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By Email and Post

Date : 21 September 2026
Your Ref : TPB/A/YL-KTS/1147
Our Ref : LDS/PLAN/7269

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

Dear Sir/Madam,

Application for Planning Permission for Proposed Temporary Warehouse for Storage of Construction Materials (Timber and Metal) and Associated Filling of Land for a Period of 3 Years at Lots 123 RP, 124 (Part), 125 (Part), 126 (Part) and 127 (Part) in D.D. 113 and Adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, N.T.
(Application No. A/YL-KTS/1147)

In response to the comments received from the Fire Services Department, Buildings Department and Drainage Services Department, we submit the following for your kind consideration.

- (i) A R-to-C table (see **Table 1**);
- (ii) An updated Fire Service Installations (FSIs) Proposal (see **Annex 1**); and
- (iii) A revised Drainage Proposal (see **Annex 2**).

Should there be any queries, please contact our Ms. Cannis Lee or Ms. Yancy Fung at [REDACTED]

Yours faithfully,
For and on behalf of
Lawson David & Sung Surveyors Limited

Encl.

c.c. DPO/FS&YLE (Attn.: [REDACTED]) – By Email
Client

Table 1

R-to-C Table

Table 1: Responses to Departmental Comments (Application No. A/NE-KTS/1147) (21 September, 2026)

COMMENTS		RESPONSES
1.	Fire Services Department (Contact Person: Mr. Tsz Fung Yuen, Tel: 2733 7781)	
(i)	For enclosed structure with gross floor area not exceeding 230 m ² , i.e. Structure 3, 4, 5 & 7, portable fire extinguisher and stand-alone fire detector shall be provided;	Noted. Portable fire extinguisher and stand-alone fire detector will be provided for Structures 3, 4, 5 & 7 (see revised FSIs proposal in Annex 1).
(ii)	For enclosed structure with gross floor area exceeding 230 m ² , i.e. Structure 1 & 2, sprinkler system, wheeled type dry chemical fire extinguisher, stand-alone fire detector, emergency lighting and directional & exit signs shall be provided;	Noted. Sprinkler system, wheeled type dry chemical fire extinguisher, stand-alone fire detector, emergency lighting and directional & exit signs will be provided for Structures 1 & 2.
(iii)	In relation to item (i) & (ii) above, if two or more stand-alone fire detectors are installed in an enclosed structure, all detectors shall be interconnected (either wired or wirelessly) such that when one of the detectors is triggered, all connected detectors shall sound an alarm simultaneously;	Noted. See F. S. Note 8.2.
(iv)	Stand-alone fire detectors shall be provided in accordance with the “Stand-alone Fire Detector General Guidelines on Purchase, Installation & Maintenance [Sep 2021]”;	Noted. See F. S. Note 8.1.
(v)	A 20-35 kg wheeled type dry chemical fire extinguisher shall be provided in every 500 m ² on every floor of the premises and ensure that every part of the premises can be reached from a distance of not more than 30 m;	Noted. See F.S. Note 7.2.

(vi)	Separation distance between each structure shall be clearly indicated on the plan;	Noted. Separation distance between each structure has been indicated on the updated FSIs proposal.
(vii)	In relation to item (vi) above, structures on the same site are regarded as adjoining structures if they are less than 1.8 m apart. In this regard, sprinkler system, wheeled type dry chemical fire extinguisher, stand-alone fire detector, emergency lighting and directional & exit signs shall be provided if the total floor area exceeds 230 m ² ;	Noted.
(viii)	Modified hose reel system is considered as a self-upgrade and is not a mandatory requirement of this Department;	Noted.
(ix)	For shed(s) open on 2 sides or more, i.e. Structure 6, fire extinguishers shall be provided; and	Noted. Fire extinguisher will be provided for Structure 6.
(x)	All structures erected on the site shall be approved by the Buildings Department and constructed of non-combustible materials.	Noted.
2.	Building Department (BD) (Contact Person: Mr. Tracy SHER, Tel: 2626 1434)	
(i)	The 12m high structures are considered excessive. It should be justified upon formal plan submission to Buildings Department.	Noted.

Annex 1

Updated Fire Service Installations Proposal

APPENDIX I

Proposed Temporary Warehouse for Storage of Construction Materials (Timber and Metal) for a Period of 3 Years at Lots 123 (Part), 124 (part), 125 (Part), 126 (Part), 127 (Part) in D.D.113 and Adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, N.T.

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 Ø150mm.
- 1.3 ALL TUBES AND FITTINGS SHALL BE DUCTILE IRON TO BS EN545 K12 WHERE PIPEWORK ABOVE Ø150mm.
- 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 SMOKE EXTRACTION 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 2m³ 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, COMMENTARY AND RECOMMENDATIONS) AND FSD CIRCULAR LETTER NO. 5/2020. THE CLASSIFICATION OF THE OCCUPANCIES WILL BE ORDINARY HAZARD GROUP III.
- 3.2 ONE NEW 135m³ 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 ALL SUBSIDIARY STOP VALVES TO BE ELECTRIC MONITORING TYPE.
- 3.6 SECONDARY ELECTRICITY SUPPLY DIRECTLY TEE OFF BEFORE CLP'S INCOMING MAIN SWITCH SHALL BE PROVIDED FOR THE SPRINKLER PUMPS.
- 3.7 THE SPRINKLER SYSTEM DESIGN IS BASED ON THE FOLLOWINGS:
HAZARD CLASS : ORDINARY HAZARD GROUP III
TYPE OF STORAGE : POST-PALLET (S12)
STORAGE CATEGORY : CATEGORY II
MAXIMUM STORAGE HEIGHT : 3.5m
SPRINKLER PROTECTION : CEILING PROTECTION ONLY
MAXIMUM STORAGE AREA : 50M²
MINIMUM CLEARANCE AROUND EACH SINGLE BLOCK : 2.4M

4. FIRE ALARM SYSTEM

- 4.1 NEW FIRE ALARM SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH BS 5839-1:2017 AND FSD CIRCULAR LETTERS NO. 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 LETTERS NO. 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.
- 7.2 FOR ENCLOSED STRUCTURE WITH A GROSS FLOOR AREA EXCEEDING 230M², A 20-35KG WHEELED TYPE DRY CHEMICAL FIRE EXTINGUISHER SHALL BE PROVIDED IN EVERY 500M² ON EVERY FLOOR INSIDE THE PREMISES AND SHALL ENSURE EVERY PART OF THE PREMISES CAN BE REACHED FROM A DISTANCE OF NOT MORE THAN 30M.

8. STAND-ALONE FIRE DETECTOR

- 8.1 STAND-ALONE SMOKE DETECTOR SHALL BE PROVIDE IN ACCORDANCE WITH THE "STAND-ALONE FIRE DETECTOR GENERAL GUIDELINES ON PURCHASE, INSTALLATION & MAINTENANCE [SEPTEMBER 2021]"
- 8.2 ALL DETECTORS SHALL BE INTERCONNECTED SUCH THAT WHEN ONE OF THE DETECTORS IS TRIGGERED, ALL CONNECTED DETECTORS SHALL SOUND AN ALARM SIMULTANEOUSLY.

LEGEND

[HR] HOSE REEL

[B] BREAK GLASS UNIT

[FAB] FIRE ALARM BELL

[EL] EMERGENCY LIGHT

[EXIT] EXIT SIGN

[NRV] NON-RETURN VALVE

[FE] 5KG CO2 FIRE EXTINGUISHER

[SB] SAND BUCKET

[SV] SUBSIDIARY VALVE / FLOW SWITCH

[SCV] SPRINKLER CONTROL VALVE SET

[GV] GATE VALVE

[GT] GATE TYPE (With MONITORING)

[PS] PUMP SET

[YTS] Y-TYPE STRAINER

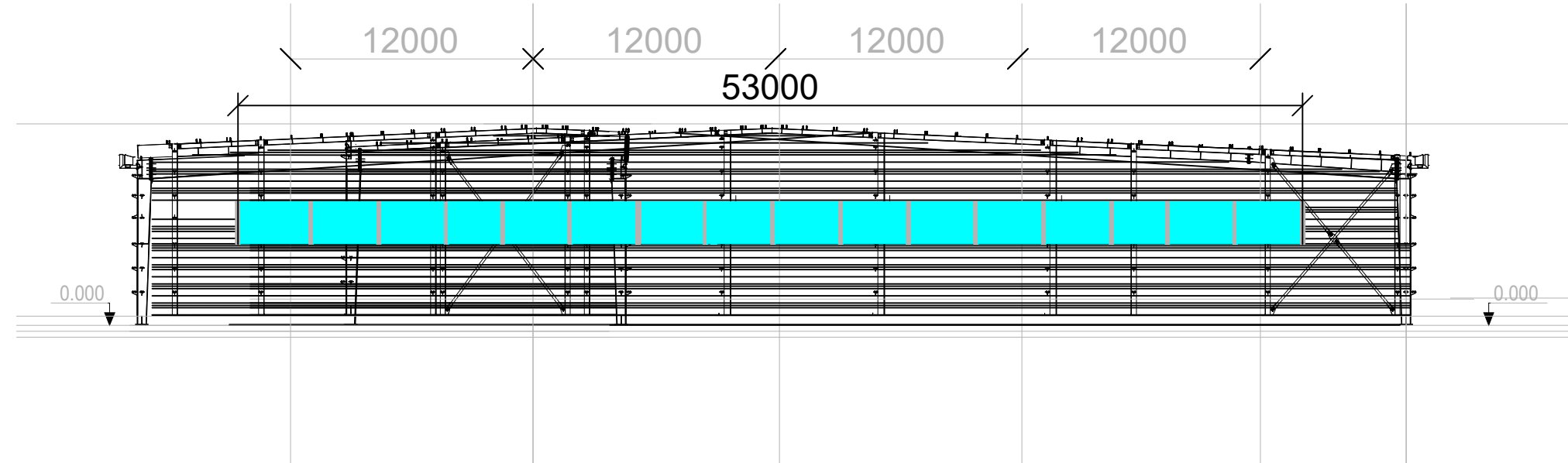
[SI] SPRINKLER INLET

[PG] PRESSURE GAUGE

[SH] SPRINKLER HEAD (ON PLAN)

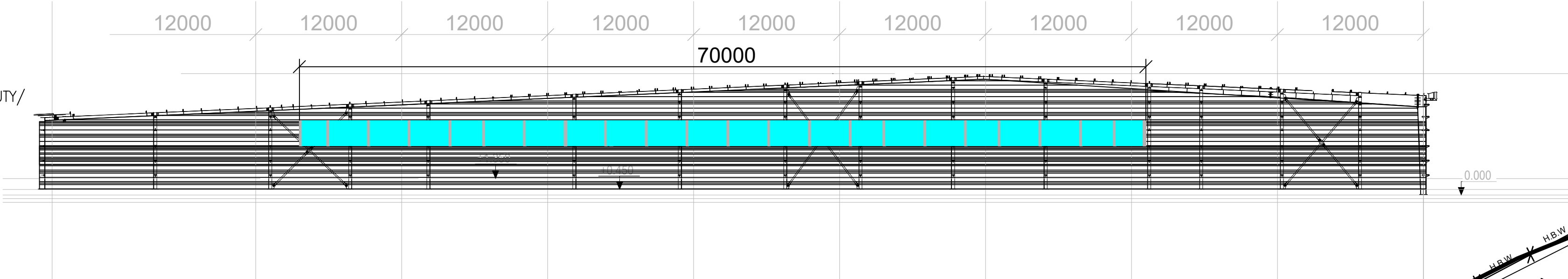
[5KDP] 5KG DRY POWDER FIRE EXTINGUISHER

SCALE : 1 :250 (A0)

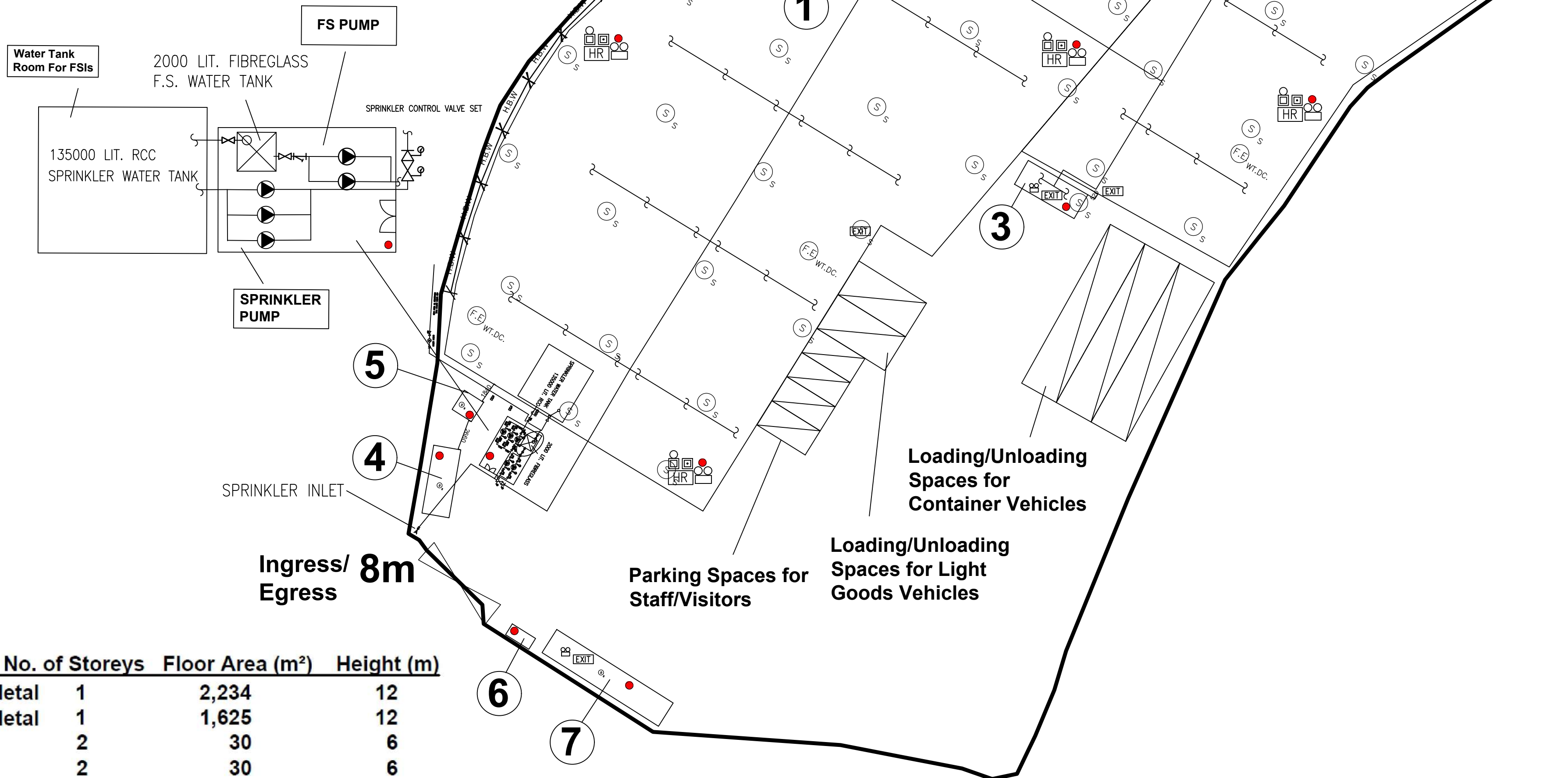


Section drawing of window opening for the structure (2)

SCALE : 1 :250 (A0)



Section drawing of window opening for the structure (1)



Structure No.	Uses	No. of Storeys	Floor Area (m²)	Height (m)
1	Warehouse for Storage of Timber/Metal	1	2,234	12
2	Warehouse for Storage of Timber/Metal	1	1,625	12
3	Site Office	2	30	6
4	Containers for Storage	2	30	6
5	Meter Room	1	5	3
6	Rain Shelter	1	3	2.5
7	Site Office	2	60	6

