

# 規 劃 署

沙田、大埔及北區規劃處  
新界沙田上禾輦路1號  
沙田政府合署13樓



# Planning Department

Sha Tin, Tai Po & North  
District Planning Office  
13/F., Sha Tin Government Offices,  
1 Sheung Wo Che Road, Sha Tin,  
N.T.

來函檔號 Your Reference  
本署檔號 Our Reference TPB/A/NE-TK/705  
電話號碼 Tel. No. : 2158 6220  
傳真機號碼 Fax No. : 2691 2806

郵寄及傳真

(共一頁)

楊小姐：

履行規劃許可附帶條件(c)及(d)項  
在劃為「康樂」地帶的  
大埔蘆慈田村丈量約份第17約地段第1605號餘段(部分)及1606號(部分)  
臨時食肆(為期3年)  
(申請編號 A/NE-TK/705)

就你履行上述規劃許可附帶條件(c)及(d)項的來信，本署已於二零二二年九月八日收悉。

消防處處長已審視你提交的文件，認為有關的消防裝置和滅火水源建議已適當落實。因此，規劃許可附帶條件(c)及(d)經已全部履行。

如你對消防裝置及滅火水源建議有任何疑問，請與消防處李亮嶠先生(電話：2733 7781)聯絡。如有其他疑問，請與本署鄭嘉欣女士(電話：2158 6018)聯絡。

規劃署署長

( 陳巧賢

代行 )

二零二二年十月二十六日

副本抄送：

消防處處長 (經辦人：李亮嶠先生) (傳真：2739 8775)  
地政專員/大埔 (經辦人：許漢傑先生) (傳真：2650 9896)

內部抄送：

總城市規劃師/城市規劃委員會(1)  
地盤記錄

MC/HL/AC/ac

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內部抄送：

總城市規劃師/城市規劃委員會(1)  
地盤記錄

MC/HL/AC/ac



恒裕工程顧問有限公司  
HANG YUE ENGINEERING CONSULTANTS LIMITED

荃灣柴灣魚街35-45號裕豐工業大廈707室



承辦1. 2. 3. 級消防工程  
代理各類消防產品  
註冊小型工程  
電力安全紙·通風系統

Messrs : 致: 規劃署 (鄭小姐)

Date : 8-9-2022

Location: Lots 1605 RP (Part) and 1606 (Part)

Ref. No. :

IN D.D. 17, Lo Tsz Tin Village, Tai Po, NT

Tel : 2158 6018

Fax : 2691 2806

鄭小姐, 你好!

現付上新界大埔蘆慈田村丈量約份第 17 約地段

第 1605 號餘段 (部份) 及第 1606 號 (部分)

消防裝置設備圖則一式四份及 314A 及

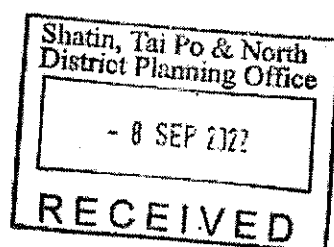
消防證書 A8960971 及 A9052778

煩請查閱.

貴處檔號: A/NE-TK/705

如有疑問煩請致電本公司楊小姐查詢 Tel: [REDACTED]

謝謝!



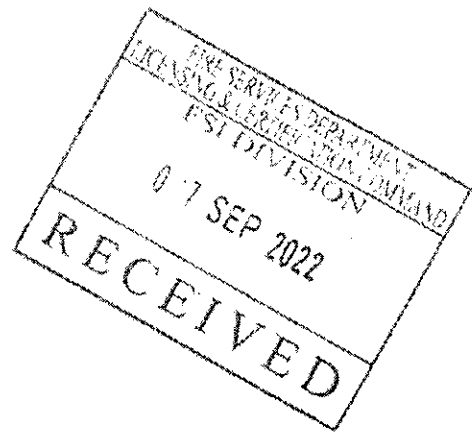
致： 消防處處長

Portion of DD17 Lot 1605RP & 1606, Lo Tsz Tin Tsuen, Ting Kok Road, Tai Po, NT

的樓宇消防裝置圖則

茲證明夾附的消防裝置圖則上顯示的所有消防裝置詳情及規格，依足消防處訂明的規定，並符合下列的有關規則及守則：

- 英國火險協會
  - 自動花灑裝置規則（第 29 版）
  - 自動火警警報裝置規則（第 11/ 12 版）
  - 安裝露天水簾規則（第 4 版）
- 英國防損委員會自動花灑裝置規則
- 美國國家防火協會
  - 二氧化碳滅火系統守則（標準 12）
  - 淨劑滅火系統守則（標準 2001）
  - 作防火用途的固定噴水系統守則（標準 15）
- 香港消防處的最低限度之消防裝置及設備守則：
  - 火警警報系統
  - 消防栓／喉輦系統
- 其他 普通式應急燈, 出口指示燈, 9 升水劑滅火筒, 二氧化碳滅火筒及防火氈



通訊地址： [REDACTED]

電話號碼： [REDACTED]

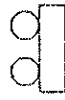




消防裝置承辦商／顧問簽署： [Signature]  
消防裝置承辦商／顧問名稱： 恒裕工程顧問有限公司

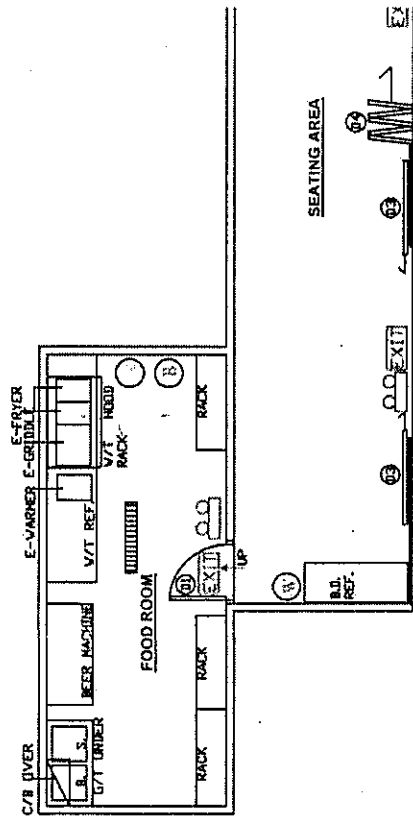


日期 06/09/2022

在適當的空格內填上 "X"

圖例：

-  普通式應急燈 x4
-  出口指示燈 x3
-  9升水劑滅火筒 x1
-  二氧化碳滅火筒 x2
-  防火氈 x1



CERTIFICATE OF FIRE SERVICE INSTALLATION AND EQUIPMENT

消防裝置及設備證書

Name of Client

顧客姓名

Name of Building

樓宇名稱

Street No./Town Lot  
門牌號數/市地段

Portion of DD17

Lot 1605RP & 1606

Street/Road/Estate Name  
街道/路名/屋苑名稱

Tung Kok Road  
Lo Tsz Tin Tsuen

Block  
座

District  
分區

Tai Po

Area  
地區

HK  
香港

九龍

NT  
新界

Type of Building 樓宇類型

Industrial 工業

Commercial 商業

Domestic 住宅

Composite 綜合

Licensed premises 持牌處所

Institutional 機構

Part 1 Annual Inspection ONLY  
第一部 只適用於年檢事項

此部只適用於年檢事項。如消防處人員在年檢時發現任何消防裝置或設備不符合規例的要求，則須在表格中填明。如發現任何消防裝置或設備不符合規例的要求，則須在表格中填明。如發現任何消防裝置或設備不符合規例的要求，則須在表格中填明。

