

寄件者: Louis Tse [REDACTED]
寄件日期: 2024年12月31日星期二 12:13
收件者: tpbpd/PLAND
副本: Andrea Wing Yin YAN/PLAND; Jet Sze Jet CHEUNG/PLAND; Bon Tang; Matthew Ng; Christian Chim; Danny Ng; Kevin Lam; Grace Wong
主旨: [FI] S.16 Application No. A/YL-KTN/1024 - FI to address departmental comments
附件: FI2 for A_YL-KTN_1024 (20241231).pdf
類別: Internet Email

Dear Sir,

Attached herewith the FI to address departmental comments of the subject application.

Should you require more information, please do not hesitate to contact me. Thank you for your kind attention.

Kind Regards,

Louis TSE | Town Planner
R-riches Group (HK) Limited

R-riches Property Consultants Limited | R-riches Planning Limited | R-riches Construction Limited

[REDACTED]

Our Ref. : DD107 Lot 1446 & VL
Your Ref. : TPB/A/YL-KTN/1024

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

By Email

31 December 2024

Dear Sir,

2nd Further Information

**Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities
for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone,
Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Yuen Long**

(S.16 Planning Application No. A/YL-KTN/1024)

We are writing to submit further information to address departmental comments on the subject application (**Appendix I**).

Should you require more information regarding the application, please contact our Mr. Danny NG at [REDACTED] or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Property Consultants Limited

Louis TSE
Town Planner

cc DPO/FSYLE, PlanD

(Attn.: Ms. Andrea YAN

email: awyyan@pland.gov.hk)

(Attn.: Mr. Jet CHEUNG

email: jsjcheung@pland.gov.hk)

Responses-to-Comments

**Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities
for a Period of 3 Years and Associated Filling of Land and Pond in “Agriculture” Zone,
Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Yuen Long**

(Application No. A/YL-KTN/1024)

(i) A RtoC Table:





























Departmental Comments		Applicant's Responses
1. Comments of the Director of Fire Services (D of FS) (Contact Person: Mr. YUEN Tsz-fung; Tel.:2733 7737)		
(a)	<p>Based on the submitted FSI proposal, I have the following comments:</p> <p>(i) FS Notes item 4.2 is considered irrelevant and shall be deleted; and</p> <p>(ii) The standards and specification of the proposed directional and exit signs shall be revised to 'BS 5266-1:2016 and the FSD Circular Letter No. 5/2008'.</p>	<p>Noted and revised accordingly. Please refer to the revised fire service installations (FSIs) proposal for details (Annex I).</p>
2. Comments of the Chief Engineer/Mainland North, Drainage Services Department (CE/MN, DSD) (Contact Person: Mr. Terence TANG; Tel.: 2300 1257)		
(a)	<p>The DIA should be signed and certified by a qualified engineer (Registered Professional Engineer in the Civil Engineering discipline) before it is submitted to DSD for comment.</p>	<p>A revised drainage impact assessment report, which signed and certified by the qualified engineer, has been submitted by the applicant to review the drainage arrangements for the proposed development (Annex II).</p>
3. Comments of the Chief Town Planner/Urban Design and Landscape, Planning Department (CTP/UD&L, PlanD) (Contact Person: Mr. Samuel HUI; Tel.: 3565 3957)		
(a)	<p>Having reviewed the Further Information, it is noted that the filling material within the Site is partly revised from concrete to soil. 18 nos. of new trees are proposed along the northwest site boundary within the Site. Please find our comments from landscape planning perspective:</p>	

