

ISSUE 3

# **TEMPORARY DRAINAGE PROPOSAL (Final)**

APPLICATION SITE OF THE PROPOSED  
TEMPORARY LOGISTICS CENTRE FOR A PERIOD  
OF 3 YEARS FOR A PERIOD OF 3 YEARS LOT 598  
S.C (PART) IN D.D. 114 AND ADJOINING  
GOVERNMENT LAND, SHEK KONG, YUEN LONG,  
NEW TERRITORIES

**PROJECT NO. AGLA/TDM/009**

**PREPARED FOR**

**APPLICATION NO. A/YL-SK/340**

2 August 2024

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# 1 Introduction

## 1.1 Background

1.1.1 This report presents the Drainage Proposal for supporting the application site of the proposed temporary logistics centre for a period of 3 years for a period of 3 years lot 598 s.c (part) in d.d. 114 and adjoining government land, Shek Kong, Yuen Long, New Territories. For the site location plan, please refer to the **Appendix A**.

## 1.2 Objectives of the Report

1.2.1 This report shall be prepared to include the following:

- Identify the potential drainage impact assessment from the proposed Application Site
- recommend and implement all necessary measures to mitigate adverse drainage impacts arising from the application site

## 1.3 Report Structure

1.3.1 The report contains the following sections:

- Section 1 on Introduction;
- Section 2 on Development Proposal;
- Section 3 on Assessment Criteria;
- Section 4 on Potential Drainage Impact; and
- Section 5 on Conclusion.

# 2 Development Proposal

## 2.1 Location of the Application Site

2.1.1 The application Site is located within the Shek Kong, Yuen Long with an area of around 2,788m<sup>2</sup> and ground level varying between + 48.8mPD and + 47.5mPD. The layout plan is provided in **Appendix B**.

2.1.2 This application site is “Industrial (Group D)” zoning, the type of application is the Temporary Use/Development in Rural Areas for a Period of 3 Years.

### 3 Assessment Criteria

#### 3.1 Design Return Periods

3.1.1 The drainage system in the Application site is to collect surface flows and convey to downstream village drain. The recommended design return periods based on the flood levels for the various drainage systems depend on the drainage system, land use, hazard to public safety and community expectations. The recommended design return period is reproduced in Table 3-1 below:

**Table 3-1 Recommended Design Return Periods based on Flood Levels**

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

3.1.2 As per Storm Drainage Manuel (SDM) Section 6.6.2 Urban Drainage Branch and Urban Drainage Trunk Systems *“An ‘Urban Drainage Branch System’ is defined as a group or network of connecting drains collecting runoff from the urban area and conveying stormwater to a trunk drain, river or sea. For a simple definition, the largest pipe size or the equivalent diameter in case of a box culvert in a branch system will normally be less than 1.8m.*

3.1.3 *An ‘Urban Drainage Trunk System’ collects stormwater from branch drains and/or river inlets, and conveys the flow to outfalls in river or sea. Pipes with size or diameter equal to or larger than 1.8m are normally considered as trunk drains.”*

3.1.4 As per SDM, since the proposed U-channels are sized smaller than 1.8m, the drainage system would be defined as an urban drainage branch with recommended design return period of 50 years.

3.1.5 The 50 years design return period will be considered to ensure adequacy of the stormwater drainage system.

#### 3.2 Calculation Methodology for Runoff

3.2.1 Peak instantaneous runoff values before and after the development were calculated based on the Rational Method and with recommended physical parameters including runoff coefficient I and storm constants for different return periods referred to the SDM, based on the following equation:

$$Q_p = 0.278 C i A$$

- where
- $Q_p$  = Peak Runoff, m<sup>3</sup>/s
  - $C$  = Runoff Coefficient
  - $i$  = Rainfall Intensity, mm/hr
  - $A$  = Catchment Area, km<sup>2</sup>

3.2.2 The paved area of the site will account for 2,788 m<sup>2</sup>. For conservative, the runoff coefficient of 1.0 is assumed, such that the all the run-off would be collected from the catchment area without any infiltration as the critical scenario.

3.2.3 Based on the storm constants for 50-year return period recommended in the SDM, the appropriate rainfall intensities (i) are calculated as detailed in **Appendix D**

### 3.3 Calculation Methodology for Pipe Capacity Checking

3.3.1 Because the catchment areas are less than 1ha, U-channels are recommended to be constructed to collect the stormwater runoff within the site. The collected stormwater should finally be diverted to the downstream via the proposed U-channel system.

3.3.2 For the worst-case scenario, bad condition of concrete pipe is assumed for the Manning’s roughness coefficient (coefficient value is 0.016) for calculating capacities of concrete U-channel using Manning’s Equation.

3.3.3 Manning’s Equation for calculating the channel and pipe capacities is adopted.

## 4 Potential Drainage Impact

### 4.1 Existing Site Condition

4.1.1 The application Site is located within the Shek Kong, Yuen Long with an area of around 2,788m<sup>2</sup> and ground level varying between + 48.8mPD and + 47.5mPD.

4.1.2 Apart from the application site with a projected area of 2,788 m<sup>2</sup> is considered as part of the catchment, there is an external catchment with area projected area of 428 m<sup>2</sup> (Say 500 m<sup>2</sup> for conservative) were identified at the northern side of the application site, as the application site is generally lower than the adjacent land.

### 4.2 Changes in Drainage Characteristics

4.2.1 The characteristics of the sub-catchment areas are remained unchanged due to the temporary development for the application site, which are paved area.

4.2.2 The application site is fully covered by concrete surface currently. This application does not propose adding any additional concrete area, the difference in surface runoff that can be attributed to this application is negligible. The change in sub-catchment is summarized in Table 4-2.

**Table 4-1 Change in sub-catchment within the site**

	BEFORE	AFTER
Grassland (m <sup>2</sup> )	0	0
Unpaved Area (m <sup>2</sup> )	0	0
Paved Area (m <sup>2</sup> )	2,788	2,788
External Catchment Area (m <sup>2</sup> )	1,062	1,062
Total Catchment Area (m <sup>2</sup> )	3850	3,850

### 4.3 Potential Drainage Impact

- 4.3.1 The details of the proposed drainage works are illustrated in **Appendix C**.
- 4.3.2 To effectively convey stormwater away from the application site and minimize the potential impact to the drainage infrastructure of the village area, drainage works consists of U-channels, are proposed to convey the flow to the terminate catchpit with trap (TCP).
- 4.3.3 The runoff from the Application site is collected by U-channels along the boundary and discharged to the catchpit with trap (TCP), which is connected to the further downstream leading to the discharge point of a well-established Existing Nullah via 450mm U-Channel at the southern direction of the application site.
- 4.3.4 The 450mm U-channel receives stormwater from the surface and the upstream catchment. For Conservative, the critical scenario is considered for collecting all the flow leading to the village drainage. The design calculation of the proposed drainage is provided in **Appendix D**. The design calculation is summarized in Table 4-2.

**Table 4-2 Design calculation of the proposed drainage work**

DRAINAGE SYSTEM	ESTIMATED FLOW (M <sup>3</sup> /S)	CAPACITY (M <sup>3</sup> /S)	RESERVE CAPACITY
450mm UC	0.278	0.328	85%

Note:

[1] Rainfall increase due to climate change at the end of 21<sup>st</sup> century is considered according to stormwater drainage manual Table 28.

[2] The reserve capacity is calculated by assuming that the 450mm U-channel reach its full capacity for conservative.

- 4.3.5 The design runoff arise from the proposed Application Site is to be discharged into the proposed 450mm UC with the runoff anticipated to be 0.212m<sup>3</sup>/s, which is within the drainage capacity of the proposed 450mm u-channel of 0.328m<sup>3</sup>/s with gradient 1:100.
- 4.3.6 Since there are no changes in Drainage Characteristics, it is considered that the drainage discharge from the Application Site will not cause adverse impact to the entire downstream drainage system.
- 4.3.7 All u-channels & catch pits will be constructed according to the CEDD’s standard drawings, please refer to the **Appendix E**.

## 5 Construction Stage

### 5.1 Temporary Drainage Arrangements

- 5.1.1 Proper measures shall be taken to maintain the existing drainage characteristics of the catchment areas and to minimize drainage impacts associated with the construction works. The principal drainage impacts which are associated with construction of the works have been identified as follows:
  - (a) Erosion of ground materials;
  - (b) Sediment transportation to existing downstream drainage system; and
  - (c) Obstruction to drainage systems.
- 5.1.2 Regular inspections shall be carried out to ensure integrity of the works. These inspections shall cover works under construction as well as recently completed areas.

- 5.1.3 To ensure proper operation of the site drainage channels and desilting facilities, inspection of the perimeter drains shall be carried out on a weekly basis and the desilting facilities shall be cleaned on a daily basis.
- 5.1.4 If excavated materials are not possible to transport away the excavated material within the same day, the material should be covered by tarpaulin/impervious sheets. Stockpiles of construction materials (for examples aggregate, fill materials) of more than 50 m<sup>3</sup> in an open area shall also be covered with tarpaulin or similar fabric during rainstorms.
- 5.1.5 All runoff discharged into the existing drainage system will be settled in a silt trap to ensure no sediment will be discharged into the channel. Silt traps will normally be provided along the site drainage immediately upstream of the proposed discharge point to the existing Site. The silt traps will be inspected daily and immediately after each rainstorm.
- 5.1.6 Liaison will be carried out with relevant parties regarding temporary drainage arrangements to ensure that the drainage system is functioning adequately.