PROJECT : Proposed Temporary Warehouse for Storage of Construction Materials (Timber and Metal) for a Period of 3 Years at Lots 123 (Part), 124 (part), 125 (Part), 126 (Part), 127 (Part) in D.D.113 and Adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, N.T.	DRAWING TITLE : F.S. Notes, Legend, Fire Service Installation Layout Plan			ARCHITECT :	CONSULTANT :	FIRE SERVICE CONTRACTOR : East Power Engineering Limited 		NAME	DATE	DRAWING NO : FS-01	REV. 2
							DRAWN BY	C.K.NG	23 APR 2023	SCALE : 1 :250 (A0)	
		2	FSD SUBMISSION	17/9			CHECKED BY			SOURCE : B.O.O. Ref. BD	
		1	FSD SUBMISSION	4/9			APPROVED BY			F.S.D. Ref. FP	
		REV	DESCRIPTION	DATE							

Annex 2

Revised Drainage Proposal

Drainage Submission in support of

S16 Planning Application

for Proposed Temporary Warehouse for Storage of Construction Materials
(Timber and Metal) for a Period of 3 Years and Associated Filling of Land
at Lots 123 RP, 124 (Part), 125 (Part), 126 (Part) and 127 (Part) in D.D.
113 and Adjoining Government Land, Ma On Kong, Kam Tin South,
Yuen Long, New Territories

(HT26090)

September 2026

Drainage Consultant:

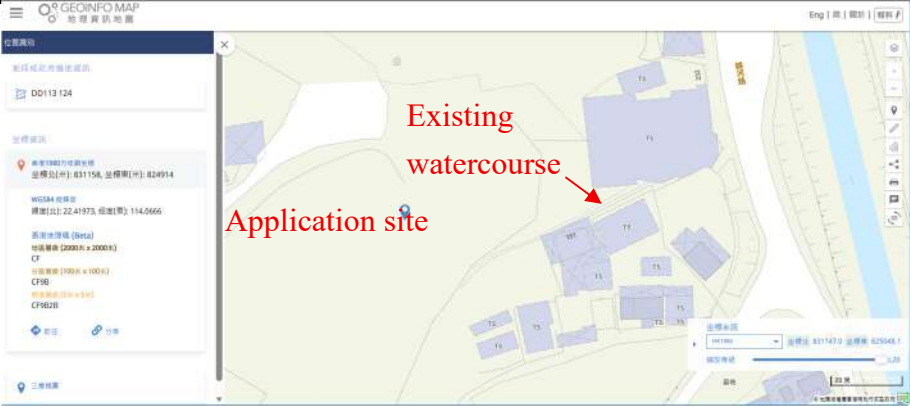
何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

Prepared & Approved by:	LEE Kwok Cheung <i>MICE, MHKIE(Civil), RPE(CVL, ENV, GEL)</i> <i>(Registration No. RP0159301)</i> Signature: 
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Responses to Comments from Government Departments on Drainage Submission (June 2026) of Planning Application No. A/YL-KTS/1147

COMMENTS		RESPONSES	
Drainage Services Department (DSD)		Applicant	
(i)	According to the drainage plan (Drawing No. PLAN D2), please indicate clearly the full alignment of the discharge path from the application site all the way down to the ultimate discharge point (e.g. a well-established stream course/public drainage system). According to our recent site inspection, a suspected illegal discharge found from the application site to adjacent lands (near Location 5 of Drawing No. PLAN D1), which caused flooding to adjacent areas. Please ask the applicant to rectify the above and connect to adequate drainage system accordingly.		The full alignment of the discharge path from the application site all the way down to the ultimate discharge point is clearly indicated on PLAN D2 in the submission. Colour photos Nos. 6 to 21 in the submission were taken along the discharge path. The applicant would complete the drainage system as per the Proposed Drainage Management Plan (PLAN D2) including rectification of any drainage irregularities if exist after this application is approved.
(ii)	The ground to the southwest of the application site is significantly higher. Since the overland flow from the adjacent lands shall be probably intercepted, external catchment shall be considered in the calculation. Please make reference to the latest Technical Note No. 1 issued by DSD for more details in preparing the drainage proposal. Please upgrade all drainage facilities size accordingly.		The open area in front of the application site entrance has already been included in the stormwater catchment area of the application site. The ground to the southwest of the application site is significantly higher. However, there is an existing access road running between the higher ground to the southwest and the application site. The levels of the existing access road are relatively lower than the ground levels of the both sides as shown in the following photo:

COMMENTS	RESPONSES
	 Surface runoff from the southwest of the application site would hence flow along the access road to the downstream into an existing watercourse running outside the southeast boundary of the application site and the existing watercourse runs directly towards Kam Ho Road direction without crossing the application site. Please refer to the illustration in the following:

COMMENTS	RESPONSES
	 The screenshot shows a GIS application window titled 'GEOINFO MAP'. On the left, a sidebar lists various map layers including 'DD113 124', 'W0304 01 0001', and 'W0304 01 0002'. The main map area displays a topographic map with building footprints. A red arrow points to a specific location labeled 'Application site'. Another red arrow points to a nearby feature labeled 'Existing watercourse'. The map includes a scale bar and a north arrow.  The photograph shows a narrow, shallow watercourse flowing through a grassy area. A red arrow points to the watercourse, which is bordered by a concrete wall on the left and dense vegetation on the right. The text 'Existing watercourse running outside the southeast boundary of the application site' is overlaid in red.

COMMENTS	RESPONSES
	  Therefore, all the overland flow from the ground to the southwest of the application site would be intercepted by the existing access road and diverted to the downstream along the existing access road instead

COMMENTS	RESPONSES
	of flowing onto the application site. The catchment areas of the application site and the flow directions of the adjacent areas are indicated on PLAN D2.
(iii) Please use clear colors/legends showing the proposed and existing drainage facilities on the drainage plan for review.	Noted. Clear colors/legends showing the proposed and existing drainage facilities are adopted on the drainage plan, i.e. PLAN D2.
(iv) Please advise if any site formation/levelling works to be carried out under this application. Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given. Peripheral surface channels shall be provided along the site boundary at the existing/original ground level (instead of the revised ground level) to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands.	The existing levels are the final levels of the application site. No site formation/levelling works would be required/carried out under this application. Cross sections showing the ground levels of the captioned site with respect to the adjacent areas are provided in the updated submission. Peripheral surface channels are to be provided along the site boundary at the existing/original ground level to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands.
(v) Please confirm if any walls or hoarding are/to be erected or laid along the site boundary. If affirmative, adequate opening should be provided to intercept the existing overland flow passing through the site and please provide its details for comments.	There is hoarding surrounding the application site. However, the ground levels of the application site are relatively higher than those of the surroundings except a small piece of land (about 773m ²) in front of its entrance. In practical, no surface runoff would flow from the surroundings onto the application site except those from the small piece of land in front of its entrance. 100mm x 100mm openings at 2m centre to centre will be formed at the bottom of the hoarding along the southwest side of the application site to allow potential cross-boundary flow of surface runoff from the adjacent areas.
(vi) The applicant should check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development. Please also provide site photos at different locations and views to demonstrate the presence and existing condition of the discharge path.	Hydraulic capacity of the existing drainage facilities was checked not adversely affected by the subject development (the calculations are enclosed in the Appendix of the Drainage Submission). Colour photos Nos. 6 to 21 in the submission were taken along the discharge path.

COMMENTS	RESPONSES
(vii) The gradients and the sizes of the proposed/existing U-channels at each section should be shown on the drainage plan for review. Please also indicate the flow direction at each section of the proposed drainage system for reference.	For clarity of the plan, it is stipulated in the 'LEGEND' that 'proposed channels are 300UC at 1 in 200 except otherwise stated'.
(viii) Catchpit should be provided at the turning point of the proposed u-channel.	Noted, agreed and followed.
(ix) Sand trap or provision alike should be provided before the collected runoff is discharged to the public drainage facilities.	A catchpit with trap (according to CEDD Standard Drawing C 2406/1 to /2A – Catchpit with Trap) will be constructed before the collected runoff is discharged to the outside watercourse.
(x) The development should neither obstruct overland flow and nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted, agreed and will strictly follow.
(xi) The applicant should resolve any conflict/disagreement with relevant lot owner(s) and seek permission form DLO/YL for laying new drains/channels and/or modifying/upgrading existing ones in other private lots or on Government Land, where required, outside the application site(s).	Noted, agreed and will strictly follow.
For any change of existing ground level and associated works proposed by the applicant that could affect adjacent land and cause other impacts and/or other issues to public, please consider to require the applicant to submit technical assessment(s) in other aspect(s) and seek comment form relevant departments as necessary.	There would be no change of existing ground level and no works proposed by the applicant would affect adjacent land and cause other impacts and/or other issues to public.

CONTENT

1. Background
2. Approach to Prepare This Submission
3. The Application Site and Proposed Development
4. Existing Drainage Conditions of the Application Site
5. Proposed Drainage Works
6. Drainage Assessment
7. Conclusion and Recommendations

FIGURE (Referenced from the same figures enclosed in the Planning Statement of this Application)

Figure 1	Location Plan
Figure 2	Lot Index Plan
Figure 3	Vehicular Access to the Application Site
Figure 4	Indicative Layout Plan

PLAN

Plan D1	Approximate Locations of Photos Taken
Plan D2	Proposed Drainage Management Plan
Plan D3	Site Cross Sections

APPENDIX	Assessment of Hydraulic Capacities of the Proposed Drainage System
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1. Background

- 1.1 With respect to a S16 Planning Application for Proposed Temporary Warehouse for Storage of Construction Materials (Timber and Metal) for a Period of 3 Years and Associated Filling of Land at Lots 123 RP, 124 (Part), 125 (Part), 126 (Part) and 127 (Part) in D.D. 113 and Adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, New Territories (the Application Site), Messrs. Ho Tin & Associates Consulting Engineers Limited was appointed to prepare a drainage submission.

2. Approach to Prepare this Submission

- 2.1 Rain water may cause flooding if it is not properly collected, conveyed and discharged. This Drainage Submission is to demonstrate how the rain water falling onto or flowing towards the Application Site will be collected, conveyed and discharged without causing any adverse drainage impacts on the Application Site and its surroundings.

3. The Application Site and Proposed Development

- 3.1 The Application Site is located among a cluster of temporary structures which are situated at the eastern downhill area of the toll plaza of Tsing Long Highway abutting on Kam Ho Road and is at about 55m to the west of Kam Ho Road on the opposite side of the MTRC's Pat Heung Depot. A Site Location Plan is shown in **Figure 1**.
- 3.2 The Application Site area is about 6,133m² consisting of Lots 123 RP, 124 (Part), 125 (Part), 126 (Part) and 127 (Part) in D.D. 113 and adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, New Territories. A Lot Index Plan is shown as **Figure 2**. The concerned area is vehicular accessible via a local road branching off from Kam Ho Road. A Vehicular Access to the Application Site Plan is shown in **Figure 3**.
- 3.3 The Proposed Development consists of two warehouses, four site offices, two containers for storage, one meter room, one rain shelter, loading/unloading spaces for light goods vehicles and container vehicles, and parking spaces for private cars. An Indicative Layout Plan is shown in **Figure 4**.

4. Existing Drainage Conditions of the Application Site

- 4.1 The Application Site is readily hard paved with concrete (refer to the below **Photo Nos. 1 and 2**). Its existing ground levels are relatively higher than those of the surroundings except the open area in front of the Application Site entrance (refer to the below **Photo Nos. 3 to 6**). The ground to the southwest of the Application Site is significantly higher. However, there is an existing access road running between the higher ground to the southwest and the Application Site. The levels of the existing access road are relatively lower than the ground levels of the both sides as shown in the following photo. Surface runoff from the southwest of the Application Site would hence flow along the access road to the downstream into an existing watercourse running outside the southeast boundary of the Application Site (refer to the below **Photo No. 4**).



- 4.2 As shown in the survey map extracted from the Lands Department's website Geoinfo and the aerial photos below, the above mentioned existing watercourse running outside the southeast boundary of the Application Site discharges directly towards Kam Ho Road direction without crossing the Application Site.

Proposed Temporary Warehouse for Storage of Construction Materials (Timber and Metal) for a Period of 3 Years and Associated Filling of Land at Lots 123 RP, 124 (Part), 125 (Part), 126 (Part) and 127 (Part) in D.D. 113 and Adjoining Government Land, Ma On Kong, Kam Tin South, Yuen Long, New Territories
Drainage Submission



- 4.3 Hence, in practical, no surface runoff would flow from the surroundings **except those from the open area in front of the Application Site entrance** onto the Application Site. Peripheral channels within the Application Site are required to avoid any surface runoff flowing outside onto the surrounding areas.
- 4.4 There is an existing 22m wide trapezoidal channel beside Kam Ho Road at about 70m to the east of the Application Site. Besides, there are existing channels with catchpits running in front of Kam Ho Road to receive watercourses and overland flows from the concerned area between Tsing Long Highway and Kam Ho Road (refer to the below **Photo Nos. 17 to 20**) and discharging into the existing 22m wide trapezoidal channel via an existing outfall (refer to the below **Photo No. 21**). At present, surface runoff from the concerned area will flow towards Kam Ho Road in the form of several existing watercourses.
- 4.5 Current conditions of the Application Site and its surrounding areas are shown in the following photos (by conventional and aerial) (the approximate locations of the photos taken are shown on **Plan D1**):



Photo No. 1 – Hard paved within the Application Site (1 of 2)



Photo No. 2 – Hard paved within the Application Site (2 of 2)



Photo No. 3 – View along the western boundary of the Application Site



Photo No. 4 – View along the southeastern boundary of the Application Site



Photo No. 5 – View along the eastern boundary of the Application Site



Photo No. 6 – View at the existing watercourse outside the northeastern corner of the Application Site



Photo No. 7 – Close up view at the existing watercourse outside the northeastern corner of the Application Site



Photo No. 8 – View at the existing watercourse at the downstream of the Application Site
(1 of 4)



Photo No. 9 – View at the existing watercourse at the downstream of the Application Site
(2 of 4)

[Remark:  a close up photo is shown in Photo No. 10]



Photo No. 10 – Close up view at the existing watercourse



Photo No. 11 –View at the existing watercourse at the downstream of the Application Site
(3 of 4)

[Remark:  a close up photo is shown in Photo No. 12]



Photo No. 12 – Close up view at an existing drain at the existing watercourse

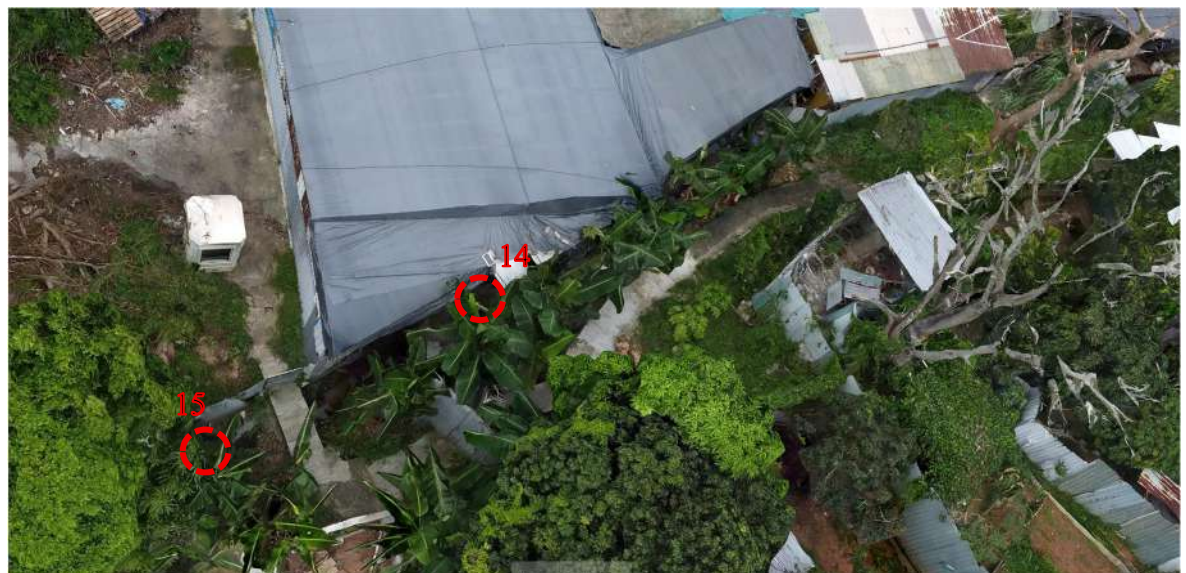


Photo No. 13 – View at the existing watercourse at the downstream of the Application Site
(4 of 4)