	<p><u>Landscape Proposal (ver.001) (Annex IV)</u></p> <p>i. Considering the species proposed (<i>Ficus microcarpa</i>) is large tree species that can grow up to approx. 25m high with wide crown spread and aggressive roots. The applicant is advised to revise the proposed species to small tree species to suit the site context.</p> <p>ii. The applicant is advised to revise the individual tree pits proposed to a continuous soil trench to facilitate growing of tree as far as possible. Relevant description and dimension should be reviewed.</p>	<p>A revised landscape proposal has been submitted by the applicant to provide landscape mitigation measure for the proposed development (Annex III). A total of <u>18</u> Small tree species (i.e. <i>Polyspora Axillaris</i>), with continuous soil trench, are proposed to be planted along the northwest portion of the application site (the Site) as a landscape buffer to the surrounding areas. All these new trees within the Site will be maintained by the applicant during the planning approval period.</p>
<p>4. Comments of the District Planning Officer/Fanling, Sheung Shui and Yuen Long East, Planning Department (DPO/FSYLE, PlanD) (Contact Person: Ms. Andrea YAN; Tel.: 3168 4049)</p>		
(a)	<p>While the applicant claimed that the open space at the Site is to accommodate the required machineries, equipment, parking and loading/unloading facilities, more justifications/elaborations should be provided to demonstrate why an extensive open space (about 56%) is needed for warehouses development.</p>	<p>The remaining uncovered area is reserved for the provision of drainage and fire safety facilities. The open area is necessary to comply with fire safety regulations and allows for safe workers pathways and emergency exits, providing clear access for emergency services.</p>
<p>5. Comments of the Director of Agriculture, Fisheries and Conservation (DAFC) (Contact Person: Ms. WONG Cheuk-ling; Tel.: 2150 6933)</p>		
(a)	<p>The applicant has not provided information on the type of soil to be filled.</p>	<p>Loam would be used for filling of land and pond for the proposed development.</p>

FIRE SERVICES NOTES

1. HOSE REEL SYSTEM
 - 1.1 HOSE REEL SHALL BE PROVIDED AT POSITIONS OF THE WAREHOUSE B1, B2 & B3 AS INDICATED ON PLANS.
 - 1.2 WATER SUPPLY FOR THE MODIFIED HOSE REEL SYSTEM TO BE SINGLE END FEED FROM THE GOVERNMENT TOWN MAIN.
 - 1.3 A MODIFIED HOSE REEL SYSTEM OF 2,000 LITRES WATER TANK TO BE PROVIDED FOR THE STRUCTURE B1, B2 & B3 AS INDICATED ON PLAN.
 - 1.4 TWO HOSE REEL PUMPS (ONE DUTY & ONE STANDBY) SHALL TO BE PROVIDED AT FS PUMP ROOM.
 - 1.5 NO FIRE SERVICES INLET TO BE PROVIDED FOR THE MODIFIED HOSE REEL SYSTEM.
 - 1.6 SUFFICIENT HOSE REELS SHALL BE PROVIDED TO THE PREMISES. HOSE REELS SHALL BE PROVIDED TO ENSURE THAT EVERY PART OF THE BUILDING CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30 M OF HOSE REEL TUBING. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE TO BE LOCATED AT EACH HR POINT.
2. SPRINKLER SYSTEM
 - 2.1 THE CLASSIFICATION OF THE AUTOMATIC SPRINKLER INSTALLATION TO BE ORDINARY HAZARD GROUP 3.
 - 2.2 AUTOMATIC SPRINKLER SYSTEM SHALL SUPPLIED BY A 135,000L SPRINKLER WATER TANK AND COVERED TO THE ENTIRE WAREHOUSES (B1, B2 & B3) IN ACCORDANCE WITH LPC RULES INCORPORATING BS EN12845 : 2015 AND FSD CIRCULAR LETTER 5/2020. THE SPRINKLER WATER TANK, SPRINKLER PUMP ROOM, SPRINKLER INLET AND SPRINKLER CONTROL VALVE GROUP SHALL BE AS INDICATED ON PLANS.
 - 2.3 ALL INSTALLED SPRINKLER SHOULD BE CONVENTIONAL TYPE AND THE TEMPERATURE RATING OF SPRINKLER HEAD SHALL BE 68°C UNLESS OTHERWISE SPECIFIED.
 - 2.4 ALL SPRINKLER PIPE SIZE SHOULD BE Ø32MM UNLESS SPECIFY.
 - 2.5 STORAGE BLOCK SHOULD BE SEPARATED BY AISLES NO LESS THAN 2.4M WIDE.
 - 2.6 THE MAXIMUM STORAGE AREA SHALL BE 50m² FOR ANY SINGLE BLOCK.
 - 2.7 TYPE OF STORAGE METHOD FOR THOSE WAREHOUSES ARE AS FOLLOWS:
 - i) STORAGE CATEGORY : CATEGORY (III)
 - ii) STORAGE HEIGHT : NOT EXCEEDING 2.1M
 - iii) STORAGE : ST1
3. FIRE ALARM SYSTEM
 - 3.1 FIRE ALARM SYSTEM SHALL BE PROVIDED THROUGHOUT THE ENTIRE COVERED AREA OF WAREHOUSES IN ACCORDANCE WITH BS 5839-1 : 2017 AND FSD CIRCULAR LETTER 6/2021. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE SHOULD BE LOCATED AT EACH HOSE REEL POINT. THE ACTUATION POINT SHOULD INCLUDE FACILITIES FOR HOSE REEL PUMP START AND AUDIO / VISUAL WARNING DEVICE INITIATION.
 - 3.2 AN ADDRESSABLE TYPE FIRE ALARM PANEL TO BE PROVIDED AND LOCATED IN FRONT OF THE MAIN ENTRANCE OF WAREHOUSE B1 ON G/F.
4. EMERGENCY LIGHTING
 - 4.1 SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE COVERED AREA OF WAREHOUSES IN ACCORDANCE WITH BS 5266-1:2016 AND BS EN 1838:2013 AND FSD CIRCULAR LETTER 4/2021.
 - 4.2 EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THOSE WAREHOUSES AND ALL EXIT ROUTES LEADING TO EXIT OF BUILDING.
5. EXIT SIGN
 - 5.1 SUFFICIENT SELF-CONTAINED TYPE DIRECTIONAL AND EXIT SIGNS TO ENSURE THAT ALL EXIT ROUTES FROM ANYWHERE WITHIN THOSE WAREHOUSES ARE CLEARLY INDICATED AS REQUIRED BY THE CONFIGURATION OF EXIT ROUTE SERVING THE BUILDING.
 - 5.2 DIRECTIONAL AND EXIT SIGNS SHALL BE INSTALLED IN ACCORDANCE TO BS 5266-1 : 2016 AND FSD CIRCULAR LETTER NO. 5/2008
6. EMERGENCY GENERATOR
 - 6.1 NO EMERGENCY GENERATOR TO BE PROVIDED FOR SERVING THE EMERGENCY POWER. A.C. SUPPLY SOURCE WITH SECONDARY SUPPLY SHALL FEED BEFORE MAIN SWITCH.
 - 6.2 DUPLICATED POWER SUPPLIES FOR ALL FIRE SERVICES INSTALLATIONS COMPRISING A CABLE CONNECTED FROM ELECTRICITY MAINS DIRECTLY BEFORE THE MAIN SWITCH.
7. PORTABLE HAND-OPERATED APPROVED APPLIANCE
 - 7.1 PORTABLE FIRE EXTINGUISHER WITH SPECIFIED TYPE AND CAPACITY TO BE PROVIDED AT LOCATIONS AS INDICATED ON PLANS.
8. STATIC OR DYNAMIC SMOKE EXTRACTION SYSTEM
 - 8.1 SMOKE EXTRACTION SYSTEM SHALL NOT BE PROVIDED AS THE AGGREGATE AREA OF OPENABLE WINDOWS OF THE COMPARTMENT SHALL PROVIDE MORE THAN 6.25% OF THE FLOOR AREA OF THAT COMPARTMENT.
9. VENTILATION/AIR CONDITIONING CONTROL SYSTEM
 - 9.1 WHEN A VENTILATION/ AIR CONDITIONING CONTROL SYSTEM TO A BUILDING IS PROVIDED, IT SHALL STOP MECHANICALLY INDUCED AIR MOVEMENT WITHIN A DESIGNATED FIRE COMPARTMENT.





