## 6 Conclusions

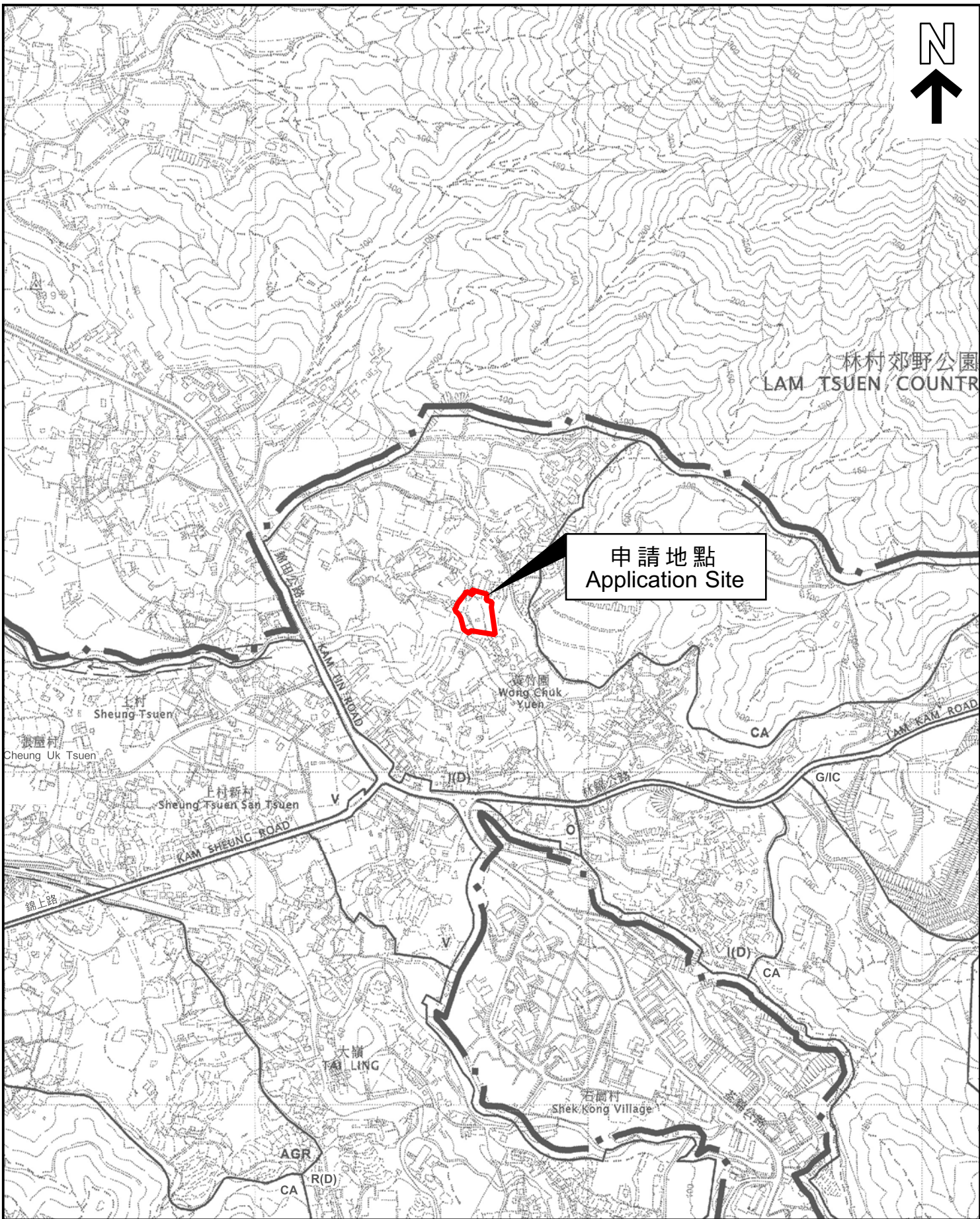
### 6.1 Conclusion

- 6.1.1 The analysed catchment area of 3,850 m<sup>2</sup> consists of the site area of the proposed Application Site of catchment area of 2,788 m<sup>2</sup> and the adjacent area of 1062 m<sup>2</sup>.
- 6.1.2 U-channels are proposed to convey runoff from the application site for collection. The proposed U-channels are located along the site boundary which is subject to change to suit the building layout.
- 6.1.3 The assessment reviews the drainage pipe have the sufficient capacity to cater for the drainage flow from the Application Site.
- 6.1.4 Mitigation measures are proposed during the application site proposed Application Site and to ensure that the existing drainage system within the site will not be affected during the construction stage.

**END OF TEXT**

**APPENDIX A**  
**SITE LAYOUT PLAN**

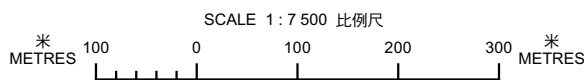




**位置圖 LOCATION PLAN**

本摘要圖於2023年2月8日擬備，  
所根據的資料為於2006年10月17日  
核准的分區計劃大綱圖編號S/YL-SK/9

EXTRACT PLAN PREPARED ON  
8.2.2023 BASED ON OUTLINE ZONING  
PLAN No. S/YL-SK/9 APPROVED ON  
17.10.2006

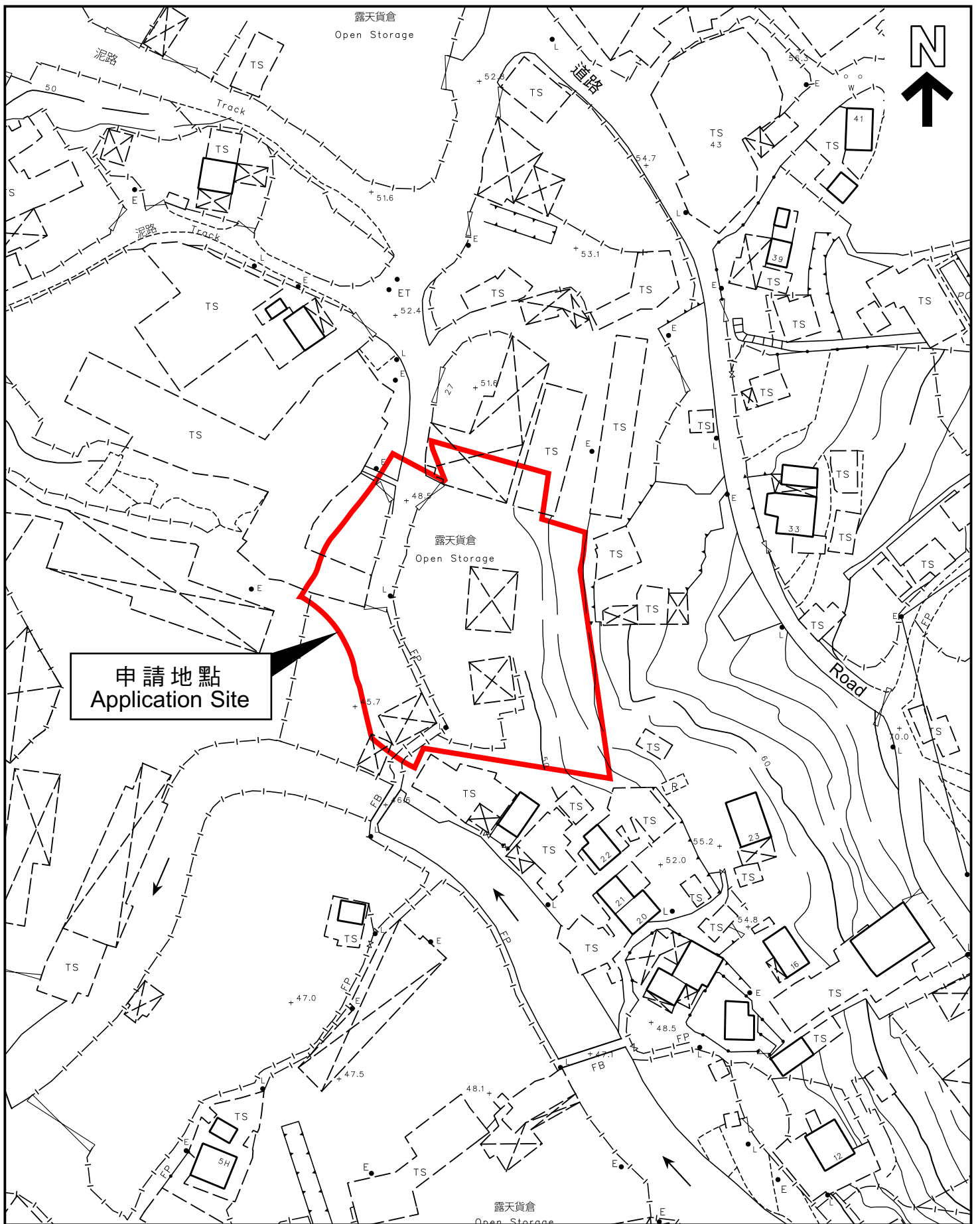


申請地點界線只作識別用  
APPLICATION SITE BOUNDARY  
FOR IDENTIFICATION PURPOSE ONLY

參考編號  
REFERENCE No.