[Remark:  a close up photo is shown in Photo No. 14 and 15]



Photo No. 14 – Close up view at the existing watercourse at the further downstream (1 of 2)



Photo No. 15 – Close up view at the existing watercourse at the further downstream (2 of 2)



Photo No. 16 – Close up view at the inlet at the downstream of the existing watercourse before entering into the existing channel in front of Kam Ho Road



Photo No. 17 – Route of the existing watercourse flowing into the existing channel in front of Kam Ho Road

[Remark:  a close up photo is shown in Photo No. 16]



Photo No. 18 – Existing 525 UC in front of Kam Ho Road receiving the flow from the existing watercourse



Photo No. 19 – Existing catchpit receiving flow from the existing 525 UC at Kam Ho Road



Photo No. 20 – Existing underground drainage discharging into the existing 22m wide trapezoidal channel beside Kam Ho Road



Photo No. 21 – The existing outfall at the existing 22m wide trapezoidal channel

5. Proposed Drainage Works

- 5.1 The existing ground levels of the Application Site will be maintained. No site formation nor ground levelling works would be conducted. The existing drainage pattern and directions would not be disturbed/altered.
- 5.2 Peripheral channels with catchpits would be constructed at the Application Site to collect surface runoff flowing across the site boundary. With respect to the relatively higher elevation, no surface runoff would flow from the surroundings onto the Application Site except those from the small piece of land in front of its entrance. Therefore, 100mm x 100mm openings at 2m centre to centre will be formed at the bottom of the hoarding along the southwest side of the Application Site to allow potential cross-boundary flow of surface runoff from the adjacent areas. The peripheral channels will convey the flow to a terminal catchpit with trap for discharging into an existing watercourse outside the eastern boundary of the Application Site.
- 5.3 The existing watercourse will convey the flow into an existing 525U channel in front of Kam Ho Road, and the flow inside the existing 525U channel would be conveyed to an existing outfall for discharging into the existing 22m wide trapezoidal channel.
- 5.4 The subject Application is committed to obtain consents from owners of adjacent relevant land/lots prior to commencement of the proposed drainage works outside the Application Site and to maintain the completed drainage works to the satisfaction of relevant Government departments. Besides, the proposed development will clear the vegetation at the existing watercourse to which the surface runoff of the Application Site will be discharged into.
- 5.5 A Proposed Drainage Management Plan is shown in **Plan D2**. Details of proposed drainage provisions shall follow relevant details shown in Government departments' Standard Drawings as follows:

<i>Proposed Drainage Provisions</i>	<i>Standard Drawings</i>	<i>Drawing No. & Title</i>
Catchpit	CEDD Standard Drawings	C 2405/1 to /5 – Standard Catchpit Details

<i>Proposed Drainage Provisions</i>	<i>Standard Drawings</i>	<i>Drawing No. & Title</i>
Catchpit with trap		C 2406/1 to /2A – Catchpit with Trap
Catchpit precast concrete cover		C 2407B – Precast Concrete Covers for Catchpit and Sand Trap
U-channel		C 2409J – Details of Half-round and U-channels
Channel cover		C 2412E – Cover Slab and Cast Iron Grating for Channels

6. Drainage Assessment

6.1 Assessment criteria is based on the recommendation set out in the Stormwater Drainage Manual (Fifth edition, Jan 2018) (SDM) and its Corrigendum Nos. 1/2022, 1/2024 and 2/2024 issued by DSD. Design Return Period of 50 years (recommended for ‘Main Rural Catchment Drainage Channels’ in SDM) is being adopted.

6.2 The corresponding runoffs under rainfall intensity for various return period are worked out with reference to Rational Method. Brandy-Williams method is used in calculation of the time of concentration. A uniformly distributed rainfall with an intensity is determined by the Intensity-Duration-Frequency. With referenced to Table 3a - Storm Constants for different return periods of HKO Headquarters from SDM, the rainfall profiles are derived based on the following equation:

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

where

- i = extreme mean intensity in mm/hr,
- t_d = duration in minutes (t_d ≤ 240), and
- a,b,c = storm constants given in the table below

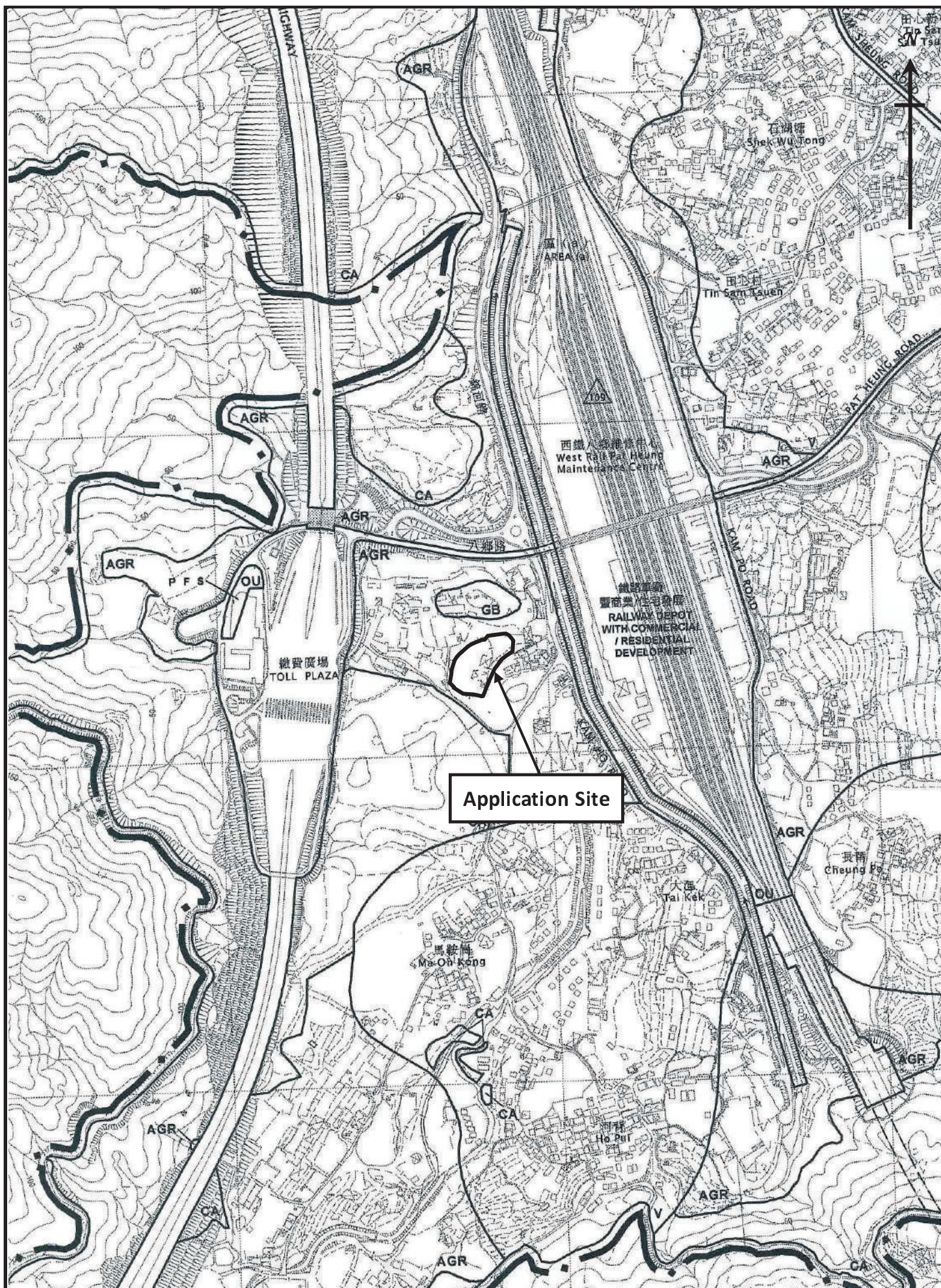
Return Period (years)	50
a	505.5
b	3.29
c	0.355

A 16.0% rainfall increase has been adopted in the hydraulic calculation to cater for effects due to climate change as suggested in the item (e) and (k) in the Stormwater Drainage Manual - Corrigendum No. 1/2022.

- 6.3 The catchment area boundary is shown in **Plan D2** and the site sections are shown in **Plan D3**. The hydraulic assessment is enclosed in the **Appendix**. The proposed drainage is designed to cater for the estimated runoff under the designed rainstorms. With respect to the hydraulic assessment, the proposed stormwater drainage system is capable to cater for the surface runoff without causing any adverse drainage impacts on the Application Site and its surroundings.

7. Conclusion and Recommendations

- 7.1 The Proposed Development will be for temporary warehouse for storage of construction materials (timber and metal) for a period of three years. No site formation nor major ground levelling works is required at the Application Site. There would be no significant changes in the drainage conditions of the area.
- 7.2 In order to achieve proper management of the stormwater discharge of the Application Site, there would be peripheral channels with catchpits within the Application Site to receive the surface runoff. The flow collected inside the peripheral channels will be discharged via a terminal catchpit with trap into the existing watercourse outside the northeastern corner of the Application Site and eventually into the existing 22m width trapezoidal channel on the opposite side of Kam Ho Road.
- 7.3 The subject Application is committed to obtain consents from owners of adjacent relevant land/lots prior to commencement of the proposed drainage works outside the Application Site and to maintain the completed drainage works to the satisfaction of relevant Government departments. Besides, the proposed development will clear the vegetation at the existing watercourse to which the surface runoff of the Application Site would be discharged into.
- 7.4 In conclusion, the Proposed Development would not alter the existing drainage conditions and pattern of the area and an appropriate drainage system would be constructed to collect the surface runoff of the concerned area, therefore, the Proposed Development would not cause any adverse drainage impact onto the area.



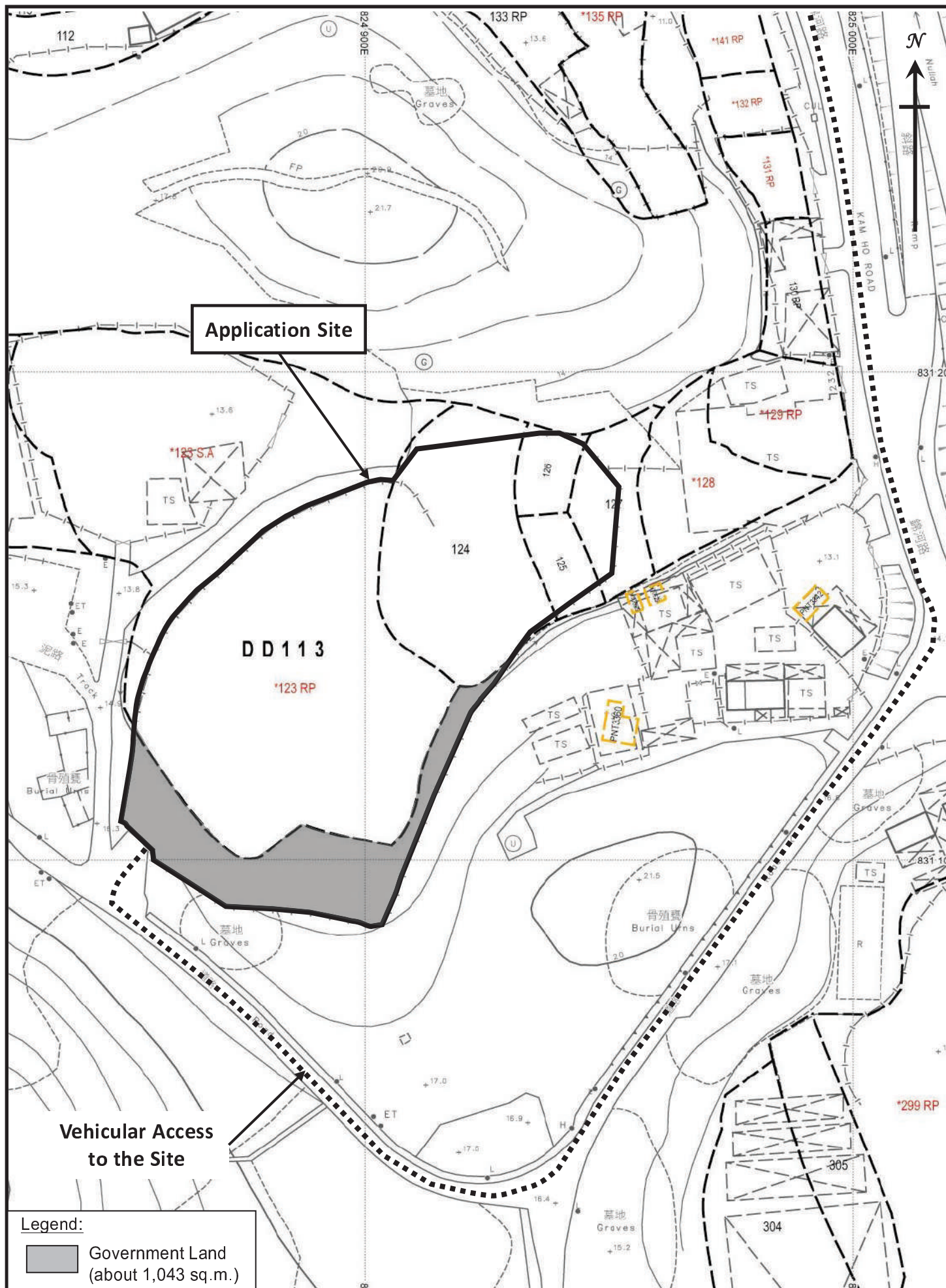
Location Plan
(Extract from Approved Kam Tin South Outline Zoning
Plan No. S/YL-KTS/15)

