer between the "CA" zone and the nearest structure. **No work will be carried out within the 5 m buffer area.** During the construction stage, hoardings will be place along the site boundary to clearly indicate the work area limit, so as to mitigate the potential impacts to the adjacent "CA" zone and watercourse. During the operation stage, non-solid fencing, such as chain link fence of about 2 m in height and visible from the outside, will be erected long the northern periphery near the "CA" zone. Besides, 2.5 m high fencing made of galvanised sheets will be erected along other sections of the site boundary to minimise the potential nuisance to the surroundings, which will be installed properly by licensed contractor to prevent misalignment of walls, to ensure that there is no gap or slit on the boundary wall. The **proposed** structure will be fully-enclosed to minimise the visual/noise impacts to the adjacent "CA" zone during operation.

- 3.10 **All items will be stored inside the fully-enclosed structure.** No storage of dangerous goods, open storage, assembling, dismantling, maintenance and other workshop activities will be carried out at the Site. The applicant will strictly comply with all environmental protection/pollution control ordinances, i.e. *Water Pollution Control Ordinance, Air Pollution Control Ordinance, Noise Control Ordinance* etc. at all times during the planning approval period.
- 3.11 The applicant will also follow relevant mitigation measures and requirements stipulated in the latest the 'Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites' issued by the Environmental Protection Department to alleviate adverse environmental impacts and nuisance to the surrounding area. The applicant will follow relevant *Professional Persons Environmental Consultative Committee Practice Notes* for the provision of facilities for drainage and sewage treatment at the Site.

4) Conclusion

- 4.1 Significant nuisance to the surrounding area arising from the proposed development is not anticipated. The applicant has provided mitigation measures to minimise the landscape impact to the adjacent area zoned "CA". Other mitigation measures, such as the proposal on drainage arrangement and fire service installations, will be provided upon obtaining relevant planning permission.
- 4.2 In view of the above, the Board is hereby respectfully recommended to approve the subject application for '**Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years**'.

R-riches Planning Limited

June 2026

LIST OF APPENDICES

Appendix I	Tree details
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LIST OF PLANS

Plan 1	Location plan
Plan 2	Zoning plan
Plan 3	Land status plan
Plan 4	Layout plan
Plan 5	Plan showing the filling of land at the Site
Plan 6	Swept path analysis
Plan 7	Sightline analysis