**A/YL-SK/340**

**APPENDIX B**  
**LAYOUT PLAN**



申請地點  
Application Site

平面圖 SITE PLAN

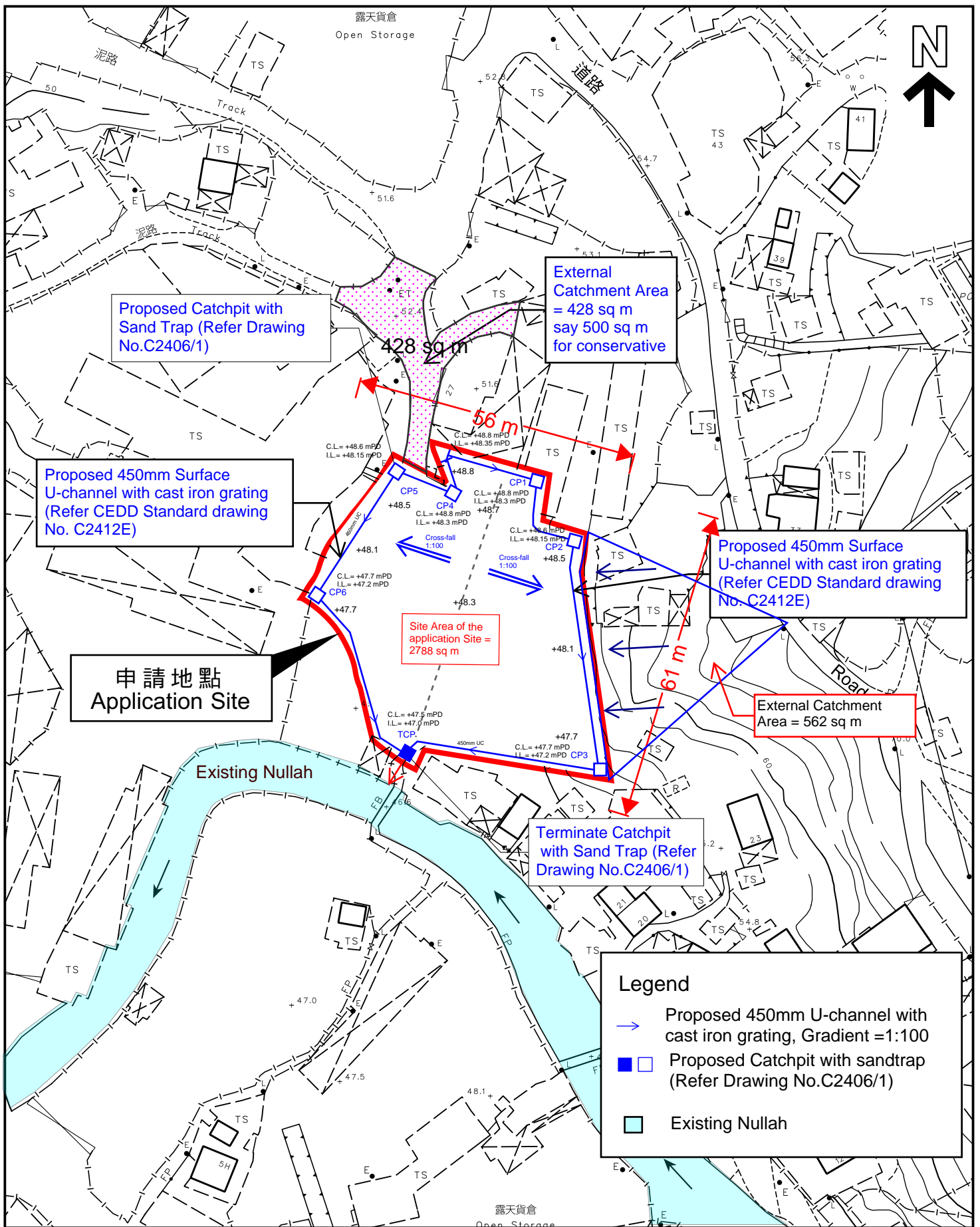
本摘要圖於2023年2月8日擬備，  
所根據的資料為測量圖編號6-NE-15C  
EXTRACT PLAN PREPARED ON  
8.2.2023 BASED ON SURVEY SHEET  
No. 6-NE-15C

申請地點界線只作識別用  
APPLICATION SITE BOUNDARY  
FOR IDENTIFICATION PURPOSE ONLY

參考編號  
REFERENCE No.

A/YL-SK/340

**APPENDIX C**  
**PROPOSED DRAINAGE PLAN**



平面圖 SITE PLAN

本摘要圖於2023年2月8日擬備，  
所根據的資料為測量圖編號6-NE-15C

EXTRACT PLAN PREPARED ON  
8.2.2023 BASED ON SURVEY SHEET  
No. 6-NE-15C

申請地點界線只作識別用  
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參考編號  
REFERENCE No.

A/YL-SK/340

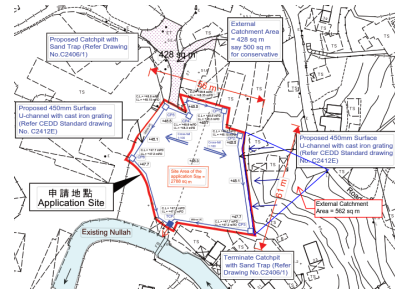
**APPENDIX D**  
**DESIGN CALCULATION OF THE PROPOSED DRAINAGE**

**Design Data**

1. Design follows the Rational Method in accordance with Stormwater Drainage Manual 2018 (DSD)
2. For conservative, Runoff coefficient for paved / unpaved land is 1.
3. Design return period is 50 years.
4. For manning's equation coefficient n is 0.016.

**Check for Hydraulic Capacity:**

Catchment	K	Area (A)
Application Site Area	1.00	2788.0
External Catchment Area	1.00	1062.0 m <sup>2</sup>
Total Catchment Area	1.00	3850.0 m <sup>2</sup>



**Runoff estimation**

Average slope, H

= 1 / 100m

Catchment area, A

= 3850 m<sup>2</sup>

Distance between summit and point under consideration, L

= 30 m

SDM 7.5.2

Time of concentration of natural catchment, t<sub>0</sub>

= 0.14465 x L / (H<sup>0.2</sup> x A<sup>0.1</sup>)

= 1.90 min.

Length of drain, L<sub>d</sub>

= 100 m

Velocity, V<sub>d</sub>

= 1.813 m/s

SDM 7.5.2

Flow time, t<sub>f</sub>

= Σ (L<sub>d</sub> / V<sub>d</sub>)

= 0.91918327 min.

Time of concentration, t<sub>c</sub>

= t<sub>0</sub> + t<sub>f</sub>

= 2.82 min.

SDM Table 3

Storm constants for 200-year return period:

a = 451.3

b = 2.46

c = 0.337

SDM 4.3.2

Extreme mean intensity, i<sub>50yr</sub>

= a / (t<sub>d</sub> + b)<sup>c</sup>

= 257.59516 mm/hr

GMS Fig 8.2

SDM 7.5.2

Design flow, Q

< 405.000 mm/hr

= 0.278 i Σ K A

= 0.276 m<sup>3</sup>/s

**450mm u-channel capacity**

Diameter

= 450 mm

Cross-sectional area of 450mm U-channel

= 0.1808 m<sup>2</sup>

Gradient

= 0.01

Manning's Eq.

flow velocity

= 1.813 m/s

Design Capacity

= 0.328 m<sup>3</sup>/s

Reserve capacity

> 0.276 m<sup>3</sup>/s

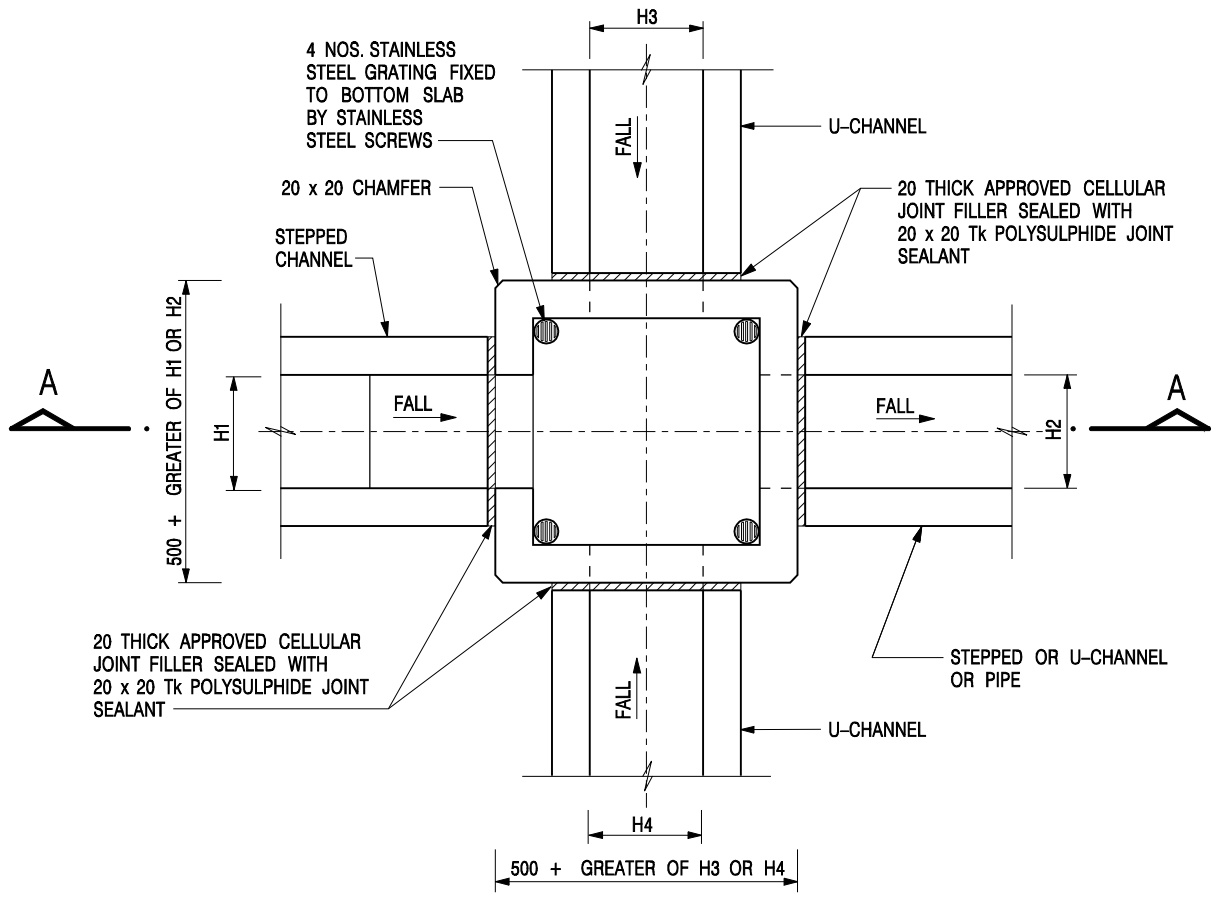
OK

= 84%

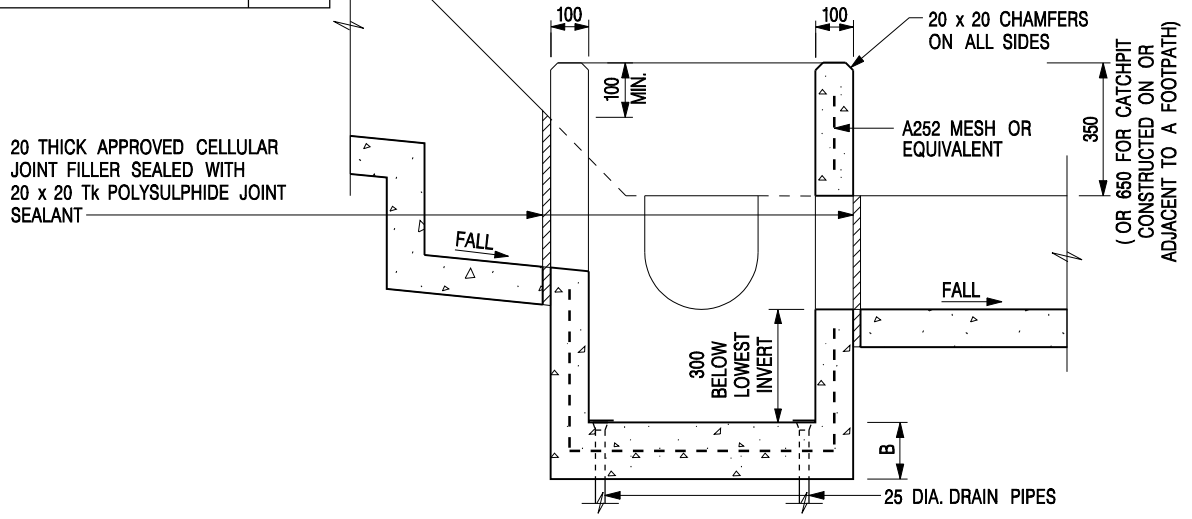
For conservative, all the U-channel along the site boundary shall be 450mm.