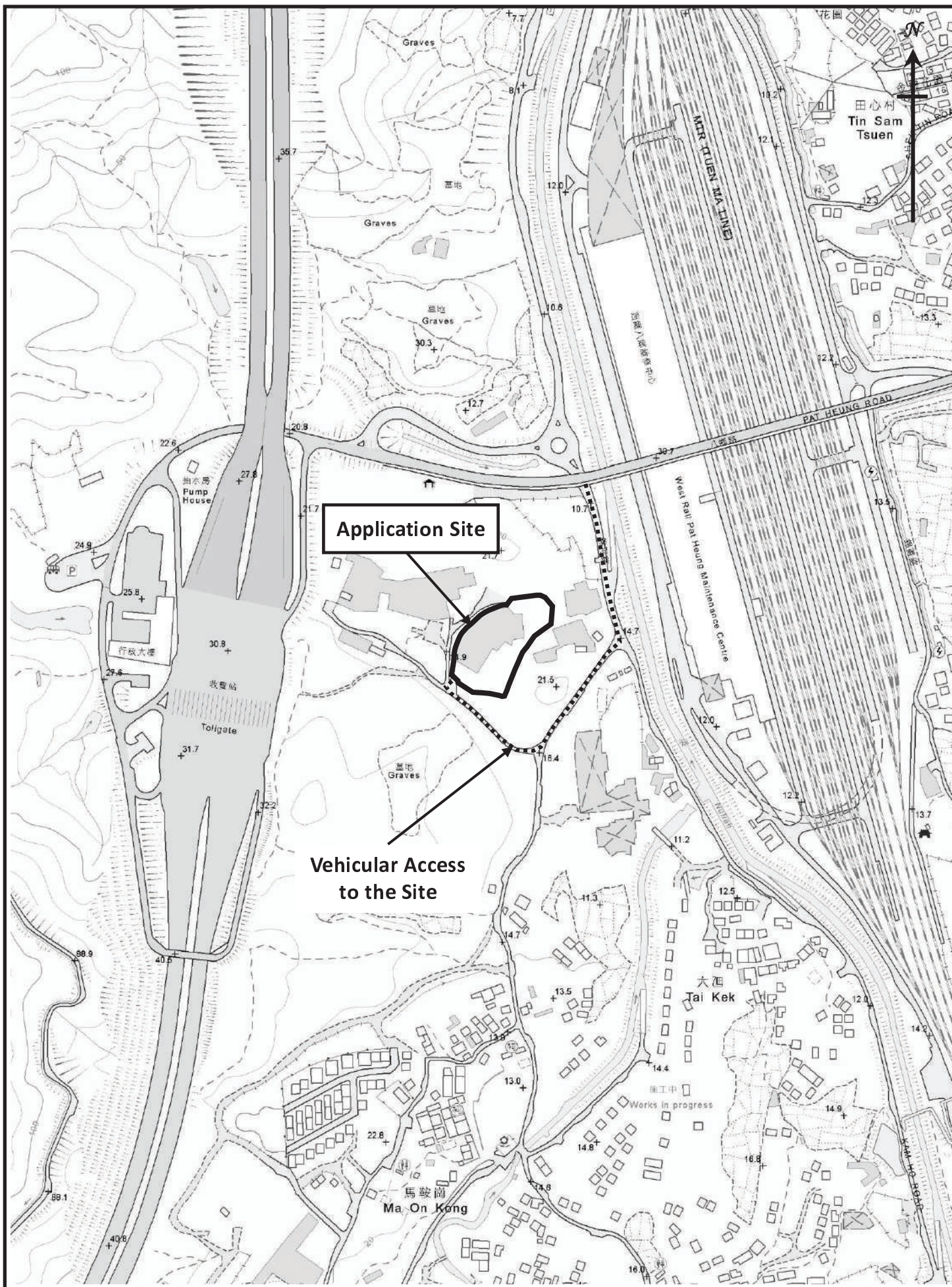
Figure 1

1 : 7500

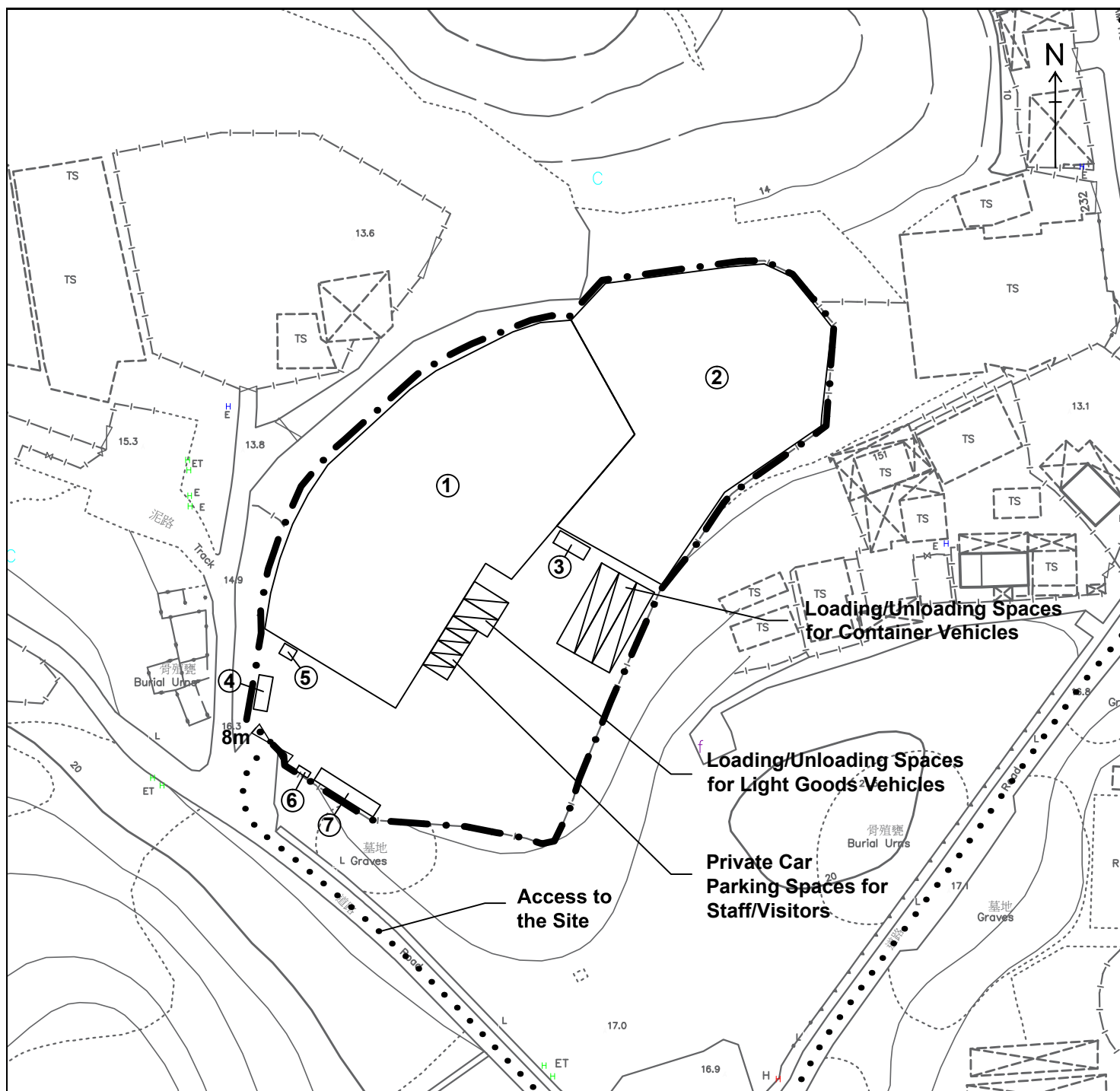


羅迅測計師行
Lawson David & Sung
SURVEYORS LIMITED
Property Consultants • Planning • Valuers • Auctioneers
Estate Agency Licence No. C-006328





Vehicular Access to the Application Site	Figure 3	 羅迅測計師行 Lawson David & Sung SURVEYORS LIMITED Property Consultants • Planning • Valuers • Auctioneers Estate Agency Licence No. C-006328
	1 : 5000	



Structure No.	Uses	No. of Storeys	Floor Area (m ²)	Height (m)
1	Warehouse for Storage of Timber/Metal	1	2,234	12
2	Warehouse for Storage of Timber/Metal	1	1,625	12
3	Site Office	2	30	6
4	Containers for Storage	2	30	6
5	Meter Room	1	5	3
6	Rain Shelter	1	3	2.5
7	Site Office	2	60	6

Legend:

- Application Site (Area: about 6,133 sq.m.)
- Loading/Unloading Spaces for Container Vehicles (3.5m x 16m) (3 nos.)
- Loading/Unloading Spaces for Light Goods Vehicles (3.5m x 7m) (2 nos.)
- Private Car Parking Spaces for Staff/Visitors (2.5m x 5m) (4 nos.)

Indicative Layout Plan

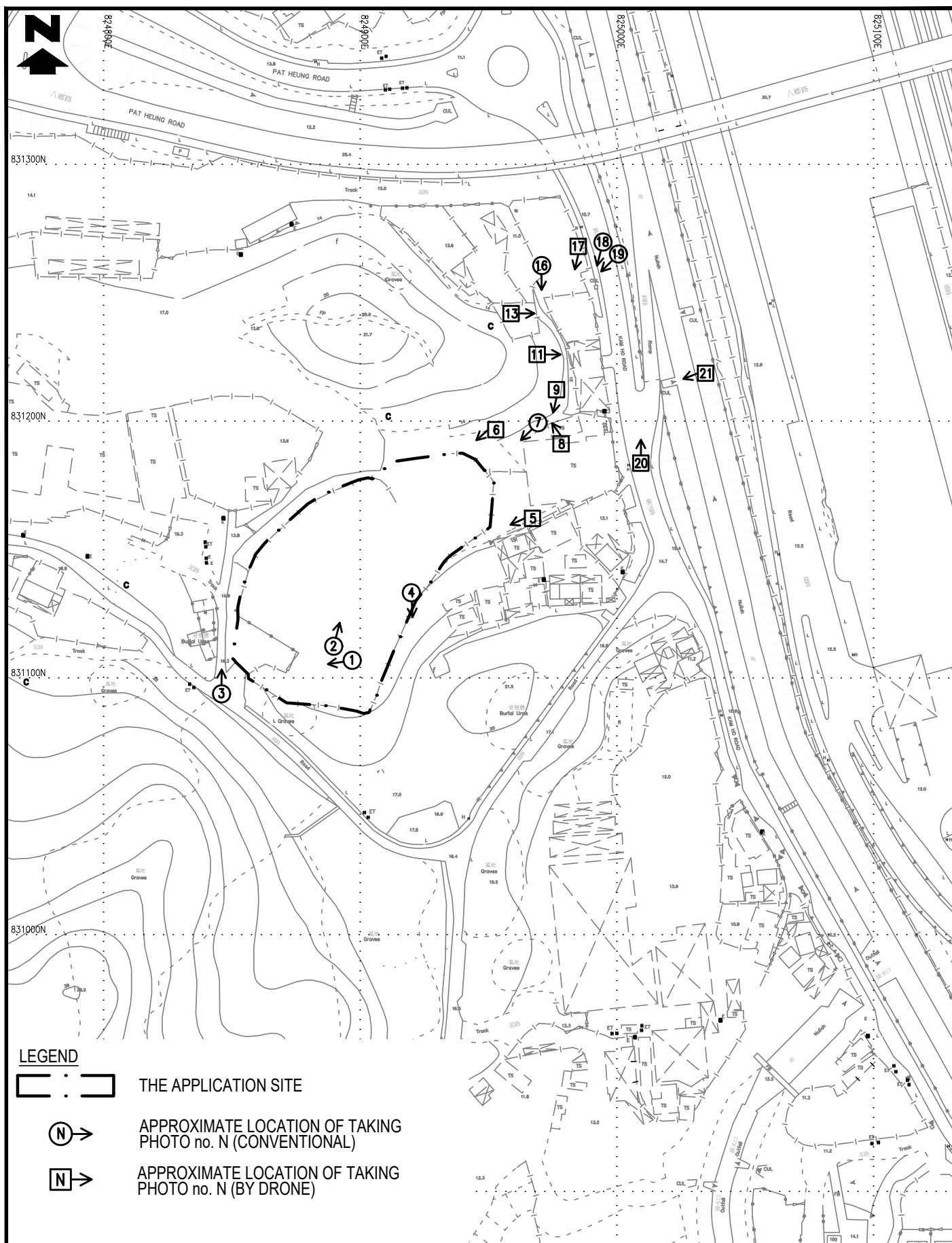
Figure 4

Scale 1:1000



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Estate Agency Licence No. C'606328

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TITLE

APPROXIMATE LOCATIONS OF PHOTOS TAKEN

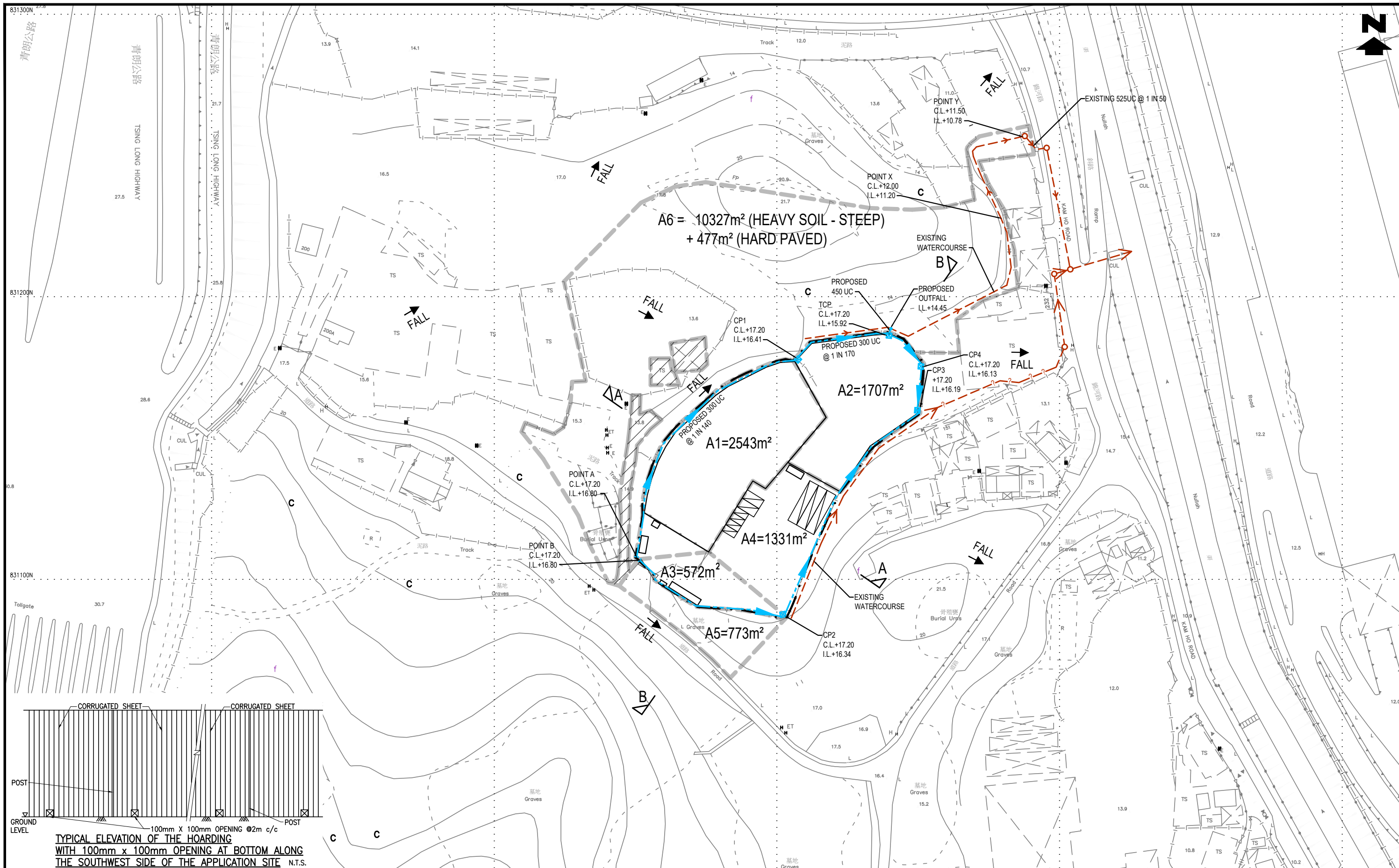
何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

SCALE

1 : 2000 - A4

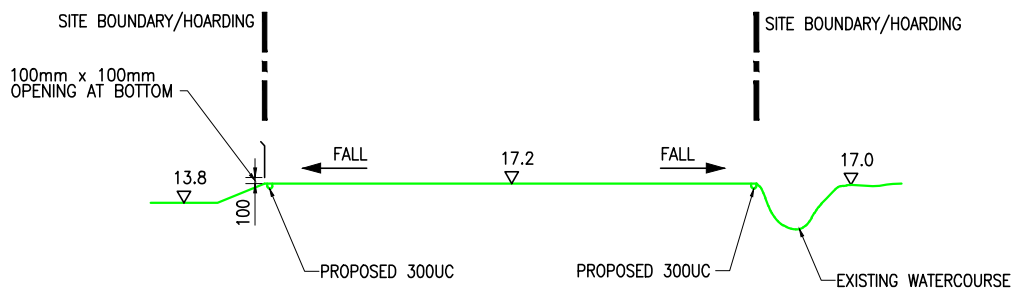
DRAWING No.