Code 編號	Type of FSI 裝置類型	Location(s) 位置	Comment on Condition 狀況評述	Completion Date 完成日期(DD/MM/YY)	Next Due Date 到期日期(DD/MM/YY)
24	1 no 9 lit. water gas f.e	as above	Conforms with FSD requirements	10-2-2022	9-2-2023
24	1 no 5kg CO2 gas f.e	as above	Conforms with FSD requirements	10-2-2022	9-2-2023

Part 2 第二部 Installation / Modification / Repair / Inspection work 裝置/改裝/修理/檢查工作

Code 編號	Type of FSI 裝置類型	Location(s) 位置	Nature of Work 工作性質	Comment on Condition 狀況評述	Completion Date 完成日期(DD/MM/YY)
24	1 no 5kg CO2 gas f.e	as above	To supply	Conforms with FSD requirements	10-2-2022
25	1 no fire blanket	as above	To supply		

Part 3 第三部 Defects 損壞事項

Code 編號	Type of FSI 裝置類型	Location(s) 位置	Outstanding Defects 未修缺點	Comment on Defects 缺點評述
			NIL.	



This certificate is issued to the client on the basis of the information provided by the client and the results of the inspection. It is not a guarantee of the safety of the building or premises. The client is responsible for the maintenance and repair of the fire service installations and equipment. The fire service installations and equipment must be maintained in accordance with the Fire Service Regulations (Cap. 603).

本證書是根據以上所述的消防裝置及設備檢驗結果而發出。此證書並非保證大廈或處所的安全。客戶負責消防裝置及設備的維修及保養。消防裝置及設備必須按照《消防條例》(第603章)的規定進行維修及保養。

Authorized

Signature

授權人簽署

Name

姓名

FSD/RC No.

消防處註冊號碼

Company Name

公司名稱

Telephone

電話

Date

日期

*Wong Hoi Hang*

Wong Hoi Hang

RC 3/697

Hang Yue Engineering  
Consultants Limited

10-2-2022

Inspected

Key in

Yes

如證書涉及年檢事項，應張貼於大廈  
或處所當眼處以供消防處人員查核

This certificate should be displayed at prominent location of the building or premises  
for FSD's inspection if any annual maintenance work is involved.

FIRE SERVICE (INSTALLATIONS AND EQUIPMENT) REGULATIONS

FSD Ref. 11/11/11/EP/NT/E 6 / 85679  
消防處編號

消防(裝置及設備)規例  
(Regulation 9(1))  
(第九條(1)款)

A 9052778

CERTIFICATE OF FIRE SERVICE INSTALLATION AND EQUIPMENT  
消防裝置及設備證書

Name of Client : 顧客姓名

Name of Building : 樓宇名稱

Street No./Town Lot : 門牌號數/市地段  
Portion of DD17 Lot 1605RP & 1606  
Street/Road/Estate Name : 街道/屋苑名稱  
Ting Kok Road Lo Tsz Tin Tsuen

Block : 座  
District : 分區  
Tai Po  
Area : 地區  
 HK 香港  K 九龍  NT 新界

Type of Building 樓宇類型:  Industrial 工業  Commercial 商業  Domestic 住宅  Composite 綜合  Licensed premises 持牌處所  Institutional 社團

Part 1 Annual Inspection ONLY  
第一部 只適用於年檢事項

In accordance with Regulation 8(b) of Fire Service (Installations and Equipment) Regulations, the owner of any fire service installation or equipment which is installed in any premises shall have such fire service installation or equipment inspected by a registered contractor at least once in every 12 months. 根據消防(裝置及設備)規例第8條(b)款，擁有裝置在任何處所內的任何消防裝置或設備的人，須每12個月由一名註冊承辦商檢查該等消防裝置或設備至少一次。

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s) 位置	Comment on Condition 狀況評述	Completion Date 完成日期(DDMMYY)	Next Due Date 下次到期日(DDMMYY)
			NIL.		

Part 2 第二部 Installation / Modification / Repair / Inspection work 裝置/改裝/修理/檢查工作

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s) 位置	Nature of Work Carried out 完成之工作內容	Comment on Condition 狀況評述	Completion Date 完成日期(DDMMYY)
11	4 nos E-Light (HiLux 6V3L)	as above	To install	Conforms with FSD requirements	10-2-2022
12	3 nos Exit Sign (HiLux LED-10WS)		To install		
35	Flamebar N5 2 coats		wooden decoration.		
35	Flamebar N5 2 coats		wall furnishings		

Part 3 第三部 Defects 損壞事項

Code 編碼 (1-35)	Type of FSI 裝置類型	Location(s) 位置	Outstanding Defects 未修缺點	Comment on Defects 缺點評述
			NIL.	



We hereby certify that the above installations/equipment have been tested and found to be in efficient working order in accordance with the Codes of Practice for Minimum Fire Service Installations and Equipment and Inspection, Testing and Maintenance of Installations and Equipment published from time to time by the Director of Fire Services. Defects are listed in Part 3.

本人藉此證明以上之消防裝置及設備經試驗，證明性能良好，符合消防處處長不時公佈之最低限度之消防裝置及設備守則與裝置及設備之檢查測試及保養守則的規格，損壞事項列於第三部。

如證書涉及年檢事項，應張貼於大廈或處所當眼處以供消防處人員查核

This certificate should be displayed at prominent location of the building or premises for FSD's inspection if any annual maintenance work is involved.

Authorized Signature  
受權人簽署

Name : 姓名

FSD/RC No. : 消防處註冊號碼

Company Name : 公司名稱

Telephone : 聯絡電話

Date : 日期

Chau Wang Hang  
RC 1/432, RC 2/606  
Hang Yue Engineering Consultants Limited  
10-2-2022

For FSD use only

Inspected

Key-in

Verified

# 規 劃 署

沙田·大埔及北區規劃處  
新界沙田上禾輋路1號  
沙田政府合署13樓



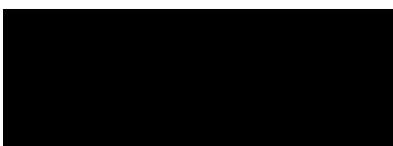
# Planning Department

Sha Tin, Tai Po & North  
District Planning Office  
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本署檔號 Our Reference TPB/A/NE-TK/705  
TPB/A/NE-TK/741  
電話號碼 Tel. No. : 2158 6220  
傳真機號碼 Fax No. : 2696 2377

郵寄

(共兩頁+附件)



鍾先生：

(i) 履行規劃許可附帶條件 (b) 項  
在劃為「康樂」地帶的大埔蘆慈田村第 17 約  
地段第 1605 號餘段 (部分) 及第 1606 號 (部分)  
闢設臨時食肆 (為期 3 年)  
(申請編號 A/NE-TK/705)

(ii) 履行規劃許可附帶條件 (d) 項  
在劃為「康樂」地帶的大埔蘆慈田村第 17 約地段第 1610 號餘段  
闢設臨時公眾停車場 (只限私家車) (為期 3 年)  
(申請編號 A/NE-TK/741)