LEGEND (FOR LAYOUT PLAN)

- | | |
|---|---|
|  | HOSE REEL W/ LOCKABLE GLASS FRONTED NOZZLE BOX, STRIKER, C/W FIRE ALARM BELL & BREAK GLASS UNIT |
|  | 150mm FIRE ALARM BELL |
|  | BREAK GLASS UNIT |
|  | SPRINKLER HEAD |
|  | FLOW SWITCH |
|  | MONITORED GATE VALVE |
|  | SPRINKLER ZONE SUBSIDIARY CONTROL VALVE ASSEMBLY INCLUDES ZONE SUBSIDIARY CONTROL VALVE, FLOW SWITCH, TEST GATE VALVE AND DRAIN VALVE |
|  | GATE VALVE |
|  | NON RETURN VALVE |
|  | VORTEX INHIBITOR |
|  | BALL FLOAT VALVE |
|  | PRESSURE SWITCH |
|  | SPRINKLER PIPE |
|  | HOSE REEL PIPE |
|  | SPRINKLER CONTROL VALVE SET |
|  | CHECK METER POSITION |
|  | SPRINKLER / F.S. INLET |
|  | 5Kg CO2 TYPE FIRE EXTINGUISHER |
|  | 4Kg DRY POWDER TYPE FIRE EXTINGUISHER |
|  | PUMP |
|  | 150mm WATER ALARM GONG |
|  | EMERGENCY LIGHTING |
|  | EXIT SIGN |
|  | FIRE ALARM PANEL |
|  | PUMP CONTROL PANEL |
|  | SELF-CONTAINED EMERGENCY FLUORESCENT LIGHTING UNIT |
|  | F. S. INSTALLTION |
|  | FLASH LIGHT |