**APPENDIX E**  
**TYPICAL STANDARD DRAWINGS OF U-CHANNEL AND CATCHPIT**  
**(EXTRACTED FROM CEDD, FOR REFERENCE ONLY)**





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



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

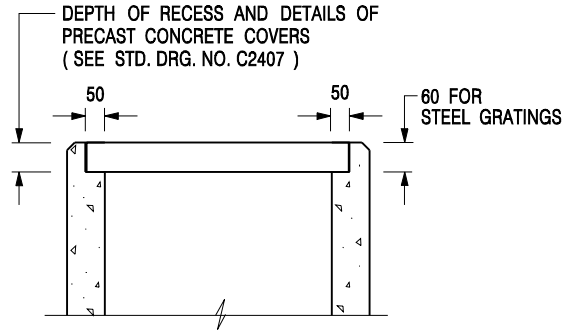
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REF.	REVISION	SIGNATURE	DATE

**CATCHPIT WITH TRAP**  
**(SHEET 1 OF 2)**

**CEDD** **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 20 **DRAWING NO.** C2406 /1

**DATE** JAN 1991




**ALTERNATIVE TOP SECTION  
FOR PRECAST CONCRETE COVERS / GRATINGS**

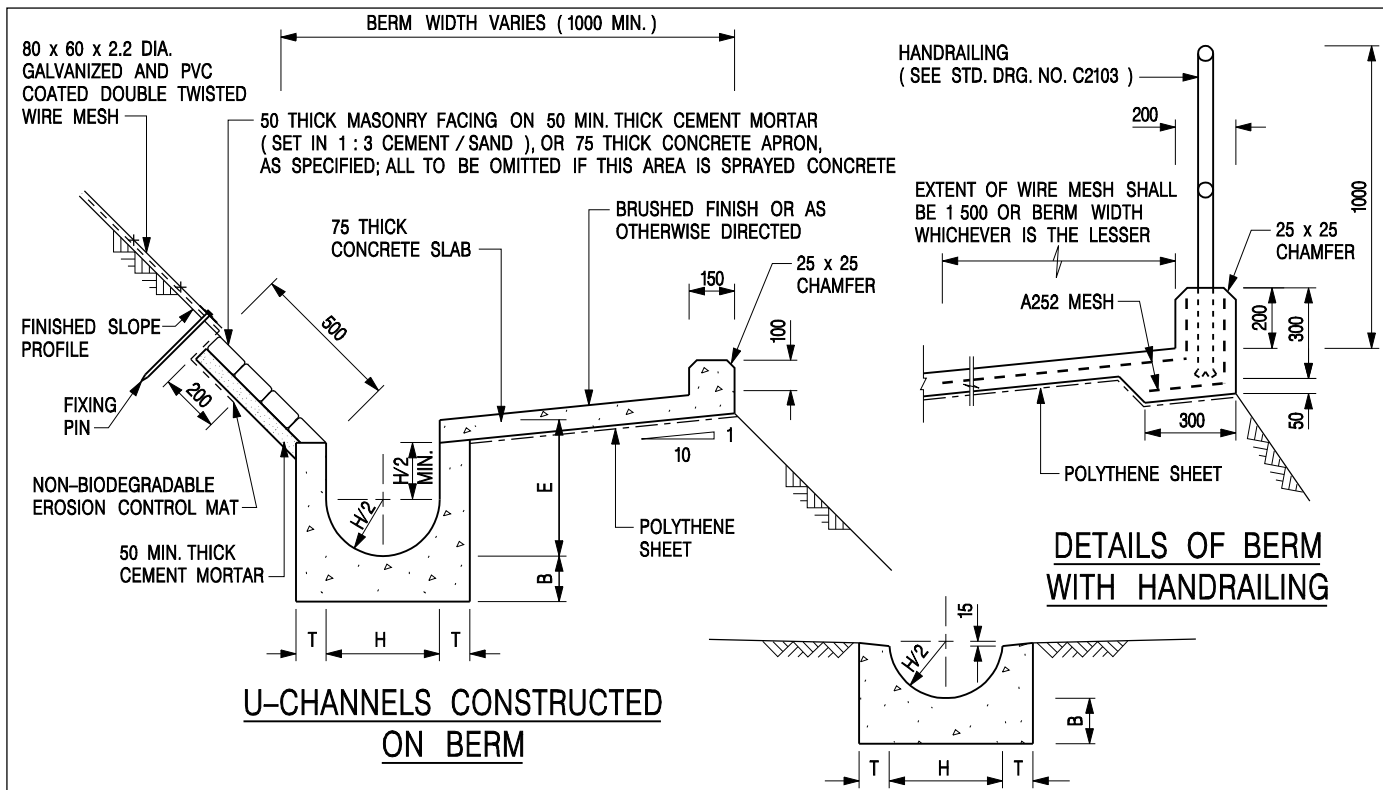
**NOTES:**

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.

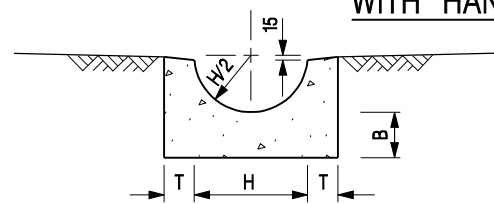
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<b>REF.</b>	<b>REVISION</b>	<b>SIGNATURE</b>	<b>DATE</b>

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

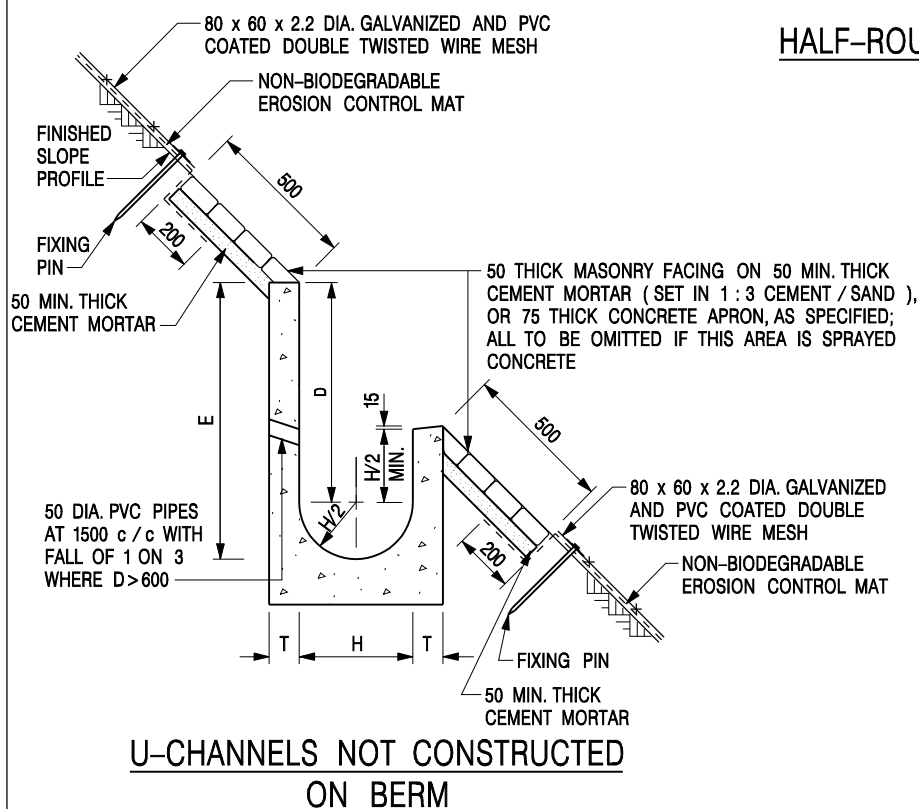
 <b>CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT</b>	
<b>SCALE</b> 1 : 20	<b>DRAWING NO.</b>
<b>DATE</b> JAN 1991	<b>C2406 /2A</b>



**DETAILS OF BERM WITH HANDRAILING**



**HALF-ROUND CHANNEL**



**U-CHANNELS NOT CONSTRUCTED ON BERM**

**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)

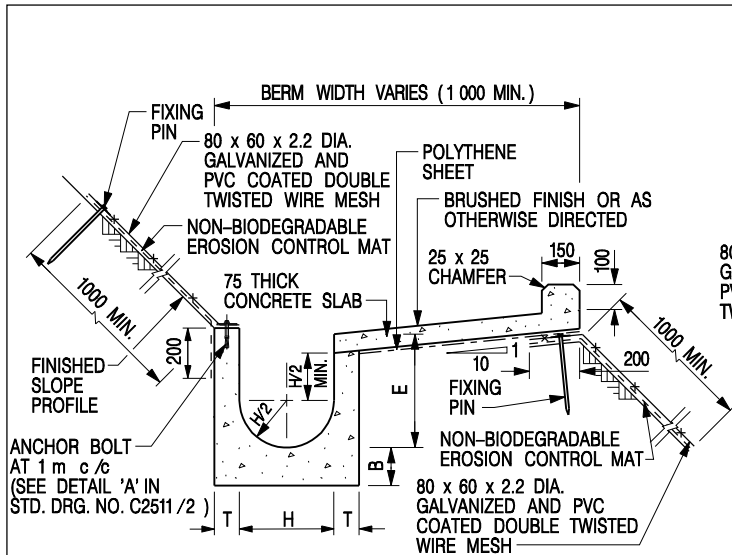
NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E>650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