就你履行上述兩項規劃許可附帶條件的來信，本署已於二零二三年二月十四日收悉，現回覆如下：

渠務署總工程師／新界北已審視你提交的文件，確認申請編號 A/NE-TK/705 規劃許可附帶條件 (b) 項及申請編號 A/NE-TK/741 規劃許可附帶條件 (d) 項經已履行。他的指引性質意見刊載於附錄 I (只提供英文文本)。

如你對落實排水建議有任何疑問，請與渠務署何美鎔女士 (電話：2300 1364) 聯絡。如有其他疑問，請與本署鄭嘉欣女士 (電話：2158 6018) 聯絡。

規劃署署長

( 陳巧賢

代行 )

二零二三年三月三日



申請編號 A/NE-TK/705 規劃許可附帶條件(b)項  
申請編號 A/NE-TK/741 規劃許可附帶條件(d)項

渠務署總工程師／新界北的意見（只提供英文文本）：  
（經辦人：何美鎔女士）（電話：2300 1364）

- (a) For works undertaken outside the lot boundary, prior consent and agreement from District Lands Office/Tai Po (DLO/TP), District Officer (Tai Po) (DO(TP)) and/or relevant parties should be sought.
- (b) The applicant/owner is reminded to maintain the drainage facilities whether within or outside the lot boundary at their own expense in good condition without causing adverse drainage impact to the adjacent area at all times. In addition, the applicant/owner should rectify the systems if the systems are found to be inadequate or ineffective during operation. The applicant/owner shall also be liable for and shall indemnify claims and demands arising out of damage or nuisance caused by failure of the systems.



[Internet]完工圖 28/02/2023 12:46  
From: John Chung <john.k.f.chung@gmail.com>  
To: shko@dss.gov.hk  
Serial No.:

1 Attachment



1. Lo Tsz Tin Village\_Drainage plan and flow calculation R2-1....pdf

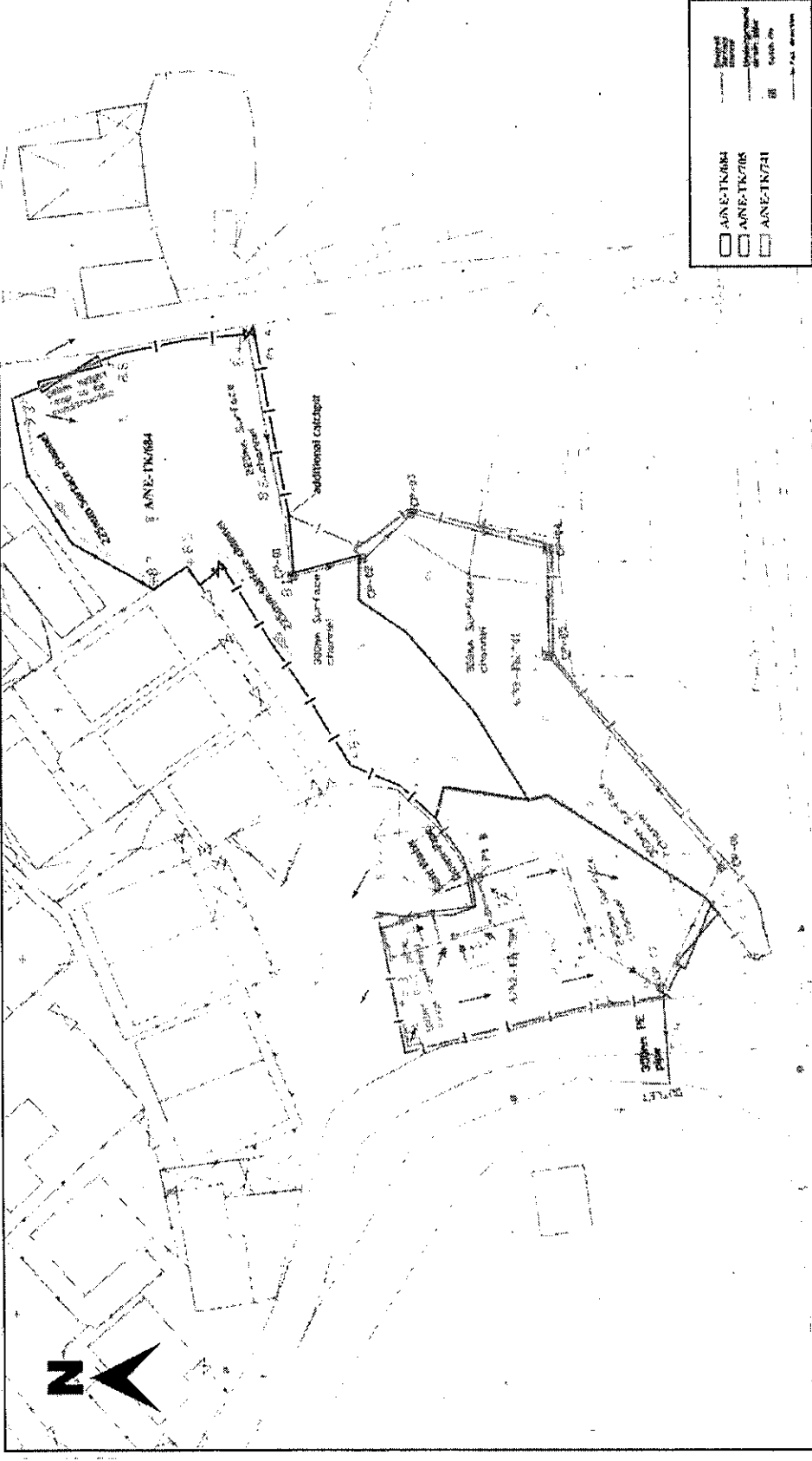
-----  
This email was delivered via the Internet, which may not be trustworthy as it claimed to be.  
You are advised not to click the URLs or open the attachment unless you know it is safe.

This email has been verified against its claimed domain and passed. The identity of the sender's  
email domain may be true, but it doesn't mean it is from the claimed sender and the content is safe.  
-----

請參閱完工圖，謝謝。

鍾生

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This message has been analyzed by Deep Discovery Email Inspector.



SCALE: 1:500

ANETK684 臨時公眾停車場 (只限私家車), 公開	ANE-TK-741 ANE-TK-705 ANE-TK-684
ANETK705 在暫不填築舊車道村及新到後第17的填地第 1605號地段(部分)1605條(部分) PROPOSED TEMPORARY EATING PLACE FOR A PERIOD OF 3 YEARS LOTS 1605 RP (PART), AND 1606 (PART) IN D.D. 17, LO TSZ TIN VILLAGE, TAI PO, NEW TERRITORIES	ANETK741 在暫不填築舊車道村及新到後第17的填地第 1605號地段(部分)1605條(部分) 分: TEMPORARY PUBLIC VEHICLE PARK (PRIVATE CARS ONLY) FOR A PERIOD OF 3 YEARS LOTS 1604 S. B AND 1604 S. C RP (PART) IN D.D. 17, LO TSZ TIN VILLAGE, TAI PO, NEW TERRITORIES
ANE-TK-684 臨時公眾停車場 (只限私家車), 公開	圖例 A-2

**位置圖**  
**LOCATION**  
**PLAIN:**

ANE-TK741  
臨時公眾停車場 (只限私家車), 公開  
在暫不填築舊車道村及新到後第17的填地第  
1605號地段(部分)1605條(部分)