PLAN D1

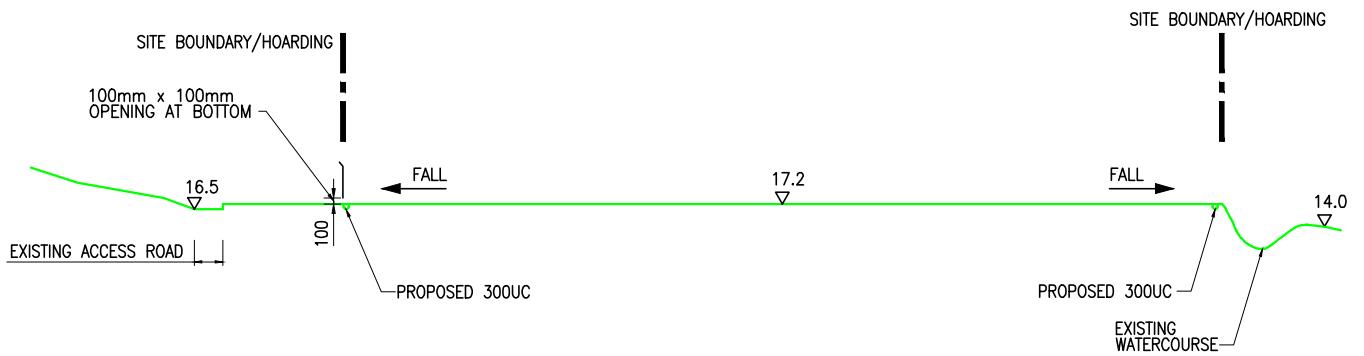


LEGEND — . — THE APPLICATION SITE — PROPOSED 300 UC @ 1 IN 200 EXCEPT OTHERWISE STATED ☒ PROPOSED CATCHPIT (CEDD STANDARD DRAWING NOS.C2405/1 TO /5) ☒ PROPOSED TERMINAL CATCHPIT WITH TRAP (CEDD STANDARD DRAWING NOS.C2406/1 TO /2A)		O EXISTING CATCHPIT / MANHOLE — — — EXISTING WATERCOURSE / DRAIN		PROJECT		何田顧問工程師有限公司 HO TIN & ASSOCIATES CONSULTING ENGINEERS LIMITED	
				TITLE		SCALE	DRAWING No.
				PROPOSED DRAINAGE MANAGEMENT PLAN		1 : 1250 - A3	PLAN D2

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SECTION A - A



SECTION B - B

LEGEND

PROPOSED GROUND = EXISTING GROUND

TITLE

SITE CROSS SECTIONS

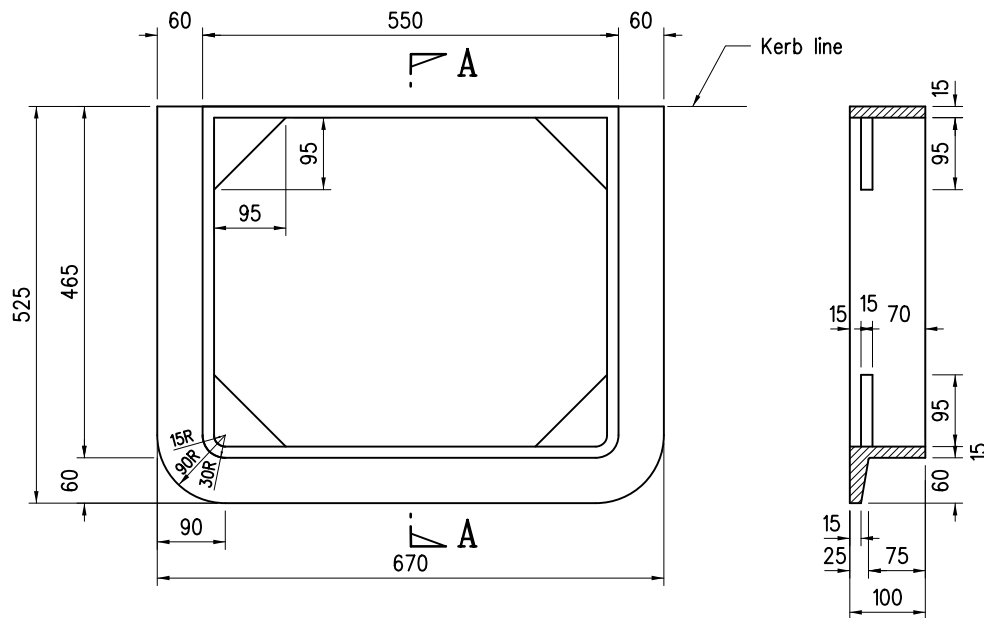
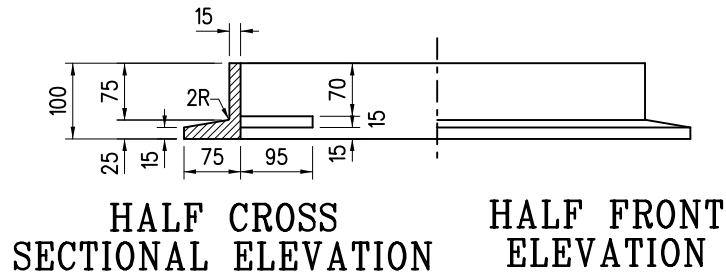
何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

SCALE

1 : 500 - A4

DRAWING No.

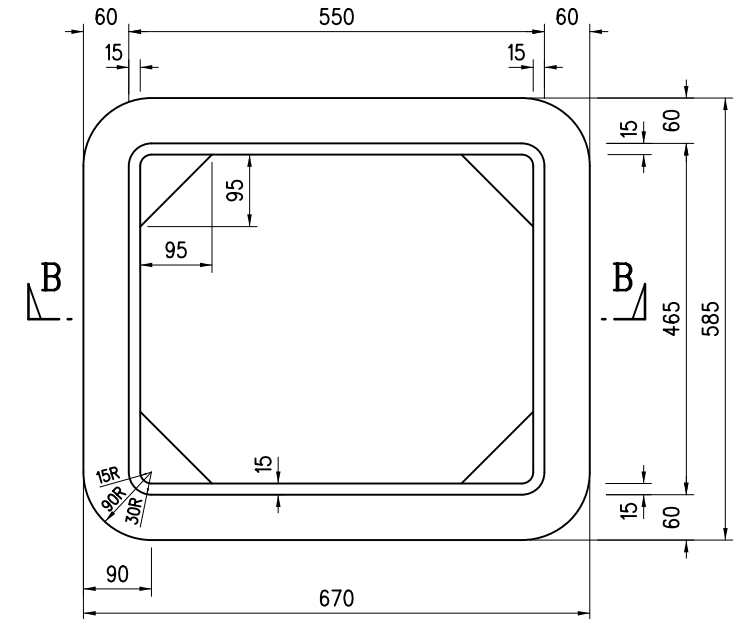
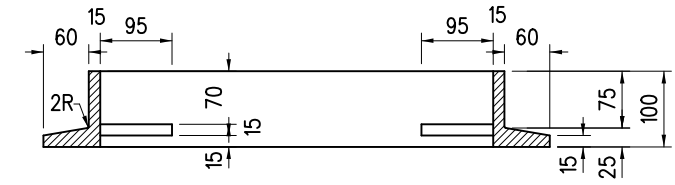
PLAN D3



FRAME
(For Gully Grating Adjacent to Kerb)

Notes :-

1. Dimensions are in millimetres.
2. All corners are to be rounded to approximately 2mm radius.
3. Cast Iron for frames and gratings is to conform with grade EN-GJL-150 of BS EN 1561.



FRAME
(For Gully Grating Away from Kerb)

A	Note 3 Revised	Original signed	Nov 21
	Former Drg. No.H3011/2 with general revision	-	Jun 94
REF.	REVISION	SIGNATURE	DATE

HIGHWAYS DEPARTMENT

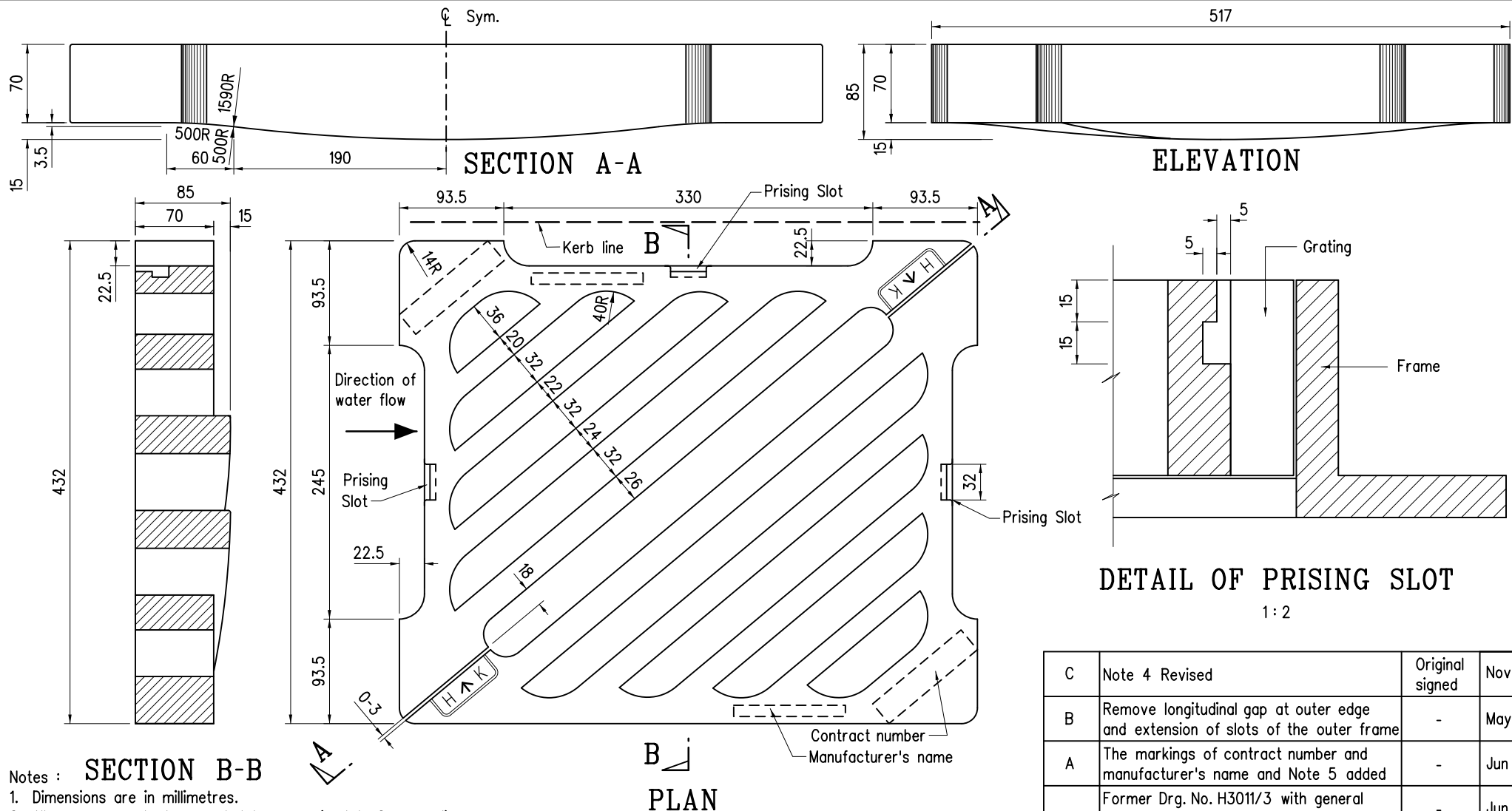
REFERENCE
H.O. 7/1/6

SCALE
1 : 10

DRAWING No. CAD

H 3117A

GULLY GRATING TYPE GA1-450 -
517x432 DOUBLE TRIANGULAR DEEP FRAME



Notes :

SECTION B-B

1. Dimensions are in millimetres.
2. All corners are to be rounded to approximately 2mm radius.
3. The smooth corner of the grating immediately adjacent to the kerb line is to be against the direction of the flow. Two separate sets of frame are needed to allow for the different direction of flow.
4. Cast Iron for frames and gratings is to conform with grade EN-GJL-150 of BS EN 1561.
5. The markings shall be raised 4mm above normal surface.

C	Note 4 Revised	Original signed	Nov 21
B	Remove longitudinal gap at outer edge and extension of slots of the outer frame	-	May 10
A	The markings of contract number and manufacturer's name and Note 5 added	-	Jun 04
	Former Drg. No. H3011/3 with general revision	-	Jun 94
REF.	REVISION	SIGNATURE	DATE

HIGHWAYS DEPARTMENT

GULLY GRATING TYPE GA1-450 - 517x432 DOUBLE TRIANGULAR ORIENTATION

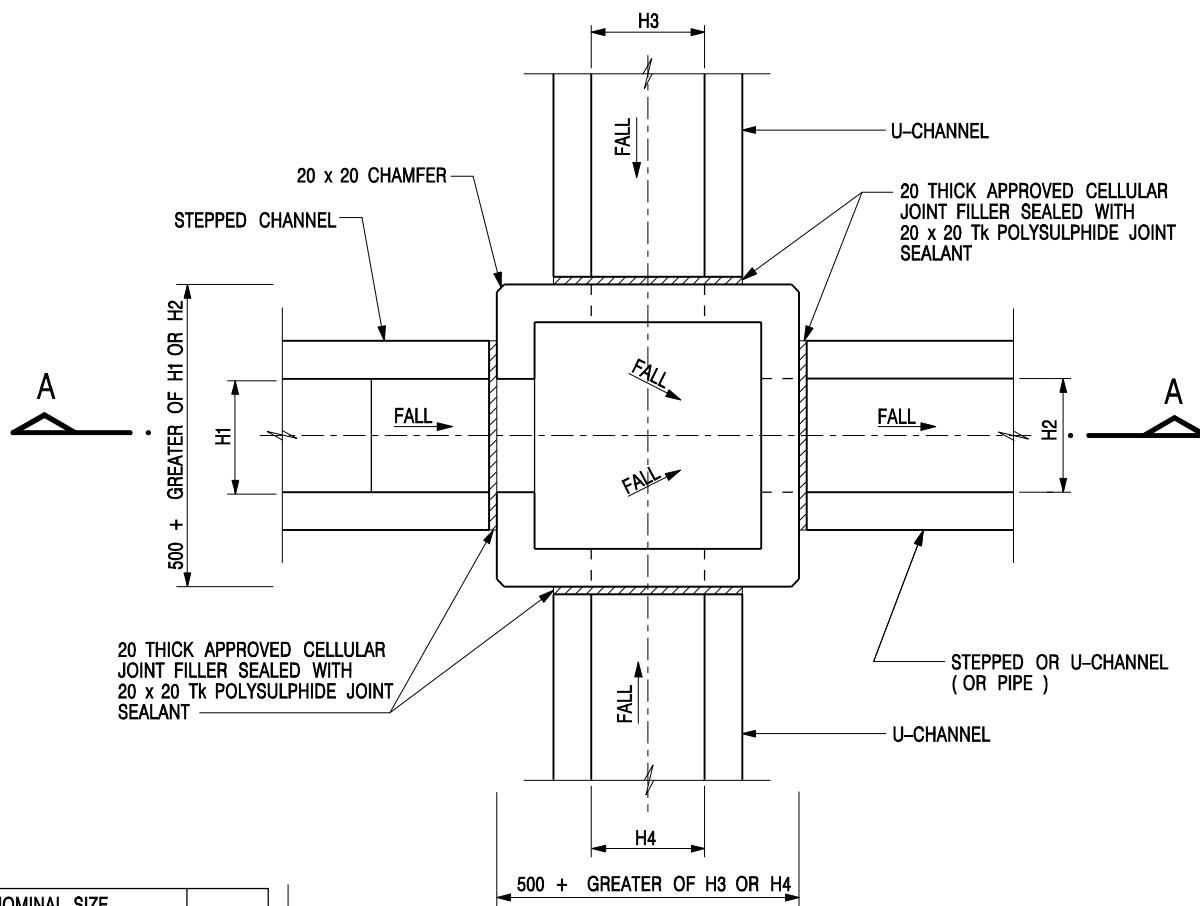
REFERENCE
H. O. 7/1/6

SCALE
1 : 5 or
As Shown

DRAWING No.