REF.	REVISION	SIGNATURE	DATE
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

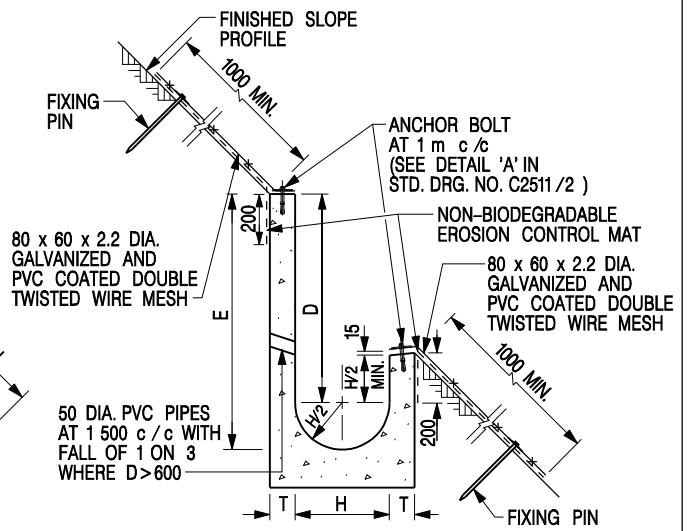
**DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON )**

**CEDD**  
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

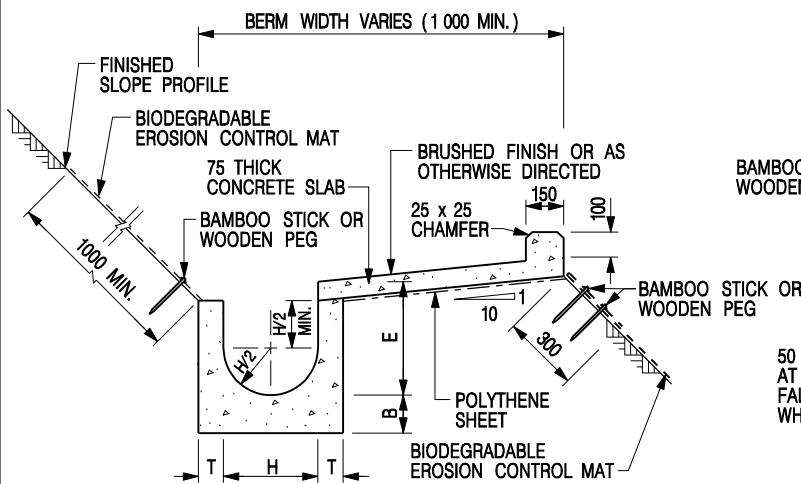
**SCALE** 1 : 25      **DRAWING NO.** C2409I  
**DATE** JAN 1991



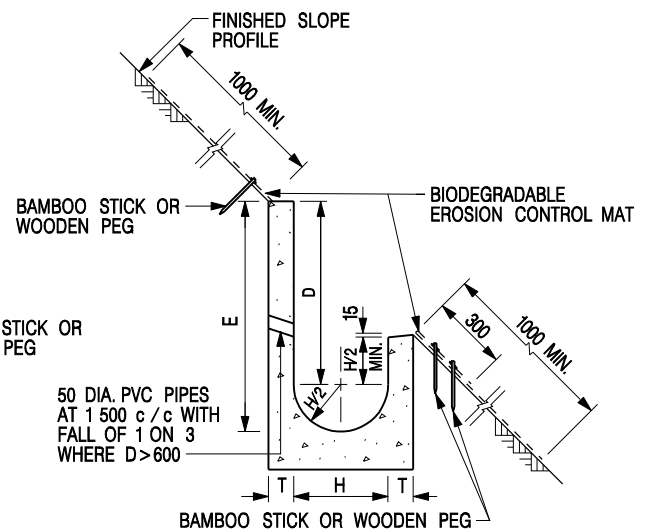
**U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT**



**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	

REF.	REVISION	SIGNATURE	DATE
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

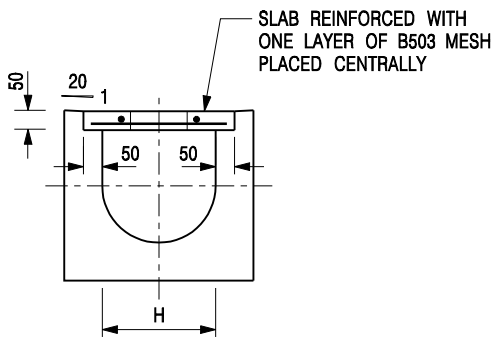
**DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)**

**CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

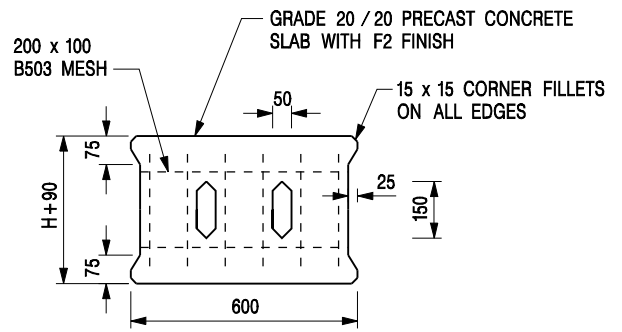
SCALE DIAGRAMMATIC      DRAWING NO. C2410I