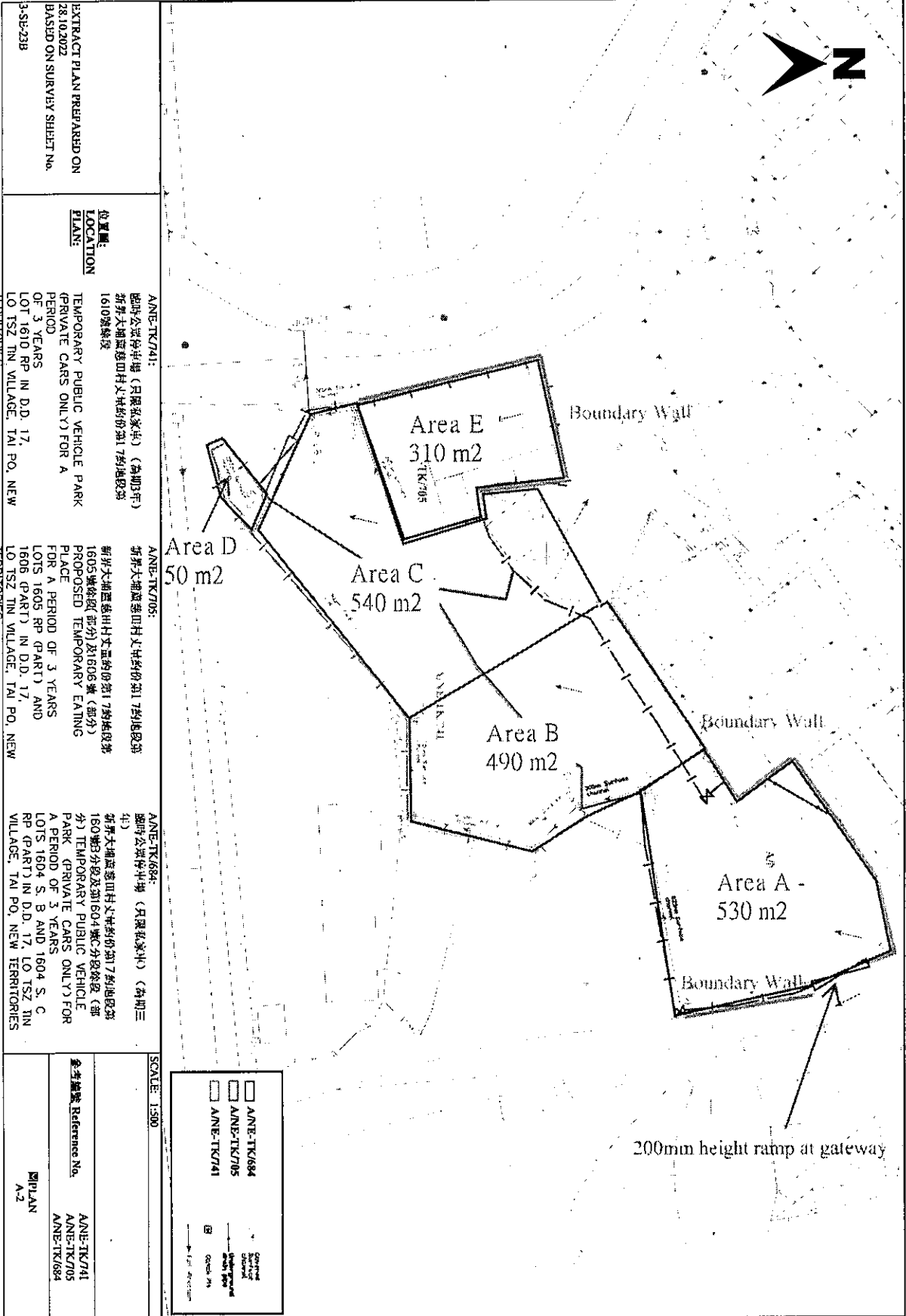
ANE-TK705  
在暫不填築舊車道村及新到後第17的填地第  
1605號地段(部分)1605條(部分)  
PROPOSED TEMPORARY EATING  
PLACE FOR A PERIOD OF 3 YEARS  
LOTS 1605 RP (PART), AND  
1606 (PART) IN D.D. 17,  
LO TSZ TIN VILLAGE, TAI PO, NEW  
TERRITORIES

ANE-TK684  
臨時公眾停車場 (只限私家車), 公開  
在暫不填築舊車道村及新到後第17的填地第  
1605號地段(部分)1605條(部分)

EXTRACT PLAN PREPARED ON  
28.10.2022  
BASED ON SURVEY SHEET No.  
3-SK-230

**Drainage  
Schedule**

Drainage Size	Start Point	Cover Level	Invert Level	Finish Point	Cover Level	Invert Level	Length (m)	Invert Diff. (m)	Slope	Flow Velocity m/s	Peak Flow m <sup>3</sup> /s	Design Flow m <sup>3</sup> /s
225 UC	Pt. A	8.4	8.15	CP01	8.1	7.85	23.5	0.3	0.0128	1.20	0.037	0.039
300 UC	CP01	8.1	7.80	CP02	8.0	7.70	6.0	0.1	0.0167	1.66	0.070	0.096
300 UC	CP02	8.0	7.70	CP03	7.9	7.60	6.0	0.1	0.0167	1.66	0.070	0.096
300 UC	CP03	7.9	7.60	CP04	7.8	7.46	13.0	0.1	0.0108	1.33	0.070	0.077
300 UC	CP04	7.8	7.45	CP05	7.7	7.33	12.0	0.1	0.0100	1.28	0.070	0.074
300 UC	CP05	7.7	7.33	CP06	6.9	6.35	25.0	1.0	0.0392	2.88	0.108	0.166
225 HRC/UC	Pt. B	6.5	6.45	CP06	6.9	6.35	9.0	0.1	0.0111	0.68	0.003	0.005
300 UC	CP06	6.9	6.30	CP08	6.5	6.00	13.0	0.3	0.0231	2.21	0.111	0.128
225 UC	Pt. C	7.6	7.30	CP07	6.7	6.45	20.0	0.9	0.0425	2.51	0.021	0.082
225 UC	CP07	6.7	6.30	CP08	6.5	6.15	5.0	0.1	0.0300	2.11	0.021	0.069
DN350	CP08	6.5	4.80	Outlet	6.0	4.65	8.5	0.1	0.0176	2.96	0.132	0.229



EXTRACT PLAN PREPARED ON 28.10.2022 BASED ON SURVEY SHEET No. 3-SB-23B

**位置圖:**  
**LOCATION PLANE:**  
ANE-TK/741: 臨時公眾停車場 (只限私家車) (為期3年) 新界大埔區慈田村文村約份第17約地段第1610號地段  
TEMPORARY PUBLIC VEHICLE PARK (PRIVATE CARS ONLY) FOR A PERIOD OF 3 YEARS LOT 1610 RP IN D.D. 17, LO TSZ TIN VILLAGE, TAI PO, NEW TERRITORIES

ANE-TK/705: 新界大埔區慈田村文村約份第17約地段第1605號地段(部分)及1606號(部分) PROPOSED TEMPORARY EATING PLACE FOR A PERIOD OF 3 YEARS LOTS 1605 RP (PART) AND 1606 (PART) IN D.D. 17, LO TSZ TIN VILLAGE, TAI PO, NEW TERRITORIES