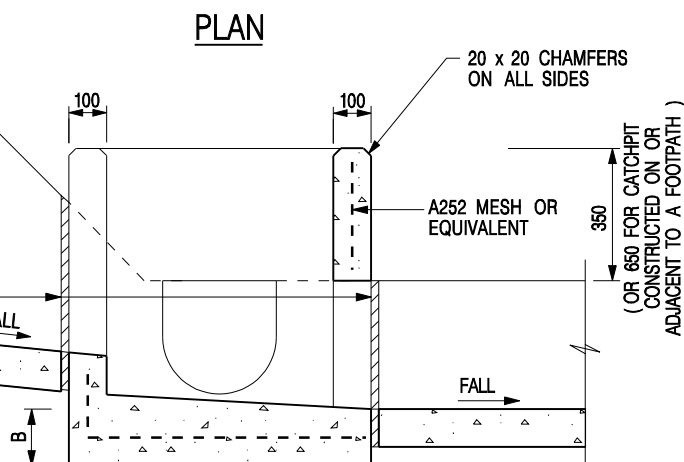
CAD

H 3118C



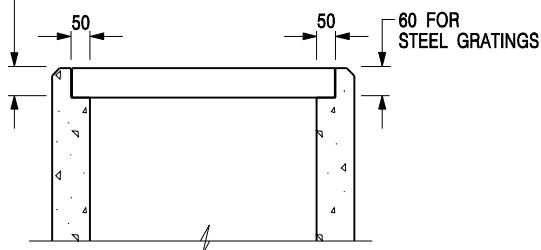
NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 - 600	150
675 - 900	175

20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT



SECTION A - A

DEPTH OF RECESS AND DETAILS OF PRECAST CONCRETE COVERS (SEE STD. DRG. NO. C2407)



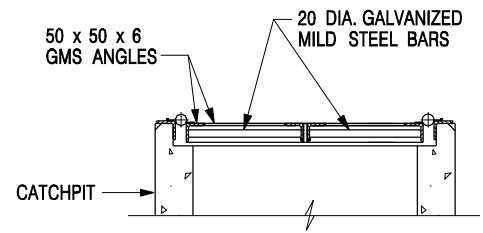
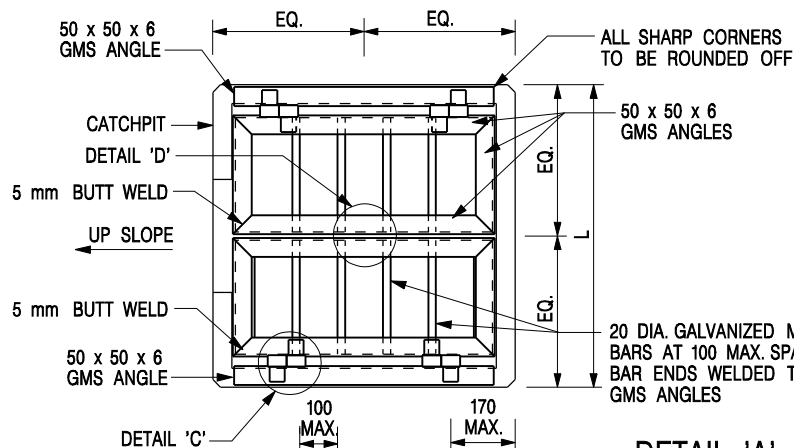
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

ALTERNATIVE TOP SECTION FOR PRECAST CONCRETE COVERS / GRATINGS

STANDARD CATCHPIT DETAILS (SHEET 1 OF 5)

-	FORMER DRG. NO. C2405J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE
 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		SCALE 1 : 20 DATE JAN 1991	
		DRAWING NO. C2405 /1	

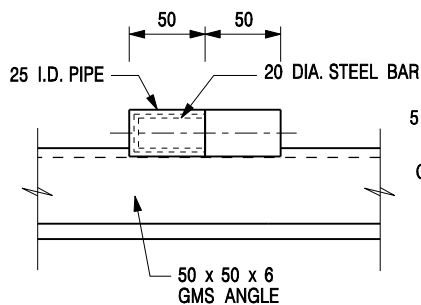


SECTIONAL ELEVATION

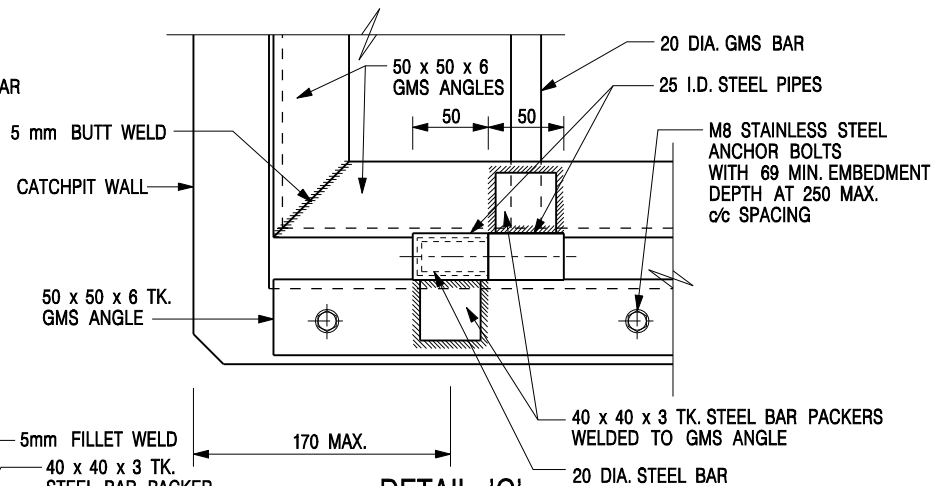
DETAIL 'A'

(DETAILS OF DOUBLE SIDE OPENING STEEL GRATING FOR L > 900mm)

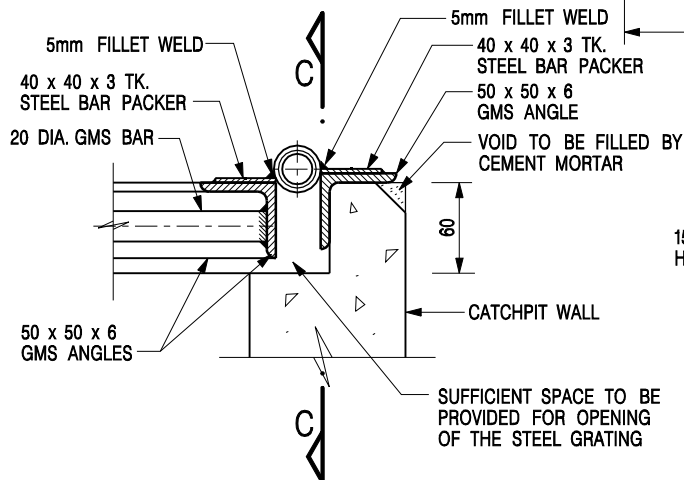
SCALE 1 : 20



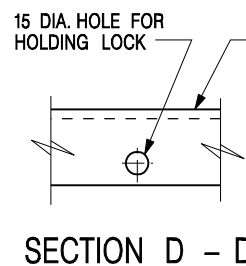
SECTION C - C



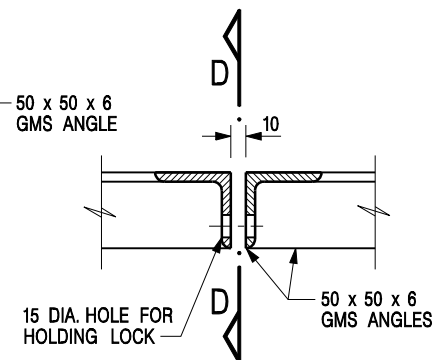
DETAIL 'C'
(DETAILS OF HINGE)
SCALE 1 : 5



SECTIONAL ELEVATION
(DETAIL 'C')



SECTION D - D



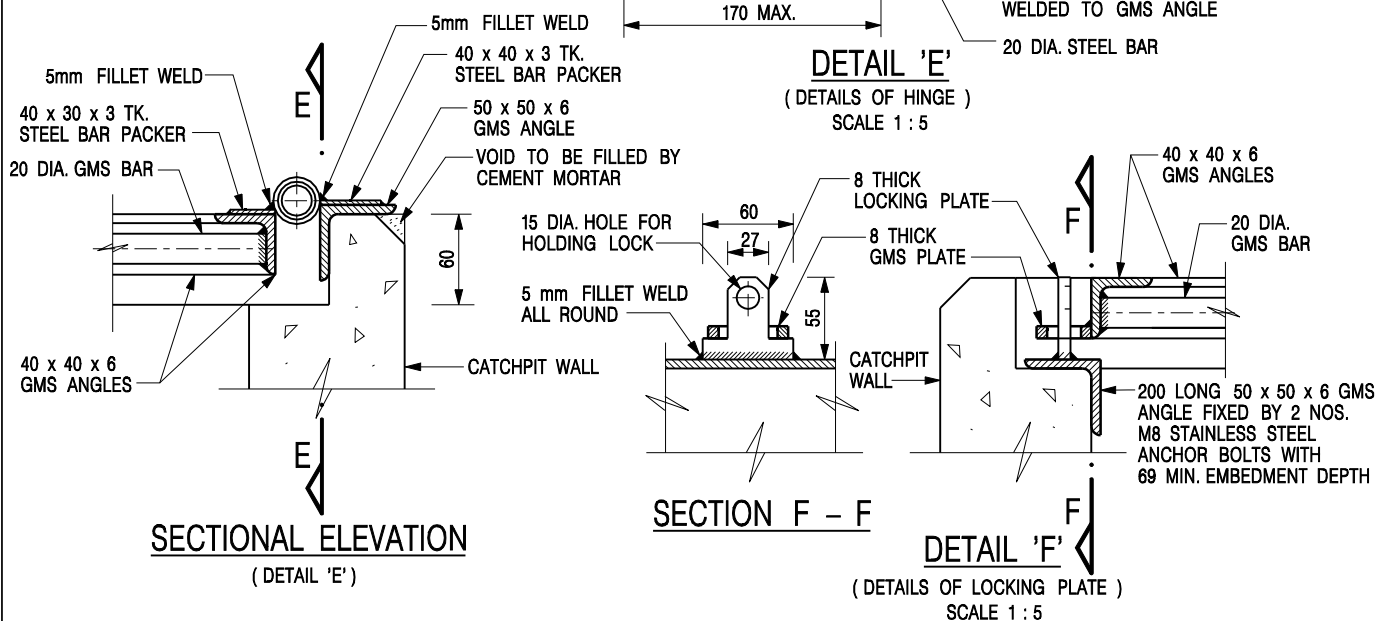
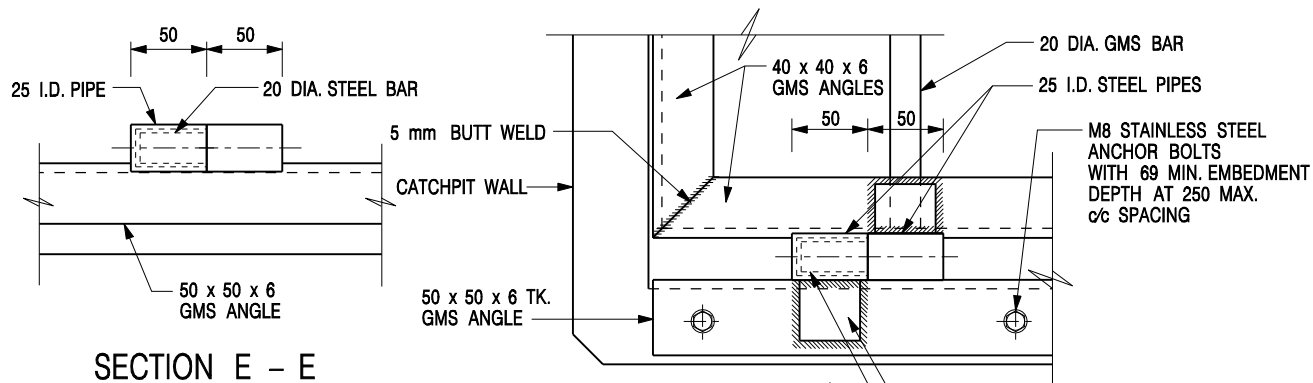
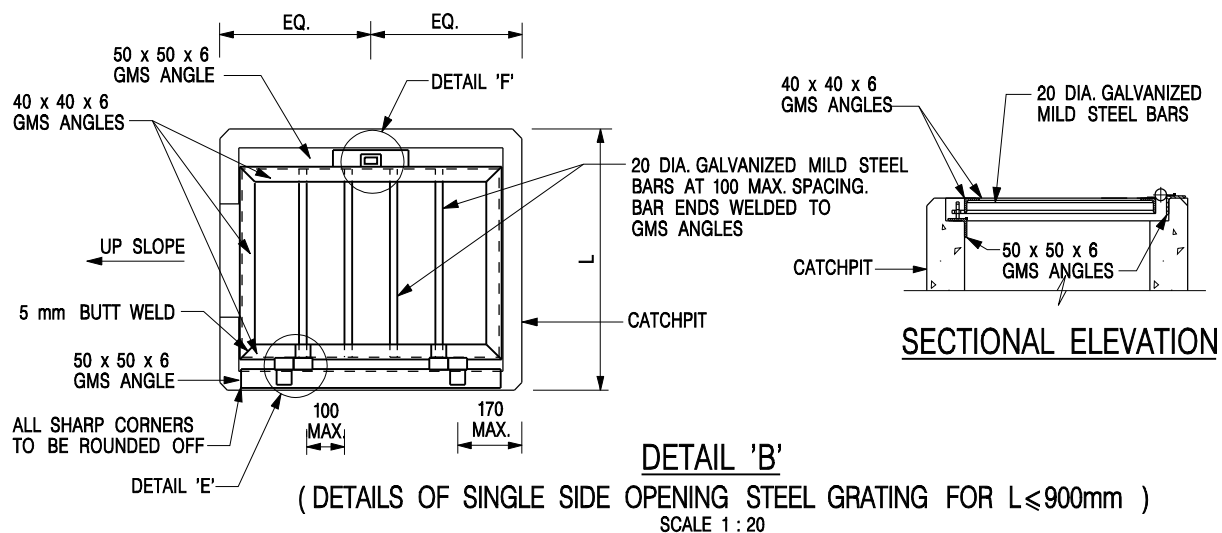
DETAIL 'D'
(DETAILS OF HOLE FOR LOCK)
SCALE 1 : 5

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

STANDARD CATCHPIT DETAILS
(SHEET 2 OF 5)

-	FORMER DRG. NO. C2405J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE
 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		SCALE AS SHOWN DATE JAN 1991	
		DRAWING NO. C2405 /2	