ABBREVIATION

- | | |
|-----------------|----------------------------|
| SPR. | SPRINKLER |
| F.H. | FIRE HYDRANT |
| H.R. | HOSE REEL |
| F.E. | FIRE EXTINGUISHER |
| CO ₂ | CARBON DIOXIDE |
| L.P.C. | LOSS PREVENTION COUNCIL |
| F.S.I. | FIRE SERVICES INSTALLATION |
| H/L | HIGH LEVEL |
| M/L | MID LEVEL |
| L/L | LOW LEVEL |
| F/A | FROM ABOVE |
| F/B | FROM BELOW |
| T/A | TO ABOVE |
| T/B | TO BELOW |
| U/G | UNDERGROUND |
| F.S. | FIRE SERVICES |

LEGEND (FOR SCHEMATIC DIAGRAM)

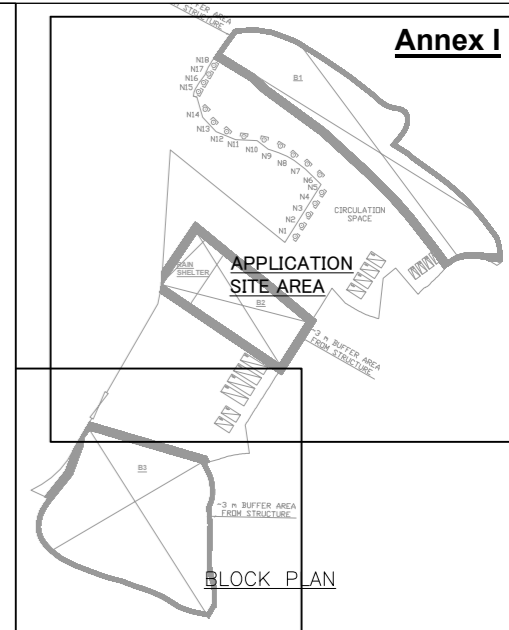
- | | |
|---|---|
|  | HOSE REEL W/ LOCKABLE GLASS FRONTED NOZZLE BOX, STRIKER, C/W FIRE ALARM BELL & BREAK GLASS UNIT |
|  | 150mm FIRE ALARM BELL |
|  | BREAK GLASS UNIT |
|  | FAST RESPONSE TYPE SPRINKLER HEAD |
|  | FLOW SWITCH |
|  | MONITORED GATE VALVE |
|  | SPRINKLER ZONE SUBSIDIARY CONTROL VALVE ASSEMBLY INCLUDES ZONE SUBSIDIARY CONTROL VALVE, FLOW SWITCH, TEST GATE VALVE AND DRAIN VALVE |
|  | GATE VALVE |
|  | NON RETURN VALVE |
|  | VORTEX INHIBITOR |
|  | BALL FLOAT VALVE |
|  | PRESSURE SWITCH |
|  | PRESSURE GAUGE WITH COCK |
|  | AUTOMATIC AIR VENT WITH COCK |
|  | SPRINKLER / HOSE REEL PIPE |
|  | SPRINKLER CONTROL VALVE SET |
|  | CHECK METER POSITION |
|  | SPRINKLER / F.S. INLET |
|  | 5Kg CO2 TYPE FIRE EXTINGUISHER |
|  | 4Kg DRY POWDER TYPE FIRE EXTINGUISHER |
|  | PUMP |
|  | 150mm WATER ALARM GONG |
|  | EMERGENCY LIGHTING |
|  | EXIT SIGN |
|  | FIRE ALARM PANEL |
|  | PUMP CONTROL PANEL |
|  | SELF-CONTAINED EMERGENCY FLUORESCENT LIGHTING UNIT |
|  | F. S. INSTALLTION |