ANE-TK/684: 臨時公眾停車場 (只限私家車) (為期三年) 新界大埔區慈田村文村約份第17約地段第1603號B分段及第1604號C分段地段(部分) TEMPORARY PUBLIC VEHICLE PARK (PRIVATE CARS ONLY) FOR A PERIOD OF 3 YEARS LOTS 1604 S. B AND 1604 S. C RP (PART) IN D.D. 17, LO TSZ TIN VILLAGE, TAI PO, NEW TERRITORIES

SCALE: 1:500

參考編號 Reference No.	ANE-TK/741
	ANE-TK/705
	ANE-TK/684

PLAN A-2

**Project: Temporary car park at Lo Tsz Wan Village**

**Subject: Calculation of catchment area of rainwater system**

**Information:**

1 Catchment area A (Open area)	=	530 m <sup>2</sup>
2 Catchment area B (Open area)	=	490 m <sup>2</sup>
3 Catchment area C (Open area)	=	540 m <sup>2</sup>
4 Catchment area D (Open area)	=	50 m <sup>2</sup>
5 Catchment area E (temporary structural)	=	310 m <sup>2</sup>
6 Total Catchment area A and B	=	1020 m <sup>2</sup>
7 Total Catchment area A, B and C	=	1560 m <sup>2</sup>
8 Total Catchment area A, B, C and D	=	1610 m <sup>2</sup>
9 Total Catchment area	=	1920 m <sup>2</sup>

**Assumption:**

- 1 The rainfall statistic at HKO Headquarters would be used

**Reference:**

- 1 Stormwater Drainage Manual, Planning, Design and Management (5th ed, 2018)  
DSD, HKSAR (SDM)

**Calculation:**

- A **Estimate maximum rainflow at the catchment area at 5 mins, where T=50)**  
by Rational Method, where

$$Q_p = 0.278 C i A$$

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

$C$	=	1	
$i$	=	218 mm/hr	(T=50) (Table 2a at SDM)
		248.084 mm/hr	Rainfall increase 13.8%

B Hydraulic calculation at the discharge point  
by Manning Equations

$$\bar{V} = \frac{R^{1/6}}{n} \sqrt{RS_f}$$

where

V	=	Cross-sectional mean velocity (m/s)
R	=	hydraulic radius (m), A/P
S <sub>f</sub>	=	Friction gradient (dimensionless)
A	=	Wetted cross sectional area (in m <sup>2</sup> )
P	=	Wetted perimeter (in m)

C For surface channel Pt A to CP01 (i.e. catchment area A), 225mm surface channel is proposed

A	=	530 m <sup>2</sup>
	=	0.00053 km <sup>2</sup>
Q <sub>p</sub>	=	0.036553 m <sup>3</sup> /s

Discharge pipe	=	225 mm	Surface channel
A	=	0.032536641 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P	=	0.465929174 m	(Assume flow at 3/4 of the channel)
R	=	0.069831732	
S <sub>f</sub>	=	0.0128	
n	=	0.016	(Assume: Concrete with fair condition)
V	=	1.199094865 m/s	
Q	=	0.039014519 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where	0.036553 m <sup>3</sup> /s

D For CP01 to CP02 to CP03 (i.e. catchment area A and B), 300mm surface channel is proposed

A	=	1020 m <sup>2</sup>
	=	0.00102 km <sup>2</sup>
Q <sub>p</sub>	=	0.070347 m <sup>3</sup> /s

Discharge pipe	=	300 mm	Surface channel
A	=	0.057842917 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P	=	0.621238898 m	(Assume flow at 3/4 of the channel)
R	=	0.093108976	
S <sub>f</sub>	=	0.0167	
n	=	0.016	(Assume: Concrete with fair condition)
V	=	1.659202086 m/s	
Q	=	0.095973089 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where	0.070347 m <sup>3</sup> /s

E For CP03 to CP04 (i.e. catchment area A and B), 300mm surface channel is proposed

$$\begin{aligned} A &= 1020 \text{ m}^2 \\ &= 0.00102 \text{ km}^2 \\ Q_p &= 0.070347 \text{ m}^3/\text{s} \end{aligned}$$

Discharge pipe =	300 mm	Surface channel
A =	0.057842917 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P =	0.621238898 m	(Assume flow at 3/4 of the channel)
R =	0.093108976	
S <sub>f</sub> =	0.0108	
n =	0.016	(Assume: Concrete with fair condition)
V =	1.334298283 m/s	
Q =	0.077179705 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where 0.070347 m <sup>3</sup> /s

F For CP04 to CP05 (i.e. catchment area A and B), 300mm surface channel is proposed

$$\begin{aligned} A &= 1020 \text{ m}^2 \\ &= 0.00102 \text{ km}^2 \\ Q_p &= 0.070347 \text{ m}^3/\text{s} \end{aligned}$$

Discharge pipe =	300 mm	Surface channel
A =	0.057842917 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P =	0.621238898 m	(Assume flow at 3/4 of the channel)
R =	0.093108976	
S <sub>f</sub> =	0.01	
n =	0.016	(Assume: Concrete with fair condition)
V =	1.283929122 m/s	
Q =	0.074266206 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where 0.070347 m <sup>3</sup> /s

G For CP05 to CP06 (i.e. catchment area A, B and C), 300mm surface channel is proposed

$$\begin{aligned} A &= 1560 \text{ m}^2 \\ &= 0.00156 \text{ km}^2 \\ Q_p &= 0.107589 \text{ m}^3/\text{s} \end{aligned}$$

Discharge pipe =	300 mm	Surface channel
A =	0.057842917 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P =	0.516238898 m	(Assume flow at 3/4 of the channel)
R =	0.112046802	
S <sub>f</sub> =	0.0392	
n =	0.016	(Assume: Concrete with fair condition)
V =	2.876003168 m/s	
Q =	0.166356414 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where 0.107589 m <sup>3</sup> /s



H For Pt. B to CP06 (i.e. catchment area D), 225mm half round channel is proposed

For Catchment Area D

$$\begin{aligned} A &= 50 \text{ m}^2 \\ &= 0.00005 \text{ km}^2 \\ Q_p &= 0.003448 \text{ m}^3/\text{s} \end{aligned}$$

$$\begin{aligned} \text{Discharge pipe} &= 225 \text{ mm} && \text{Half surface channel} \\ A &= 0.007773277 \text{ m}^2 && (\text{Assume flow at } 1/2 \text{ of the channel}) \\ P &= 0.235619449 \text{ m} && (\text{Assume flow at } 1/2 \text{ of the channel}) \\ R &= 0.032990812 \\ S_f &= 0.0111 \\ n &= 0.016 && (\text{Assume: Concrete with fair condition}) \\ V &= 0.677334991 \text{ m/s} \\ Q &= 0.005265113 \text{ m}^3/\text{s} \\ &> Q_p && \text{where } 0.003448 \text{ m}^3/\text{s} \end{aligned}$$