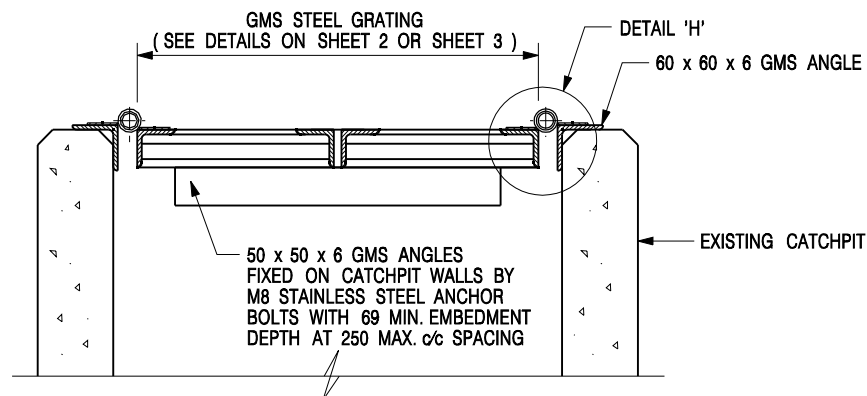
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

STANDARD CATCHPIT DETAILS
(SHEET 3 OF 5)

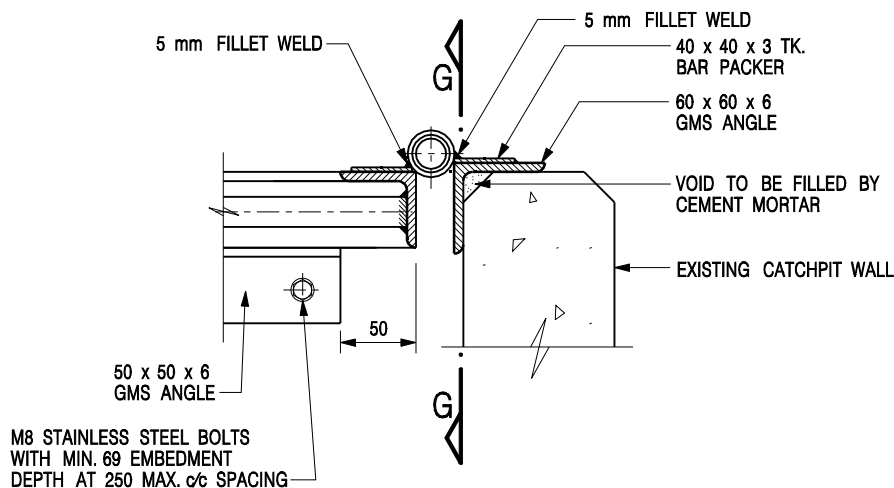
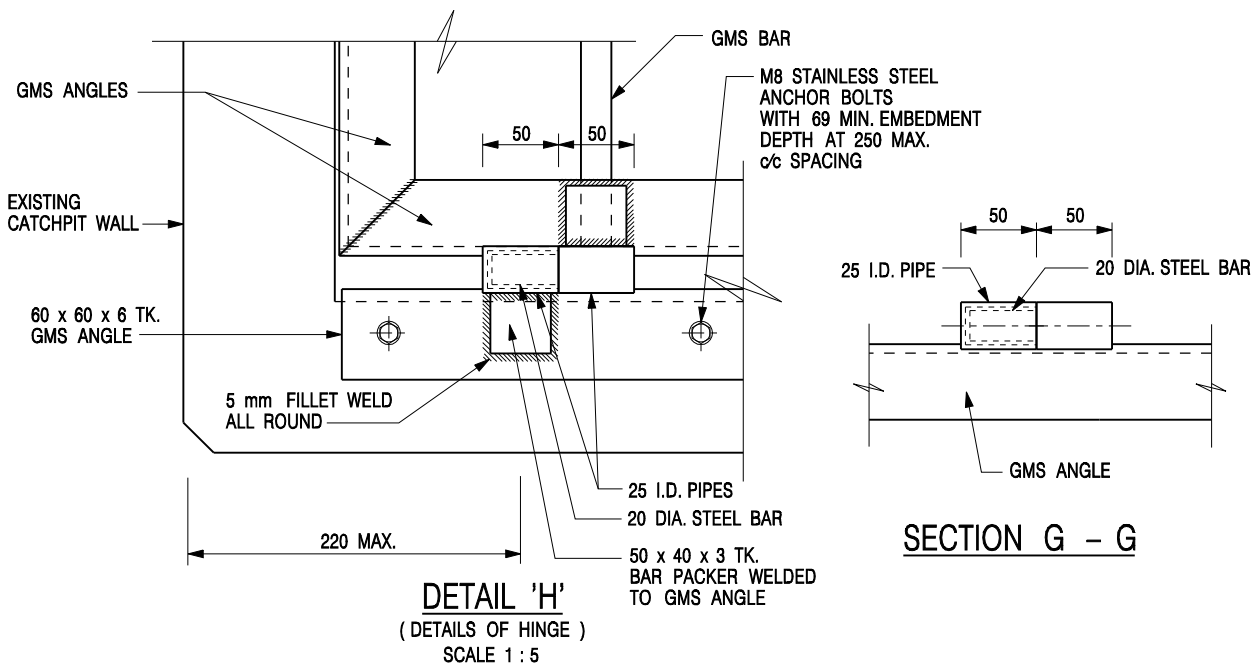
-	FORMER DRG. NO. C2405J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		DRAWING NO. C2405 /3	
SCALE AS SHOWN			
DATE JAN 1991			



DETAIL 'G' - DETAILS OF STEEL GRATING CONSTRUCTED ON EXISTING CATCHPIT

SCALE 1 : 10



SECTIONAL ELEVATION

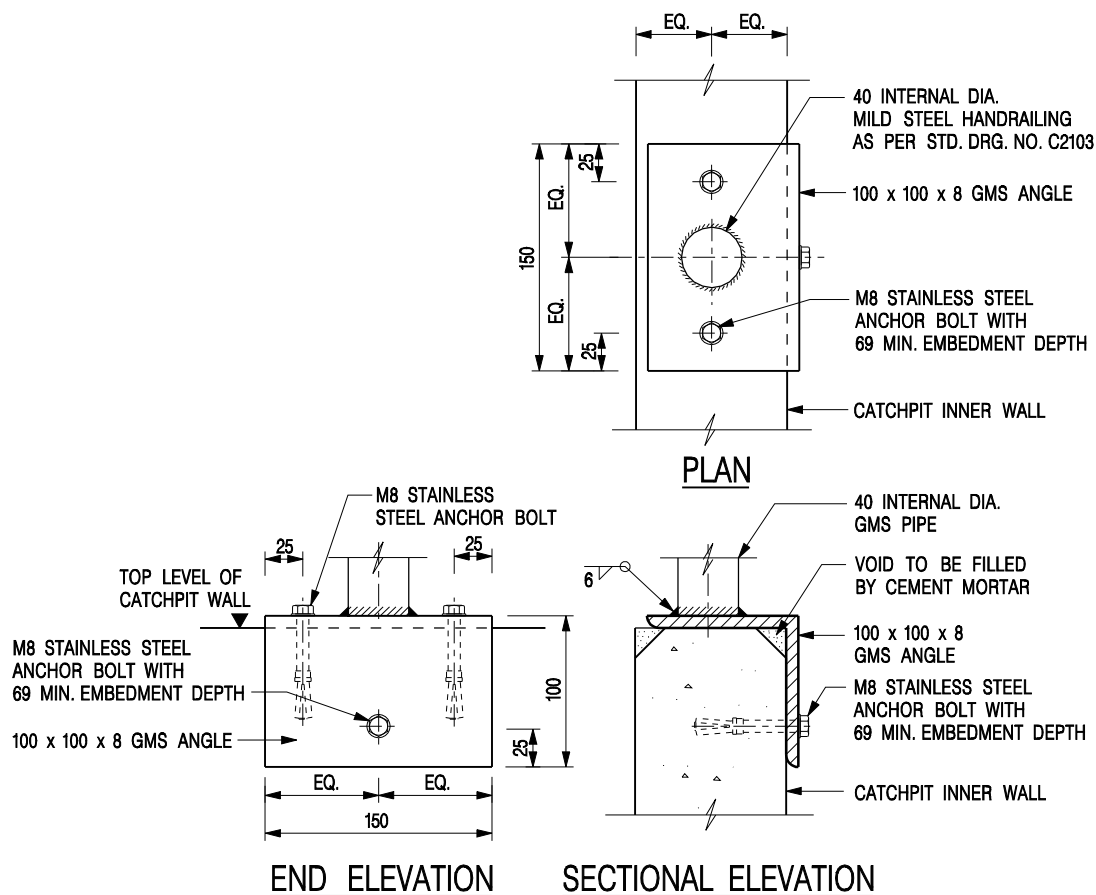
(DETAIL 'H')

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

STANDARD CATCHPIT DETAILS
(SHEET 4 OF 5)

-	FORMER DRG. NO. C2405J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE
 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT		SCALE AS SHOWN DATE JAN 1991	
		DRAWING NO. C2405 /4	



DETAIL 'J' – FIXING DETAILS FOR HANDRAILING ON TOP OF CATCHPIT WALL

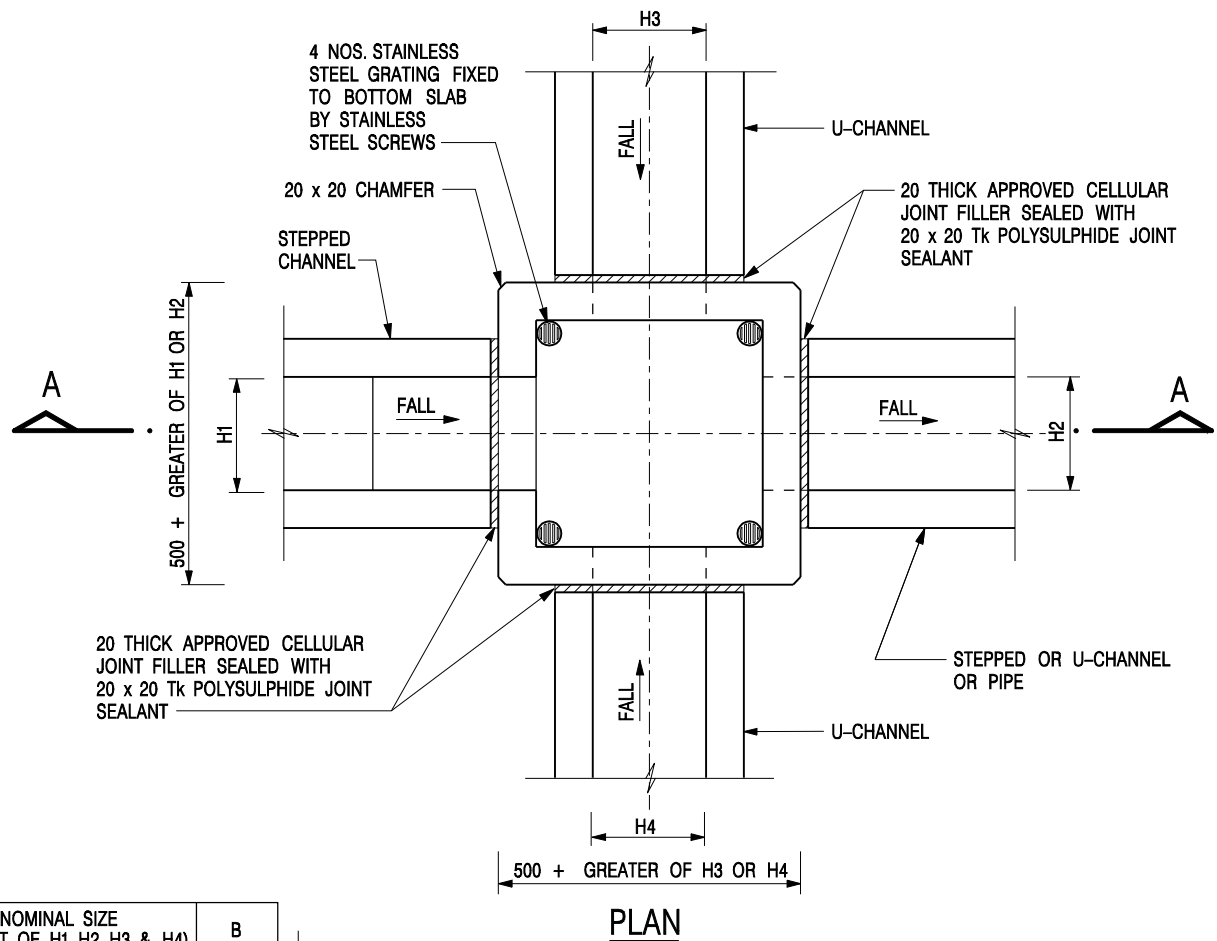
SCALE 1 : 5

NOTES:

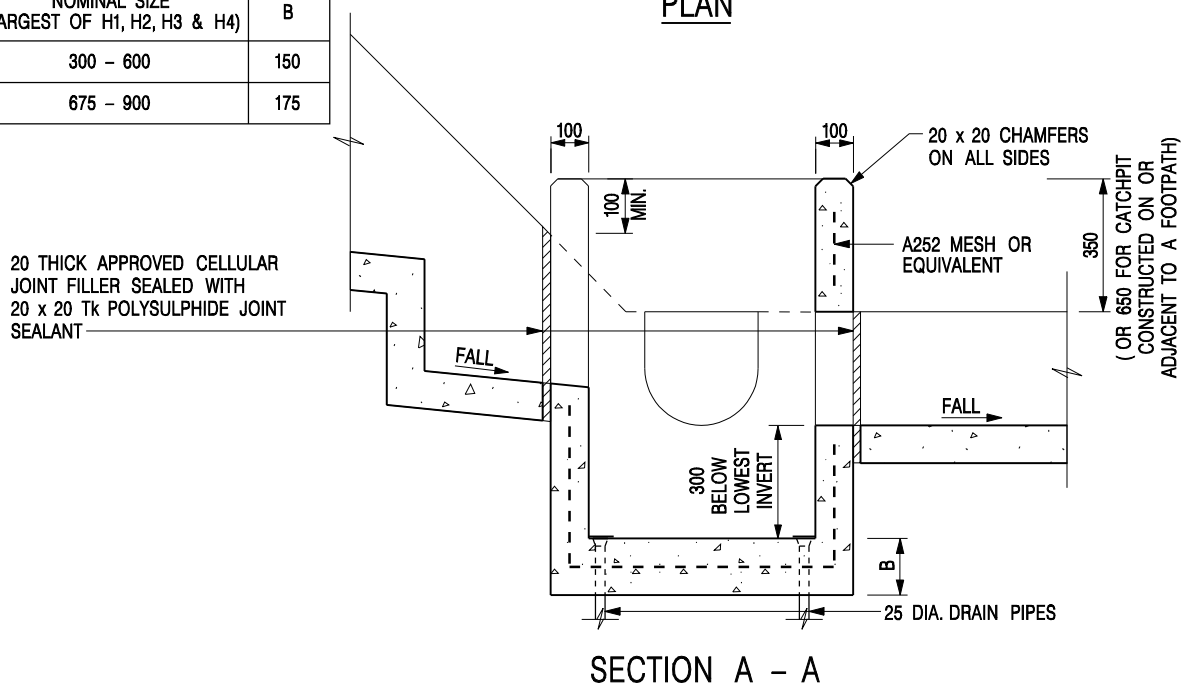
- ALL DIMENSIONS ARE IN MILLIMETRES.
- ALL CONCRETE SHALL BE GRADE 20 /20.
- CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
- FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
- CONCRETE TO BE COLOURED AS SPECIFIED.
- FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAILS ON SHEET 2 OR SHEET 3) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
- IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON SHEET 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.
- 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 mm c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
- FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON SHEET 4.
- ALL STEEL ANGLES SHALL COMPLY WITH BS EN 10025 AND BS EN 10056.
- UNLESS OTHERWISE SPECIFIED, ALL WELDS SHALL BE 5 mm CONTINUOUS FILLET WELDS.
- ALL WELDS SHALL BE CHIPPED, GROUND SMOOTH, BRUSHED TO REMOVE SLAG PRIOR TO HOT-DIP GALVANIZATION.
- ALL STEELWORK SHALL BE HOT-DIP GALVANIZED TO BS EN ISO 1461. ALL EXPOSED STEELWORK SURFACES SHALL BE TREATED AND PAINTED IN ACCORDANCE WITH THE GENERAL SPECIFICATION.
- SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