DRAWING LIST

DRAWING NO	DESCRIPTION
YL-KTB1024-FS01	FS NOTES, LEGEND, ABBREVIATIONS AND DRAWING LIST
YL-KTB1024-FS02	FIRE SERVICES INSTALLATION LAYOUT PLAN G/F LAYOUT PLAN (PART 1)
YL-KTB1024-FS03	FIRE SERVICES INSTALLATION LAYOUT PLAN G/F LAYOUT PLAN (PART 2)
YL-KTB1024-FS04	SCHEMATIC DIAGRAM FOR SPRINKLER SYSTEM
YL-KTB1024-FS05	SCHEMATIC DIAGRAM FOR HOSE REEL SYSTEM

COLOUR CODE

PIPE SIZES	COLOUR
Ø25mm	LIGHT GREEN
Ø32mm	RED
Ø40mm	PURPLE
Ø50mm	YELLOW
Ø65mm	BLUE
Ø80mm	GREEN
Ø100mm	LIGHT BROWN
Ø150mm	DEEP BROWN



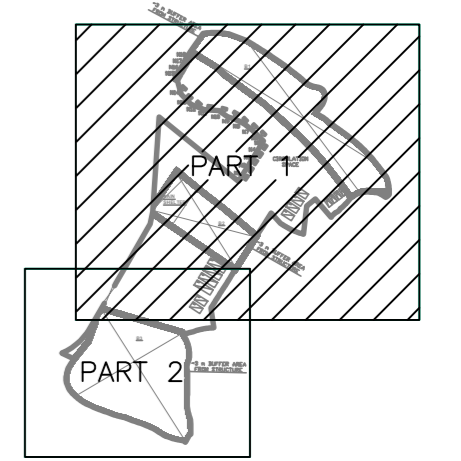
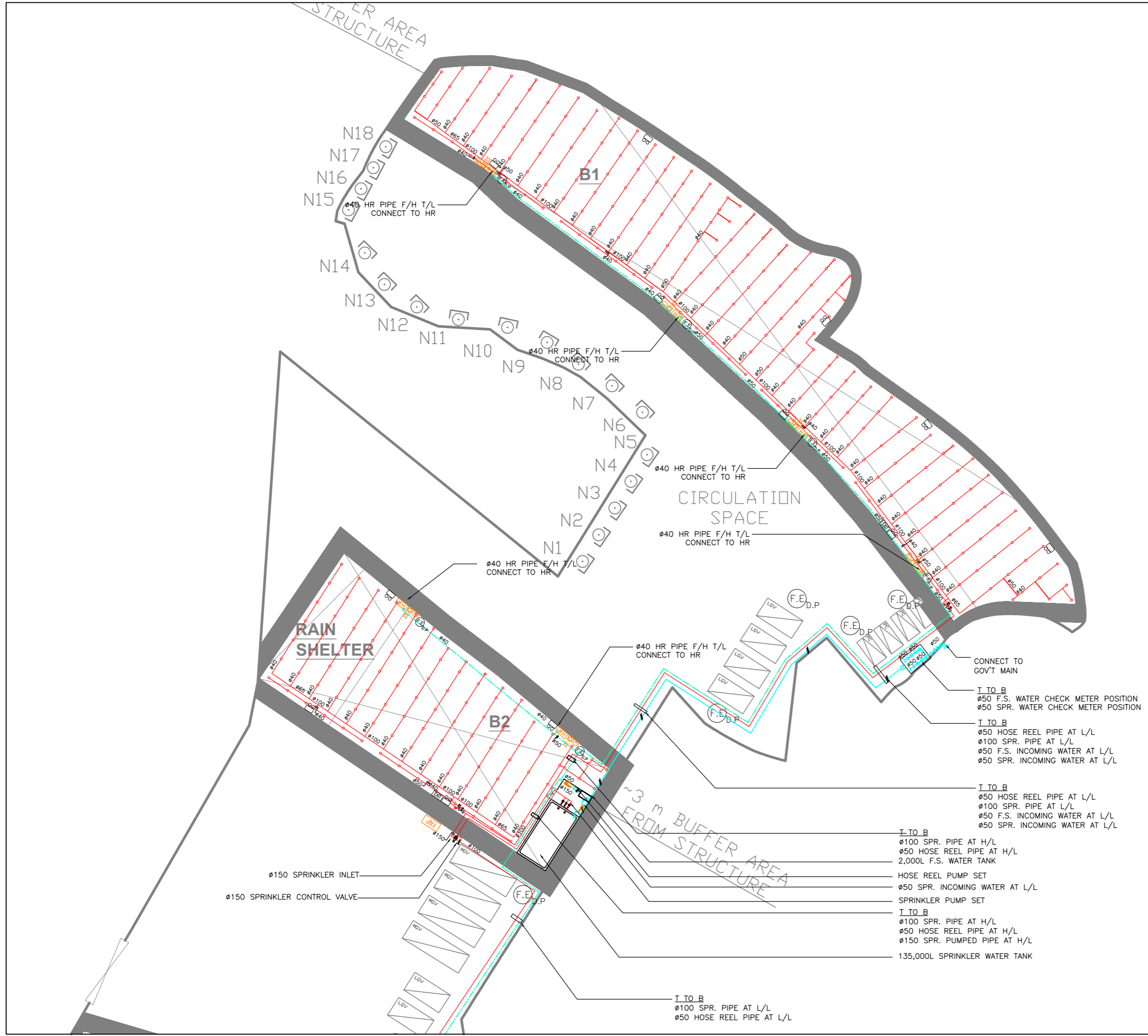
REV	DESCRIPTION	DATE	BY
0	TPB SUBMISSION	05-08-2024	LH