I For CP06 to CP08 (i.e. catchment area A, B, C, D), 300mm surface channel is proposed

$$\begin{aligned} A &= 1610 \text{ m}^2 \\ &= 0.00161 \text{ km}^2 \\ Q_p &= 0.111037 \text{ m}^3/\text{s} \end{aligned}$$

$$\begin{aligned} \text{Discharge pipe} &= 300 \text{ mm} && \text{Surface channel} \\ A &= 0.057842917 \text{ m}^2 && (\text{Assume flow at } 3/4 \text{ of the channel}) \\ P &= 0.516238898 \text{ m} && (\text{Assume flow at } 3/4 \text{ of the channel}) \\ R &= 0.112046802 \\ S_f &= 0.0231 \\ n &= 0.016 && (\text{Assume: Concrete with fair condition}) \\ V &= 2.207762318 \text{ m/s} \\ Q &= 0.127703413 \text{ m}^3/\text{s} \\ &> Q_p && \text{where } 0.111037 \text{ m}^3/\text{s} \end{aligned}$$

J For Pt. C to CP07 (i.e. catchment area E), 225mm surface channel is proposed

$$\begin{aligned} A &= 310 \text{ m}^2 \\ &= 0.00031 \text{ km}^2 \\ Q_p &= 0.02138 \text{ m}^3/\text{s} \end{aligned}$$

$$\begin{aligned} \text{Discharge pipe} &= 225 \text{ mm} && \text{Surface channel} \\ A &= 0.032536641 \text{ m}^2 && (\text{Assume flow at } 3/4 \text{ of the channel}) \\ P &= 0.378741674 \text{ m} && (\text{Assume flow at } 3/4 \text{ of the channel}) \\ R &= 0.085907211 \\ S_f &= 0.0425 \\ n &= 0.016 && (\text{Assume: Concrete with fair condition}) \\ V &= 2.508577736 \text{ m/s} \\ Q &= 0.081620693 \text{ m}^3/\text{s} \\ &> Q_p && \text{where } 0.02138 \text{ m}^3/\text{s} \end{aligned}$$

K For CP07 to CP08 (i.e. catchment area E), 225mm surface channel is proposed

A	=	310 m <sup>2</sup>	
	=	0.00031 km <sup>2</sup>	
Q <sub>p</sub>	=	0.02138 m <sup>3</sup> /s	
Discharge pipe	=	225 mm	Surface channel
A	=	0.032536641 m <sup>2</sup>	(Assume flow at 3/4 of the channel)
P	=	0.378741674 m	(Assume flow at 3/4 of the channel)
R	=	0.085907211	
S <sub>f</sub>	=	0.03	
n	=	0.016	(Assume: Concrete with fair condition)
V	=	2.107626866 m/s	
Q	=	0.068575099 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where	0.02138 m <sup>3</sup> /s

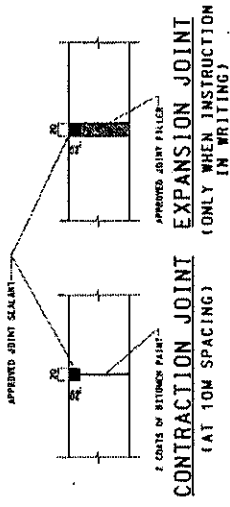
L For CP08 to Outfall (i.e. All catchment area), 350mm PE pipe is proposed

A	=	1920 m <sup>2</sup>	
	=	0.00192 km <sup>2</sup>	
Q <sub>p</sub>	=	0.132417 m <sup>3</sup> /s	
Discharge pipe	=	350 mm	
A	=	0.077401864 m <sup>2</sup>	(Assume flow at 3/4 of the pipe)
P	=	0.733038286 m	(Assume flow at 3/4 of the pipe)
R	=	0.105590479	
S <sub>f</sub>	=	0.0176	
n	=	0.01	(roughness of PE pipe is 0.01)
V	=	2.963735951 m/s	
Q	=	0.229398687 m <sup>3</sup> /s	
>	Q <sub>p</sub>	where	0.132417 m <sup>3</sup> /s

**Conclusion:**

The design capacity of each proposed surface channel / storm water drain is more than the peak runoff for the designed area.  
 i.e. the proposed surface channel / storm water drain is enough for discharging the rainwater at the catchment area during the peak rainfall duration.

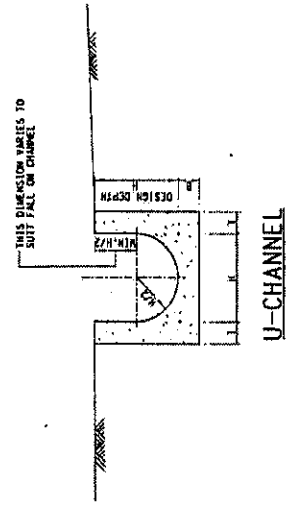
**U-Channel and Half-round Channel**



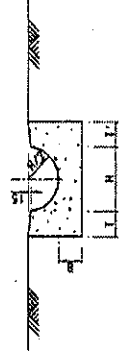
**DETAILS OF JOINTS FOR HALF-ROUND CHANNEL, U-CHANNEL AND STEP CHANNEL**  
SCALE: DIAGRAMMATIC

DIMENSIONS OF HALF-ROUND AND U-CHANNEL			
NOMINAL CHANNEL SIZE (mm)	THICKNESS (mm)	THICKNESS OF FIBRE	REINFORCEMENT
225 TO 600	150	150	MIL
675 TO 1200	175	225	A 252 MESH PLACED CENTRALLY