STANDARD CATCHPIT DETAILS
(SHEET 5 OF 5)

-	FORMER DRG. NO. C2405J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE
 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT			
SCALE AS SHOWN		DRAWING NO. C2405 /5	
DATE JAN 1991			



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

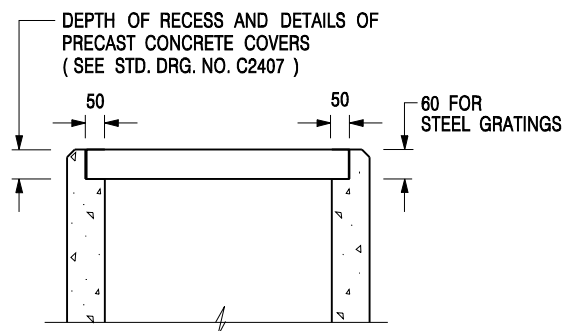


NOTES:

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

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)**



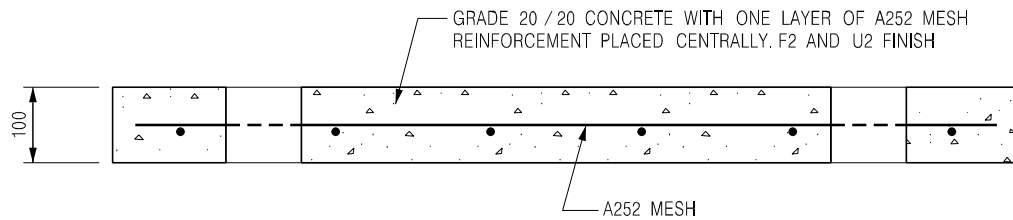
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

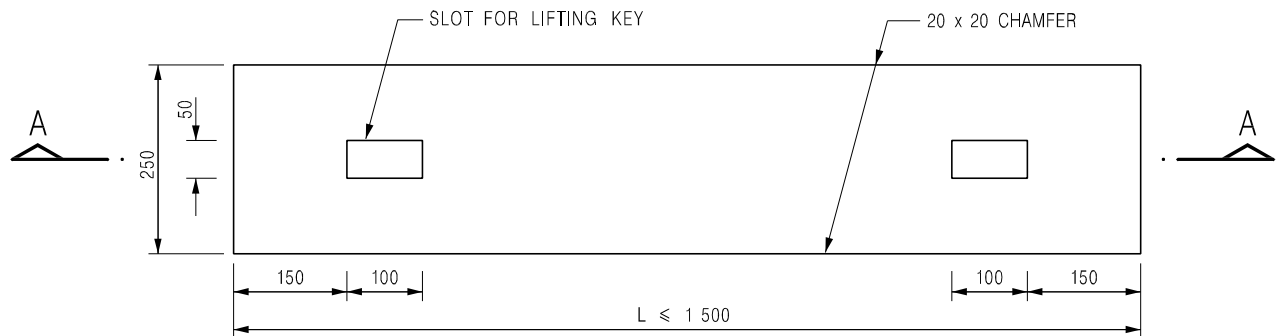
DATE JAN 1991

DRAWING NO.

C2406 /2A

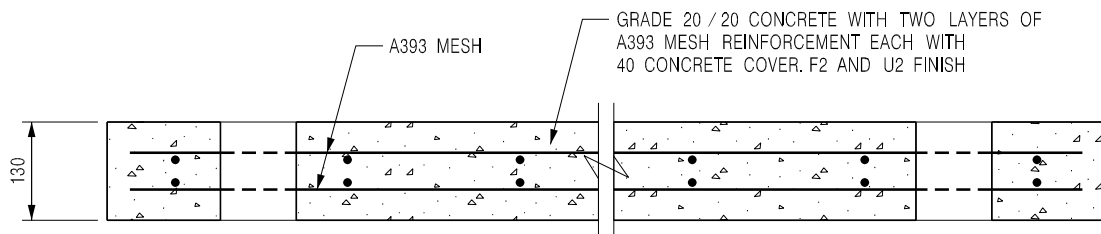


SECTION A - A

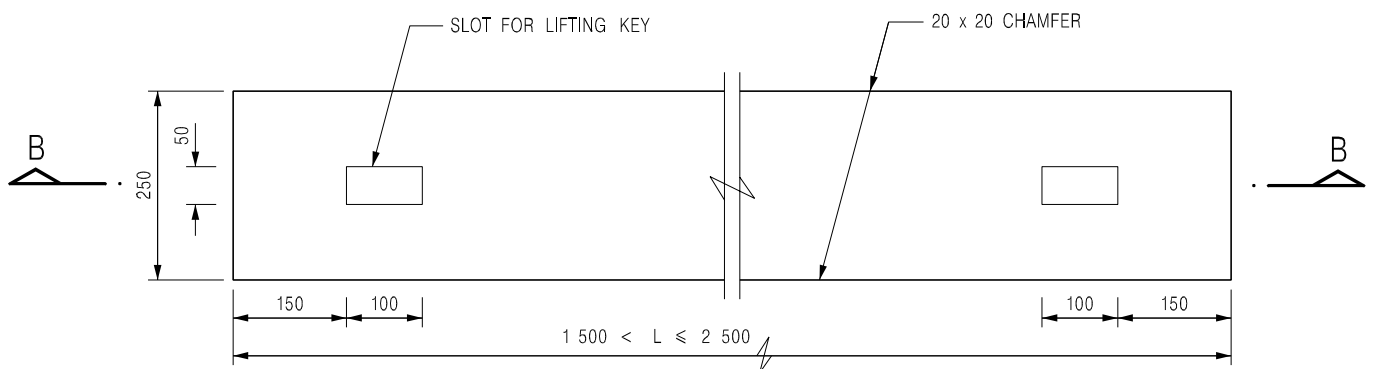


PLAN

TYPE 1 - FOR SPAN UP TO 1.5 m



SECTION B - B



PLAN

TYPE 2 - FOR SPANS 1.5 m TO 2.5 m

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EXTERNAL EDGES OF THE COVERS SHALL BE 20mm CHAMFERED.

B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	GENERAL REVISION	Original Signed	12.2002
REF.	REVISION	SIGNATURE	DATE

**PRECAST CONCRETE COVERS
FOR CATCHPIT AND SAND TRAP**

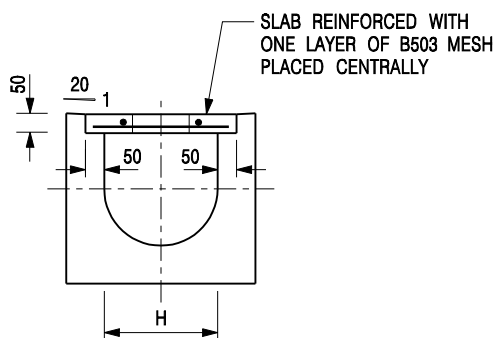


**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

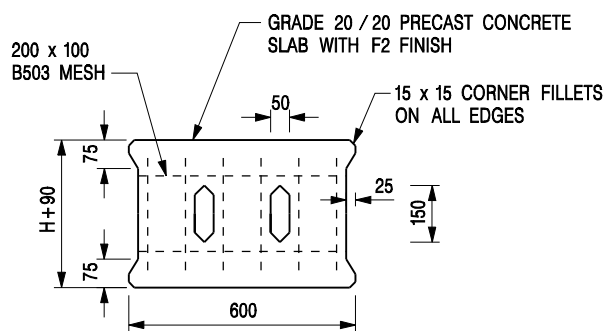
SCALE 1 : 10

DATE JAN 1991

DRAWING NO.
C2407B



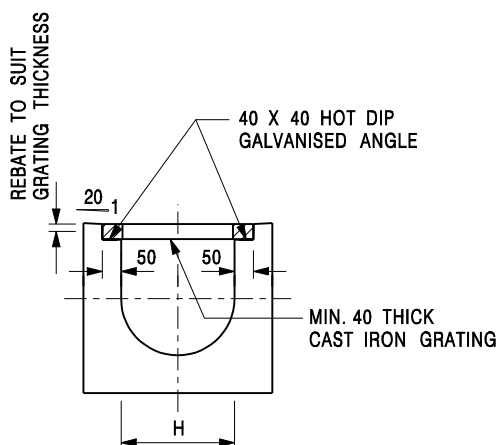
TYPICAL SECTION



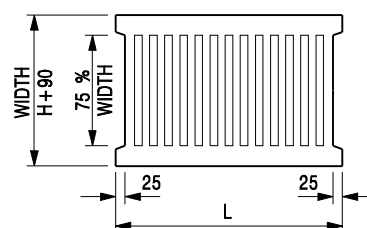
PLAN OF SLAB

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:

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

Assessment of Hydraulic Capacities of the Proposed Drainage System for 1 in 50 year design return period

Using Rational Method
Design Flow = 0.278CIA m³/s for grassland (heavy soil) - steep, C 0.35
for concrete surface, C = 0.95

Using Manning Equation (for channel flow)
Design Mean Velocity = $R^{1/6}/n(RS_d)^{1/2}$ where n = 0.016 for concrete-lined open channel with fair surface
(ref. 0.045 for natural stream channels, winding some pools and shoals with some weeds and stones with fair surface
Table13 in SDM)

Using GEV distribution model in frequency analysis
Rainfall intensity = $a / (t_r+b)^c$ where a = 505.5 , b= 3.29 and c= 0.355 in 50 year design return period
referenced from Table 3a in SDM Corrigendum No. 1/2022 - Storm Constants for Different Return Periods of HKO Headquarters

Using Bransby William's Equation
Inlet time t_0 = $0.14465L / (H^{0.2}A^{0.1})$ or 2 when the distance is too short

Using Colebrook's White Equation (for pipe flow)
 $V = - \text{Sqrt} (8gDs) \times \log [(k_s / (3.7D)) + (2.51v / (D \times \text{Sqrt} (2gDs)))]$
For precast concrete pipes with 'O' ring joints with normal condition,
 k_s (mm) = 0.15 k_s (m) = 0.00015
 v (m²/s) = 1.00E-06
 g (m²/s) = 9.81

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
USCP/USMH	DSCP/DSMH	Collected Runoff from Catchment (refer to Plan D2)	USGL (mPD)	DSGL (mPD)	USIL (mPD)	DSIL (mPD)	INVERT DIFF. (m)	LENGTH OF CHANNEL / DRAIN l (m)	SLOPE s	SLOPE 1 IN	LENGTH FOR CALCULATION OF INLET TIME L (m)	AVERAGE SLOPE OF GROUND FOR CALCULATION OF INLET TIME H (m per 100m)	INLET TIME t_0 (min) = $0.14465 \times [L(H^{0.2} \times A^{0.1})]$	TIME OF FLOW INSIDE CHANNEL/ DRAIN t_f (min) = l/v (i.e. Column (9) + Column (26) + 60)	TIME OF CONCENTRATION t_c (min) = $t_0 + t_f$	RAINFALL INTENSITY i (mm/hr)	RAINFALL INTENSITY INCLUDING EFFECT OF CLIMATE CHANGE (+16.0%) (mm/hr) [refer to item (e) and (k) in SDM Corrigendum No. 1/2022]	ADOPTED RAINFALL INTENSITY INCLUDING EFFECT OF CLIMATE CHANGE (+16.0%) & DESIGN ALLOWANCE (12.1%) (mm/hr) [refer to item (e), (k) and (n) in SDM Corrigendum No. 1/2022]	RUNOFF COEF. C	SUB-CATCHMENT AREA A (m²)	EFFECTIVE CATCHMENT AREA (m²)	CUM. EFFECTIVE CATCHMENT AREA (m²)	DESIGN FLOW (m³/s)	SIZE (mm)	CHANNEL TYPE	VELOCITY (m/s)	FLOW CAPACITY (m³/s)	90% FLOW CAPACITY (m³/s) (to cater for potential deposition of sediment)	SPARE CAPACITY (m³/s)	Occupancy of the Proposed Pipe / Channel
Starting Point A	CP1	A1	17.20	17.20	16.80	16.41	0.39	55.00	0.007	140	-	-	2.00	0.68	2.68	268.12	311.02	348.66	0.95	2,543	2,416	2,416	0.234	300	UC	1.35	0.31	0.28	0.044	84.2%
CP1	TCP	A1+A2	17.20	17.20	16.41	15.92	0.49	83.00	0.006	170	-	-	2.68	1.09	3.76	252.68	293.11	328.57	0.95	1,707	1,622	4,038	0.369	300	UC	1.27	0.48	0.43	0.061	85.8%
Starting Point B	CP2	A3+A5	17.20	17.20	16.80	16.34	0.46	92.00	0.005	200	-	-	2.00	1.34	3.34	258.23	299.55	335.80	0.95	1,345	1,278	1,278	0.119	300	UC	1.14	0.28	0.26	0.136	46.7%
CP2	CP3	A3+A4+A5	17.20	17.20	16.34	16.19	0.15	30.00	0.005	200	-	-	3.34	0.43	3.78	252.51	292.91	328.35	0.95	1,331	1,264	2,542	0.232	300	UC	1.16	0.34	0.31	0.073	76.0%
CP3	CP4	ditto	17.20	17.20	16.19	16.13	0.06	12.00	0.005	200	-	-	3.78	0.17	3.95	250.36	290.42	325.56	0.95	0	0	2,542	0.230	300	UC	1.16	0.36	0.33	0.095	70.7%
CP4	TCP	ditto	17.20	17.20	16.13	16.06	0.07	14.00	0.005	200	-	-	3.95	0.20	4.15	247.95	287.62	322.42	0.95	0	0	2,542	0.228	300	UC	1.17	0.39	0.35	0.121	65.3%
Discharge Point																														
TCP	Proposed outfall	A1+A2+A3+A4+A5	17.20	15.00	15.92	14.45	0.03	1.00	0.025	40	-	-	4.15	0.01	4.15	247.88	287.54	322.34	0.95	0	0	6,580	0.526	450	UC	2.99	0.67	0.61	0.081	86.6%
Existing Watercourse at Downstream of the Subject Site																														
Proposed outfall	Point X at the downstream of the Proposed outfall	A1+A2+A3+A4+A5+A6	14.00	12.00	13.20	11.20	0.65	65.00	0.010	100	180	3	7.75	1.03	8.78	208.82	242.23	271.54	0.38	10,804	4,068	10,647	0.717	800	Water depth x 1100mm wide rectangular earth channel	1.05	0.93	0.83	0.117	86.0%
Point X at the downstream of the Proposed outfall	Point Y at the downstream of the Proposed outfall	ditto	12.00	11.50	11.20	10.78	0.42	42.00	0.010	100	-	-	8.78	0.23	9.00	207.45	240.64	269.75	0.95	0	0	10,647	0.798	700	pipe	3.09	1.19	1.07	0.272	74.6%
Point Y at the downstream of the Proposed outfall	Existing 525UC	ditto	11.50	11.50	10.78	10.68	0.10	5.00	0.020	50	-	-	9.00	0.03	9.03	207.28	240.45	269.54	0.95	0	0	10,647	0.798	525	UC	3.09	1.24	1.11	0.317	71.6%
total =																					17,730									

subcatchment		2543 Application Site Area =		6,153	
A1					
A2					
A3					
A4					
A5					
A6	10,804	hard paved	477	grassland	10327 equivalent (0.38
total =		17,730			