DATE JAN 1991

**卓越工程 建設香港**      We Engineer Hong Kong's Development



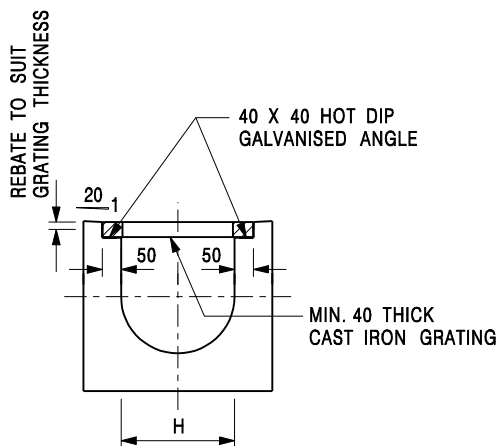
**TYPICAL SECTION**



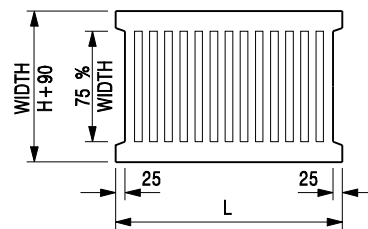
**PLAN OF SLAB**

**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
<b>REF.</b>	<b>REVISION</b>	<b>SIGNATURE</b>	<b>DATE</b>

**COVER SLAB AND CAST IRON GRATING FOR CHANNELS**



**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

**SCALE** 1 : 20

**DRAWING NO.**

**DATE** JAN 1991

**C2412E**

**APPENDIX F**  
**RESPONSE TO COMMENTS**

**Response to Comments on Temporary Drainage Proposal (Issue 2)**

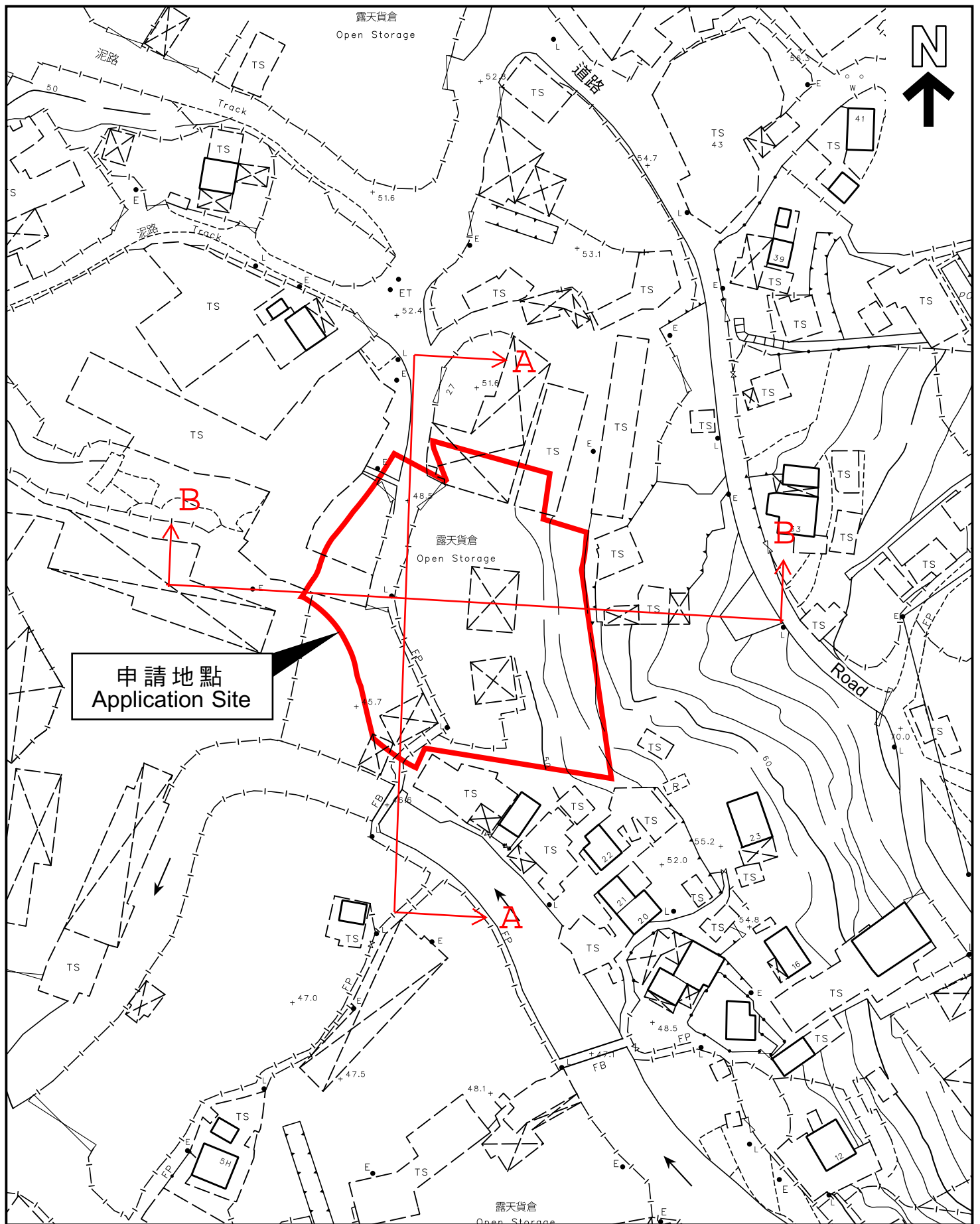
1. Comments from DSD/YL ..... 2

1. Comments from DSD/YL on

Comment	Response
(i) The ground to the east of the application site is generally higher. Since the overland flow from the adjacent lands shall be probably intercepted, external catchment shall be considered in the calculation	External catchment area at east is considered and the calculation is revised.
(ii) The existing watercourse proposed for discharge of the runoff from the application site is not maintained by DSD. The applicant shall resolve any conflict/disagreement arisen for discharging the runoff from the application site to the proposed discharge point. Moreover, the applicant should ensure that this drainage system and the existing downstream/drains/channels/streams have adequate capacity to convey the additional runoff from the application site. Regular maintenance should be carried out by the applicants to avoid blockage of the system. In the case that it is a local village drains, District Office/Yuen Long should be consulted	Noted
(iii) Further to (ii) above, since there is no record of the said discharge path, please provide site photos to demonstrate its presence and existing condition; and	Site Photos are provided in Appendix H
(iv) Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given	Cross sections are provided in Appendix G



**APPENDIX G**  
**SECTION**



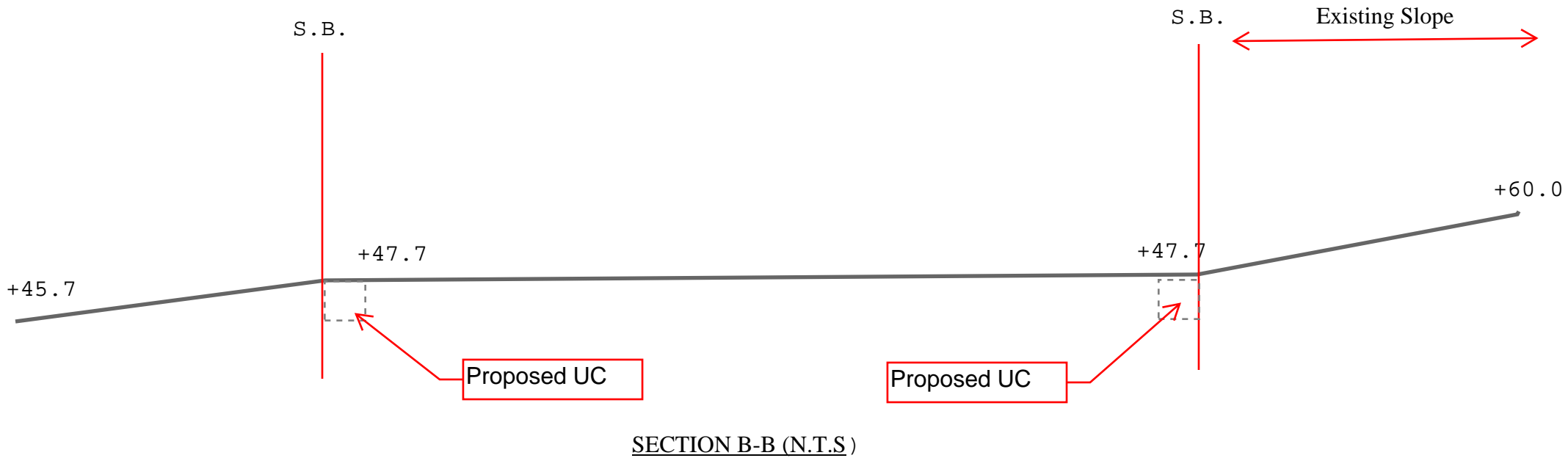
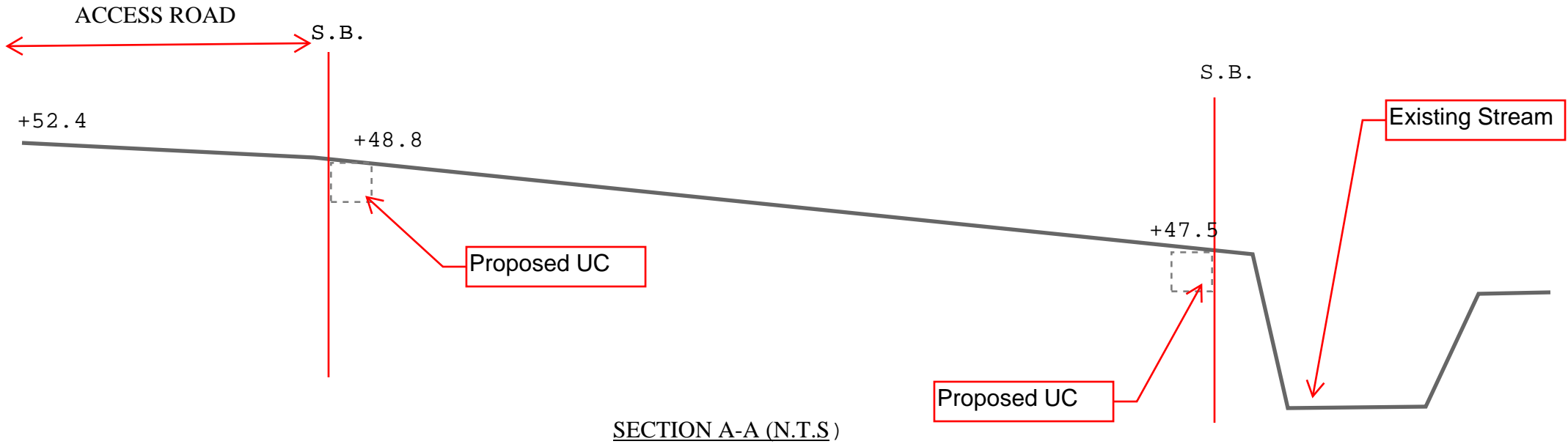
平面圖 SITE PLAN

本摘要圖於2023年2月8日擬備，  
 所根據的資料為測量圖編號6-NE-15C  
 EXTRACT PLAN PREPARED ON  
 8.2.2023 BASED ON SURVEY SHEET  
 No. 6-NE-15C

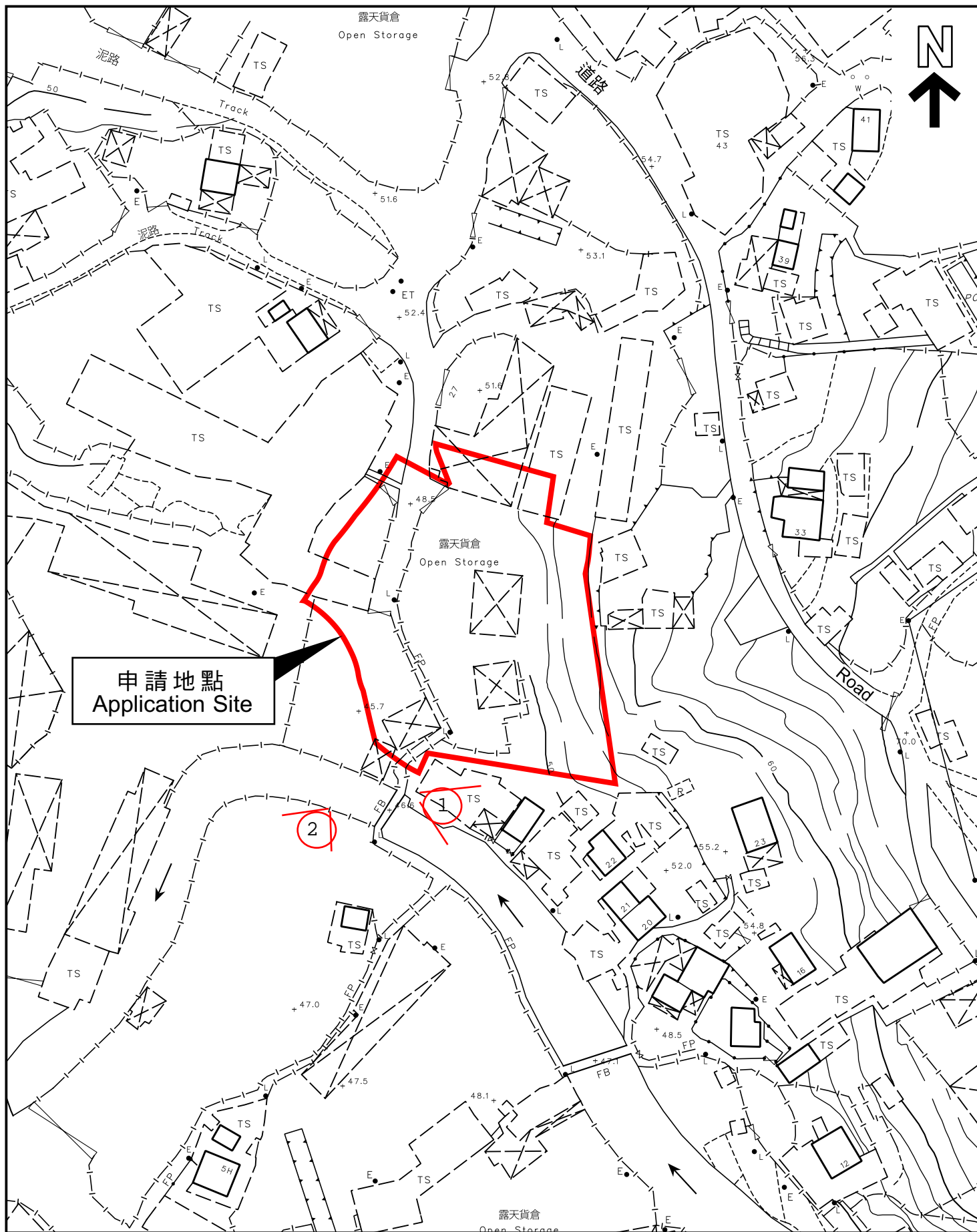
申請地點界線只作識別用  
 APPLICATION SITE BOUNDARY  
 FOR IDENTIFICATION PURPOSE ONLY

參考編號  
 REFERENCE No.