**TYPICAL HALF-ROUND AND U-CHANNEL**  
SCALE 1 : 25

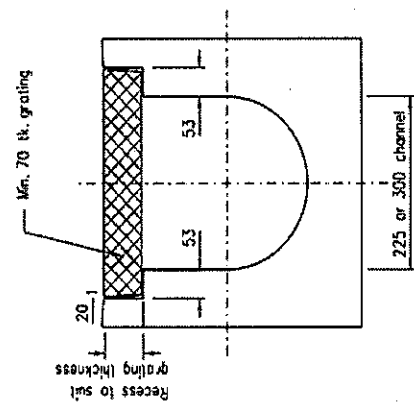


**U-CHANNEL**



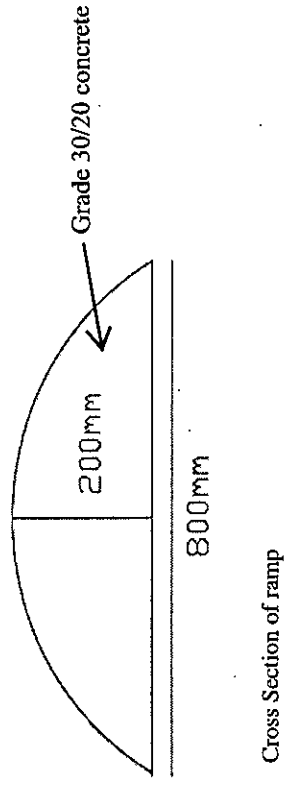
**HALF-ROUND CHANNEL**

**U-Channel cover**

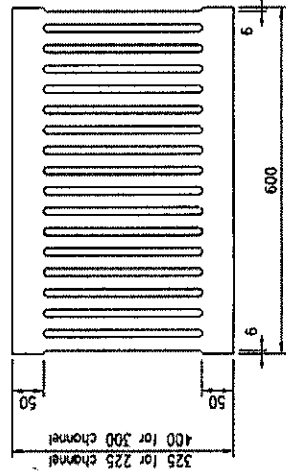


**TYPICAL CROSS SECTION OF CHANNEL**

**Ramp at gateway to be constructed**



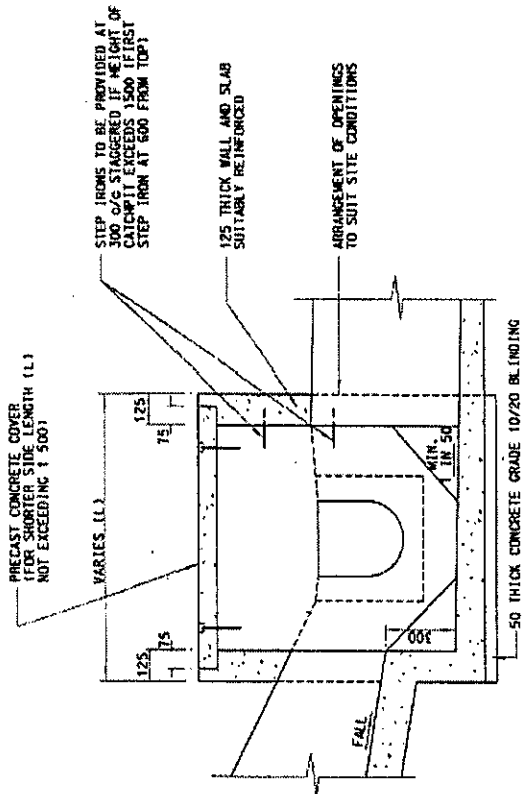
**Cross Section of ramp**



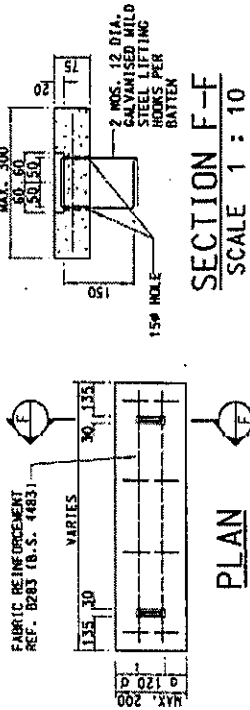
(All slots are 13 in width and all ribs are 20-23 in width.)

**GRATING**

Catchpit



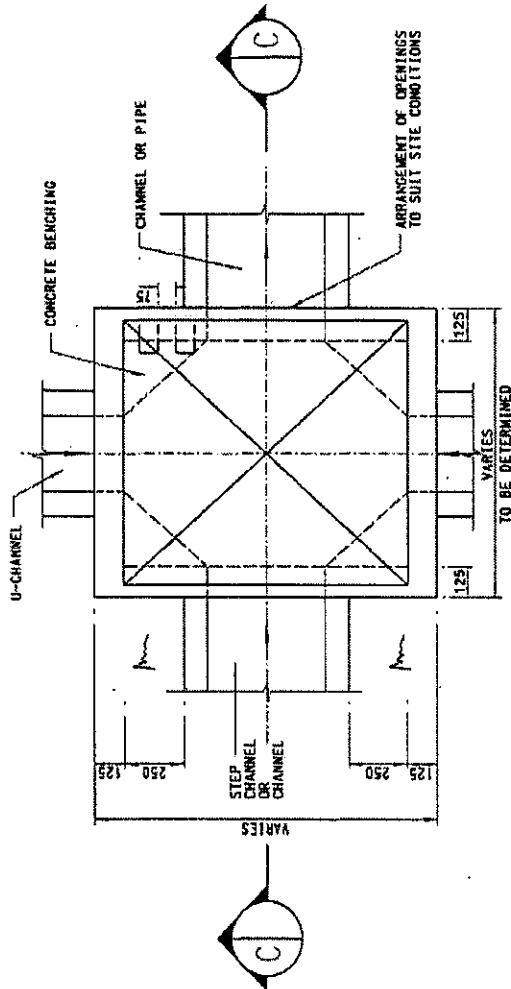
SECTION C-C



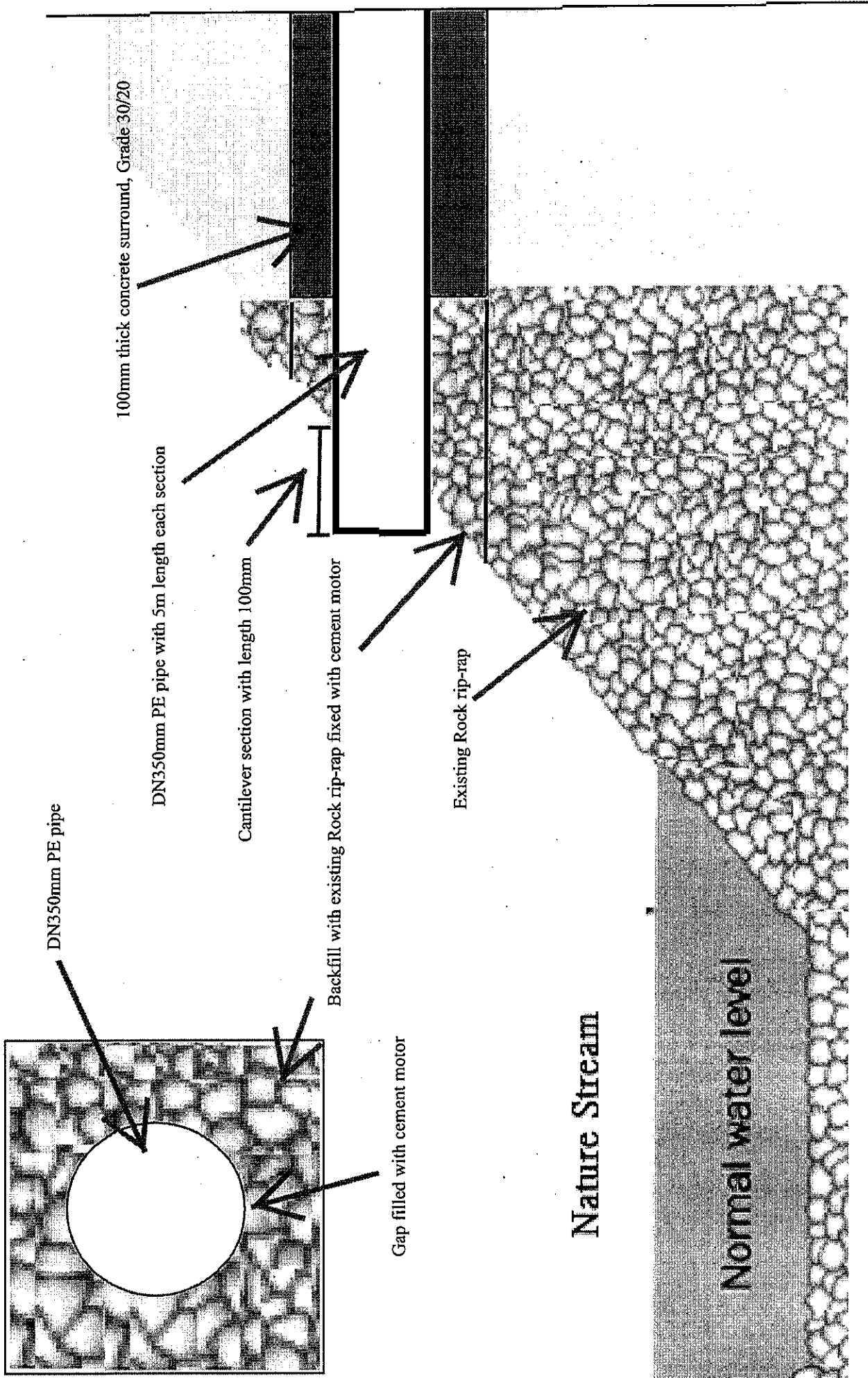
SECTION F-F  
SCALE 1:10

PLAN

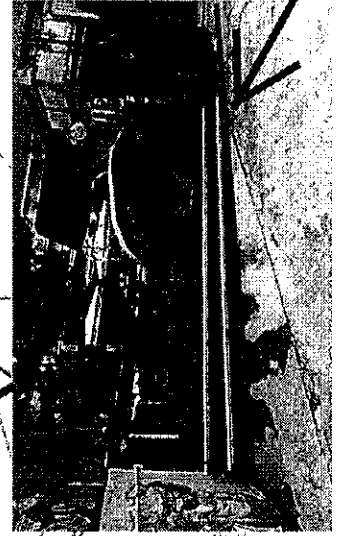
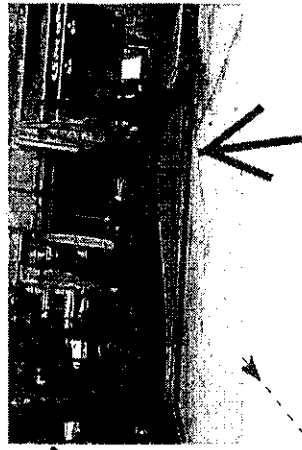
PRECAST CONCRETE COVER  
TO CATCHPIT



PLAN  
TYPICAL CATCHPIT

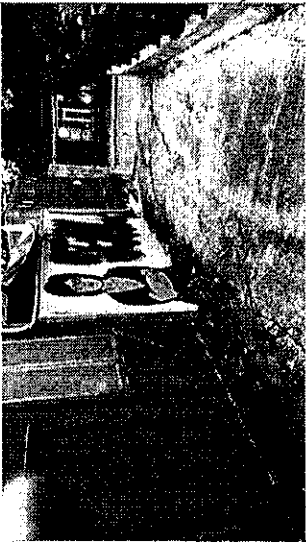
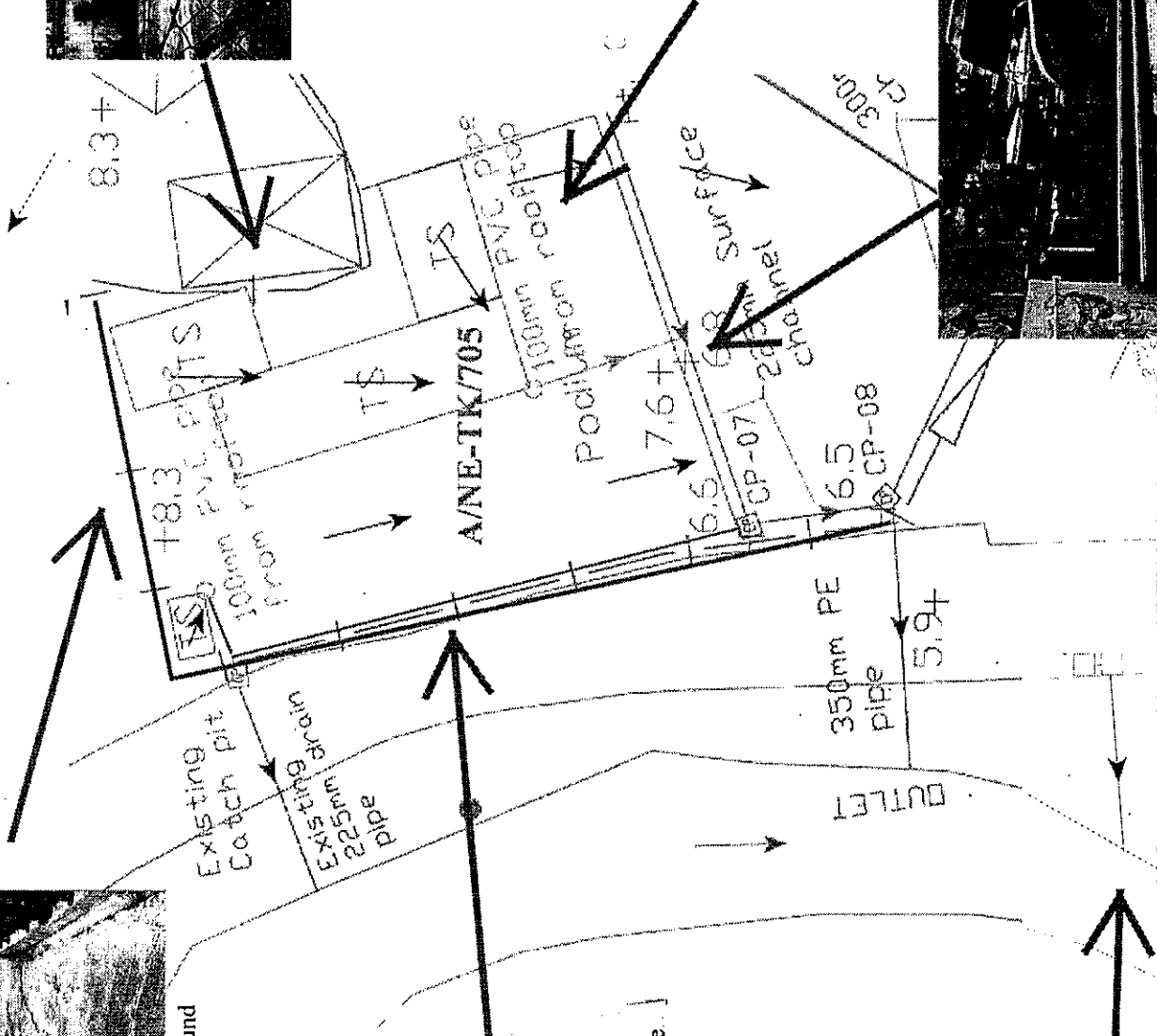


Detail of outfall



Propose U-channel

Podium and temporary structure



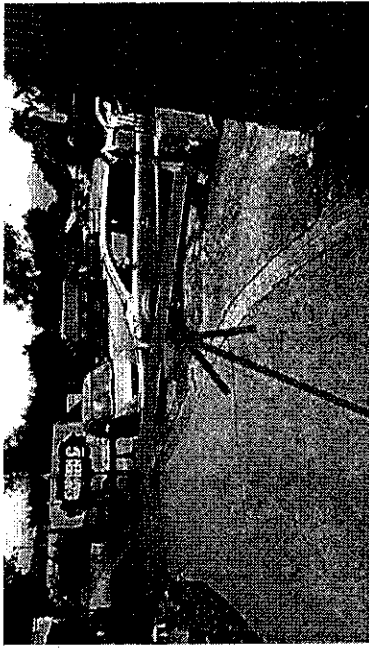
Side wall at northern bound



500mm height planter wall at the western side of site



Existing outfall for gully



800mm weight and 200mm height ramp will be constructed at gateway



Boundary wall

684

Surface