A/YL-SK/340



**APPENDIX H**  
**SITE PHOTO**



申請地點  
Application Site

平面圖 SITE PLAN

本摘要圖於2023年2月8日擬備，  
所根據的資料為測量圖編號6-NE-15C

EXTRACT PLAN PREPARED ON  
8.2.2023 BASED ON SURVEY SHEET  
No. 6-NE-15C

申請地點界線只作識別用  
APPLICATION SITE BOUNDARY  
FOR IDENTIFICATION PURPOSE ONLY

參考編號  
REFERENCE No.

A/YL-SK/340



VIEW 1 FINAL DISCHARGE STREAM



VIEW 2 FINAL DISCHARGE STREAM

Comment	Response
<p>(i) The ground to the east of the application site is generally higher. Since the overland flow from the adjacent lands shall be probably intercepted, external catchment shall be considered in the calculation</p>	<p>External catchment area at east is considered and the calculation is revised.</p>
<p>(ii) The existing watercourse proposed for discharge of the runoff from the application site is not maintained by DSD. The applicant shall resolve any conflict/disagreement arisen for discharging the runoff from the application site to the proposed discharge point. Moreover, the applicant should ensure that this drainage system and the existing downstream/drains/channels/streams have adequate capacity to convey the additional runoff from the application site. Regular maintenance should be carried out by the applicants to avoid blockage of the system. In the case that it is a local village drains, District Office/Yuen Long should be consulted</p>	<p>Noted</p>
<p>(iii) Further to (ii) above, since there is no record of the said discharge path, please provide site photos to demonstrate its presence and existing condition; and</p>	<p>Site Photos are provided in Appendix H</p>
<p>(iv) Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given</p>	<p>Cross sections are provided in Appendix G</p>

F.S.NOTES:

1. GENERAL

- 1.1 FIRE SERVICE INSTALLATIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE CODES OF PRACTICE FOR MINIMUM FIRE SERVICE INSTALLATIONS AND EQUIPMENT AND INSPECTION, TESTING AND MAINTENANCE OF INSTALLATIONS AND EQUIPMENT 2022 (COP 2022), FSD CIRCULAR LETTERS AND THE HONG KONG WATERWORKS STANDARD REQUIREMENTS.
- 1.2 ALL TUBES AND FITTINGS SHALL BE G.M.S. TO BS1387 MEDIUM GRADE WHERE PIPEWORK UP TO  $\phi 150\text{mm}$ .
- 1.3 ALL TUBES AND FITTINGS SHALL BE DUCTILE IRON TO BS EN545 K12 WHERE PIPEWORK ABOVE  $\phi 150\text{mm}$ .
- 1.4 ALL DRAIN PIPES SHALL BE DISCHARGED TO A CONSPICUOUS POSITION WITHOUT THE POSSIBILITY OF BEING SUBMERGED.
- 1.5 ALL PUDDLE FLANGES SHALL BE MADE OF DUCTILE IRON
- 1.6 THE AGGREGATE AREA OF OPENABLE WINDOWS NOT LESS THAN 6.25% OF THE FLOOR AREA OF THE STRUCTURE
- 1.7 VENTILATION/AIR CONDITIONING SYSTEM NOT TO BE PROVIDED.

2. HOSE REEL SYSTEM

- 2.1 NEW FIRE HOSE REEL SHALL BE PROVIDED AS INDICATED ON PLAN TO ENSURE THAT EVERY PART OF THE BUILDING CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30m HOSE REEL TUBING.
- 2.2 THE WATER SUPPLY FOR HOSE REEL SYSTEM WILL BE FED FROM A NEW  $2\text{m}^3$  F.S. FIBREGLASS WATER TANK VIA TWO HOSE REEL PUMPS (DUTY/STANDBY) LOCATED INSIDE FS PUMP ROOM AT EXTERNAL AREA.
- 2.3 HOSE REEL PUMPS SHALL BE STARTED BY ACTUATION OF ANY BREAKGLASS UNIT FITTED ASIDE EACH HOSE REEL SETS
- 2.4 ALL FIRE HOSE REEL OUTLETS SHOULD BE HOUSED IN GLASS FRONTED CABINET SECURED UNDER LOCK & KEY.
- 2.5 ALL FIRE HOSE REEL SHOULD BE PROVIDED WITH FSD APPROVED TYPE INSTRUCTION PLATE & WSD WARNING PLATE
- 2.6 SECONDARY ELECTRICITY SUPPLY DIRECTLY TEE OFF BEFORE CLP'S INCOMING MAIN SWITCH SHALL BE PROVIDED FOR THE FH/HR PUMPS.

3. AUTOMATIC SPRINKLER SYSTEM

- 3.1 NEW AUTOMATIC SPRINKLER SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH LPC RULES FOR AUTOMATIC SPRINKLER INSTALLATIONS INCORPORATING BS EN 12845: 2015 (INCLUDING TECHNICAL BULLETINS, NOTES, COMMENTAR AND RECOMMENDATIONS) AND FSD CIRCULAR LETTER NO. 5/2020. THE CLASSIFICATION OF THE OCCUPANCIES WILL BE ORDINARY HAZARD GROUP III.
- 3.2 ONE NEW  $135\text{m}^3$  SPRINKLER WATER TANK WILL BE PROVIDED AS INDICATED ON PLAN. THE TOWN MAIN WATER SUPPLY WILL BE FED FROM SINGLE END.
- 3.3 TWO NEW SPRINKLER PUMPS (DUTY/STANDBY) AND ONE JOCKEY PUMP SHALL BE PROVIDED IN FS PUMP ROOM LOCATED AT EXTERNAL AREA.
- 3.4 NEW SPRINKLER CONTROL VALVE SET AND SPRINKLER INLET SHALL BE PROVIDED AS INDICATED ON PLAN.
- 3.5 A TEST VALVE SHALL BE PROVIDED FOR EACH ZONE OF SPRINKLER PIPE. THIS VALVE SHALL BE AT A CONSPICUOUS POSITION THAT WATER CAN BE DRAINED AWAY EASILY.
- 3.6 ALL SUBSIDIARY STOP VALVES TO BE ELECTRIC MONITORING TYPE.
- 3.7 ALL ELECTRIC TYPE VALVES SHOULD GIVE VISUAL SIGNALS TO FIRE SERVICE MAIN SUPERVISORY CONTROL PANEL TO INDICATE THE STATUS (OPEN/CLOSE) OF THE VALVES.
- 3.8 SECONDARY ELECTRICITY SUPPLY DIRECTLY TEE OFF BEFORE CLP'S INCOMING MAIN SWITCH SHALL BE PROVIDED FOR THE SPRINKLER PUMPS.
- 3.9 THE SPRINKLER SYSTEM DESIGN IS BASED ON THE FOLLOWINGS:  
 HAZARD CLASS : ORDINARY HAZARD GROUP III  
 TYPE OF STORAGE : POST-PALLET (ST2)  
 STORAGE CATEGORY : CATEGORY I  
 MAXIMUM STORAGE HEIGHT : 3.5m  
 SPRINKLER PROTECTION : CEILING PROTECTION ONLY  
 THE MINIMUM CLEARANCE AROUND EACH SINGLE STORAGE CLOCK : 2.4m  
 MAXIMUM STORAGE AREA :  $50\text{m}^2$

4. FIRE ALARM SYSTEM

- 4.1 NEW FIRE ALARM SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH BS 5839 PART 1: 2017 AND FSD CIRCULAR LETTERS 6/2021.
- 4.2 NEW BREAKGLASS UNITS AND FIRE ALARM BELLS SHALL BE PROVIDED AT ALL NEW FIRE HOSE REEL POINTS. THE FIRE ALARM INTALLATION WILL BE INTEGRATED WITH THE HOSE REEL SYSTEM.

5. EMERGENCY LIGHTING

- 5.1 EMERGENCY LIGHTING SHALL BE PROVIDED IN ACCORDANCE WITH 'BS 5266-1:2016 AND BS EN 1838 :2013', AND FSD CIRCULAR LETTER 4/2021, COVERING ALL AREA. EMERGENCY LIGHTINGS SHALL BE BACKED UP BY BUILT-IN BATTERY AND CAPABLE OF MAINTAINING FUNCTION OF NOT LESS THAN 2 HOURS IN CASE OF POWER FAILURE












6. EXIT SIGN

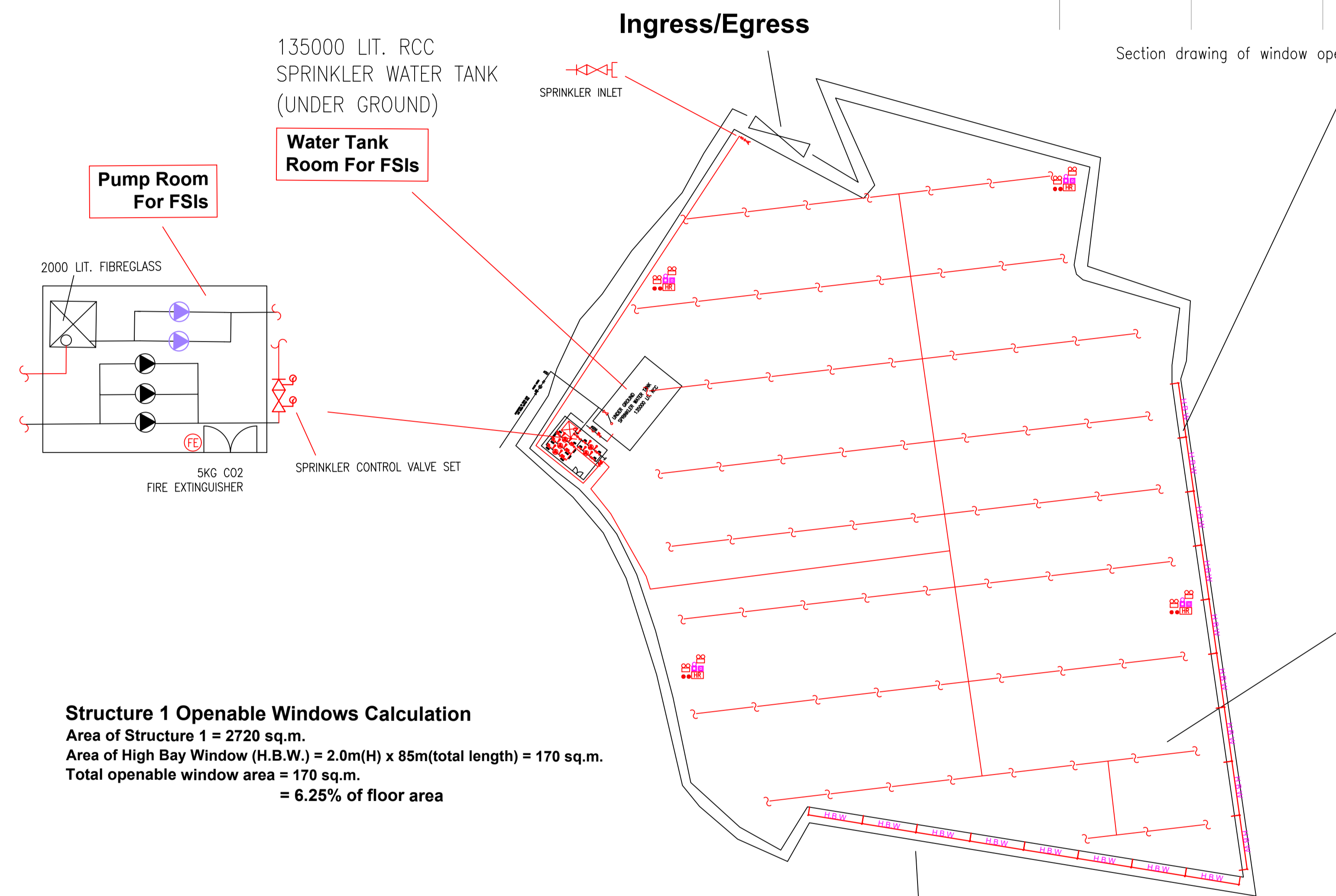
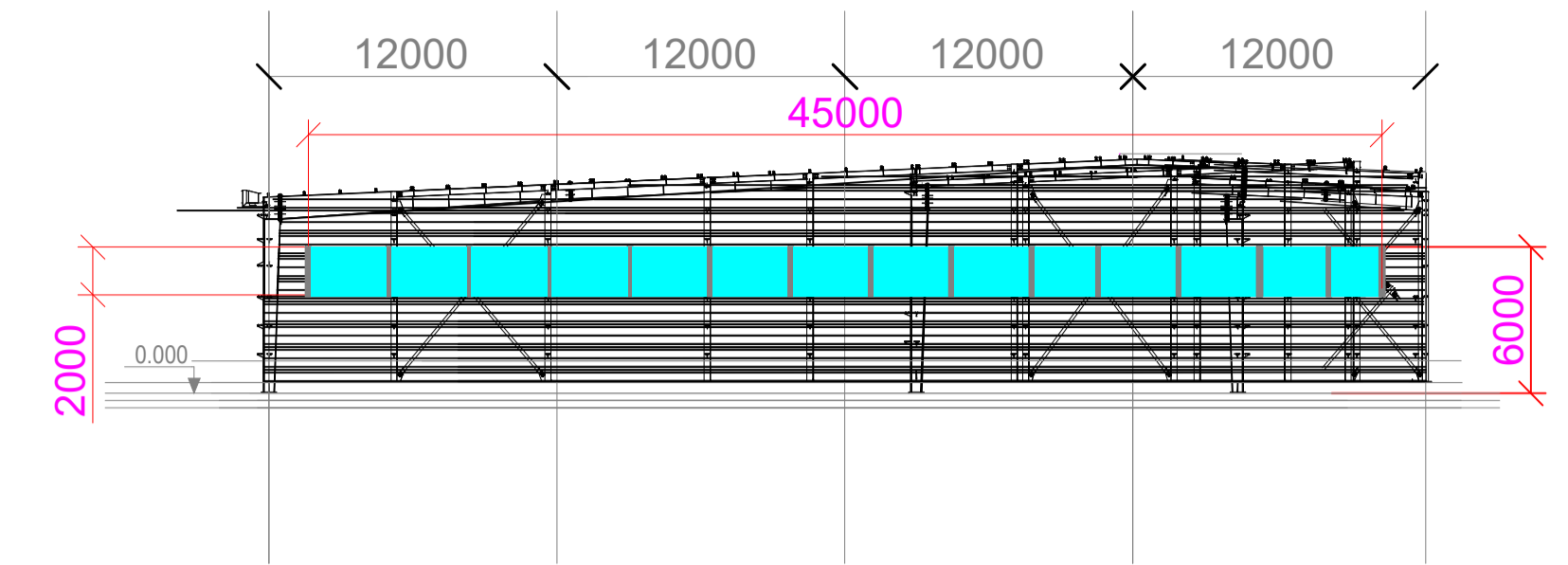
- 6.1 ALL EXIT SIGNS/DIRECTIONAL EXIT SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH 'BS 5266-1:2016 AND FSD CIRCULAR LETTER NO. 5/2008, FOR THE BUILDING. EXIT SIGNS/DIRECTIONAL EXIT SIGNS SHALL BE BACKED UP BY BUILT-IN BATTERY AND CAPABLE OF MAINTAINING FUNCTION OF NOT LESS THAN 2 HOURS IN CASE OF POWER FAILURE.

7. PORTABLE APPLIANCES

- 7.1 PORTABLE HAND OPERATED APPLIANCES SHALL BE PROVIDED AS INDICATED ON PLAN.

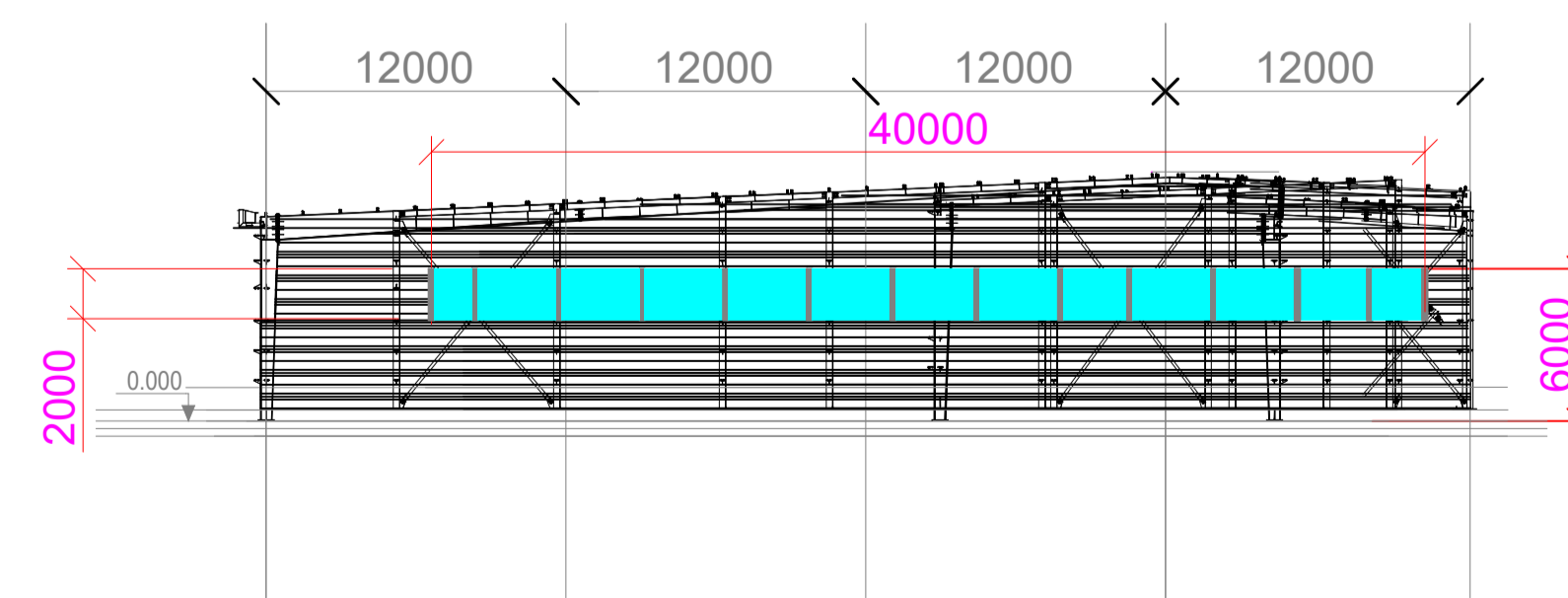
LEGEND

 HOSE REEL	 EMERGENCY LIGHT	 5KG CO2 FIRE EXTINGUISHER	 5KG DRY POWDER FIRE EXTINGUISHER
 BREAK GLASS UNIT	 EXIT SIGN	 SPRINKLER CONTROL VALVE SET	 SPRINKLER HEAD (ON PLAN)
 FIRE ALARM BELL	 PUMP SET	 SPRINKLER INLET	



**Structure 1 Openable Windows Calculation**  
 Area of Structure 1 = 2720 sq.m.  
 Area of High Bay Window (H.B.W.) = 2.0m(H) x 85m(total length) = 170 sq.m.  
 Total openable window area = 170 sq.m.  
 = 6.25% of floor area

**Structure 1**  
**Logistics Centre**  
**GFA: 2,720m<sup>2</sup> (About)**  
**No. of Storey: 1**  
**Height: 8m (About)**



PROJECT : Proposed Temporary Logistics Centre for a Period of 3 Years at Lot 598 S.C (Part) in D.D. 114 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories	DRAWING TITLE : <b>F.S. Notes, Legend, Fire Service Installation Layout Plan</b>	ARCHITECT :	CONSULTANT :	FIRE SERVICE CONTRACTOR : <b>Century Fire Service Engineering Co., Ltd.</b>	NAME : <b>C.K. NG</b>	DATE : <b>20 Jun 2024</b>	DRAWING NO : <b>FS-01</b>	REV. : <b>0</b>
					SCALE : 1 : 300 @ (A1)		SOURCE : B.O.O. Ref. BD F.S.D. Ref. FP	
REV		DESCRIPTION		DATE				