FSI CONTRACTOR
East Power Engineering Limited
Flat A, 7/F., Hop Shing Commercial Building
41 Chi Kiang Street, Tokwawan, Kowloon
Fax : 2394-3772 Tel. : 2397-3238

PROJECT
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
FS NOTES, LEGEND, ABBREVIATIONS AND DRAWING LIST

	INITIAL	DESIGNATION	DATE
DRAWN BY	HY	Eng.T	05-08-2024
DESIGNED BY	HY	Eng.T	05-08-2024
CHECKED BY	CM	PM	05-08-2024
APPROVED BY	-	-	-
PROJECT NO.	A_YL-KTN_1024		
PAPER SIZE	A3	PLOT SCALE	1 : 1
DRAWING NO. YL-KTN1024-FS01			
SCALE	N. T. S.	REVISION	0



KEY PLAN

0	TPB SUBMISSION	05-08-2024	LH
REV	DESCRIPTION	DATE	BY

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building
 41 Chi Kiang Street, Tseungwan, Kowloon
 Fax : 2394-3772 Tel : 2397-3238

PROJECT
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
 FIRE SERVICES INSTALLATION LAYOUT PLAN-G/F LAYOUT PLAN (PART 1)

	INITIAL	DESIGNATION	DATE
DRAWN BY	HY	Eng.T	05-08-2024
DESIGNED BY	HY	Eng.T	05-08-2024
CHECKED BY	CM	PM	05-08-2024
APPROVED BY	-	-	-

PROJECT NO. A_YL-KTN_1024
 PAPER SIZE A3 PLOT SCALE 1 : 1

DRAWING NO.
 YL-KTN1024-FS02

SCALE	1 : 600	REVISION	0
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- T TO B
 ø100 SPR. PIPE AT H/L
 ø50 HOSE REEL PIPE AT H/L
 2,000L F.S. WATER TANK
- HOSE REEL PUMP SET
 ø50 SPR. INCOMING WATER AT L/L
 SPRINKLER PUMP SET
- T TO B
 ø100 SPR. PIPE AT H/L
 ø50 HOSE REEL PIPE AT H/L
 ø150 SPR. PUMPED PIPE AT H/L
 135,000L SPRINKLER WATER TANK

- CONNECT TO GOVT MAIN
- T TO B
 ø50 F.S. WATER CHECK METER POSITION
 ø50 SPR. WATER CHECK METER POSITION
- T TO B
 ø50 HOSE REEL PIPE AT L/L
 ø100 SPR. PIPE AT L/L
 ø50 F.S. INCOMING WATER AT L/L
 ø50 SPR. INCOMING WATER AT L/L

CIRCULATION SPACE
 ø40 HR PIPE F/H T/L CONNECT TO HR

ø40 HR PIPE F/H T/L CONNECT TO HR

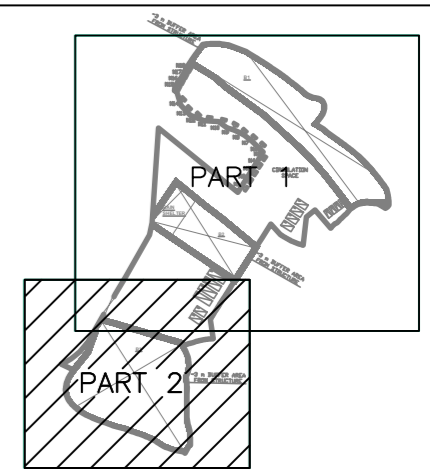
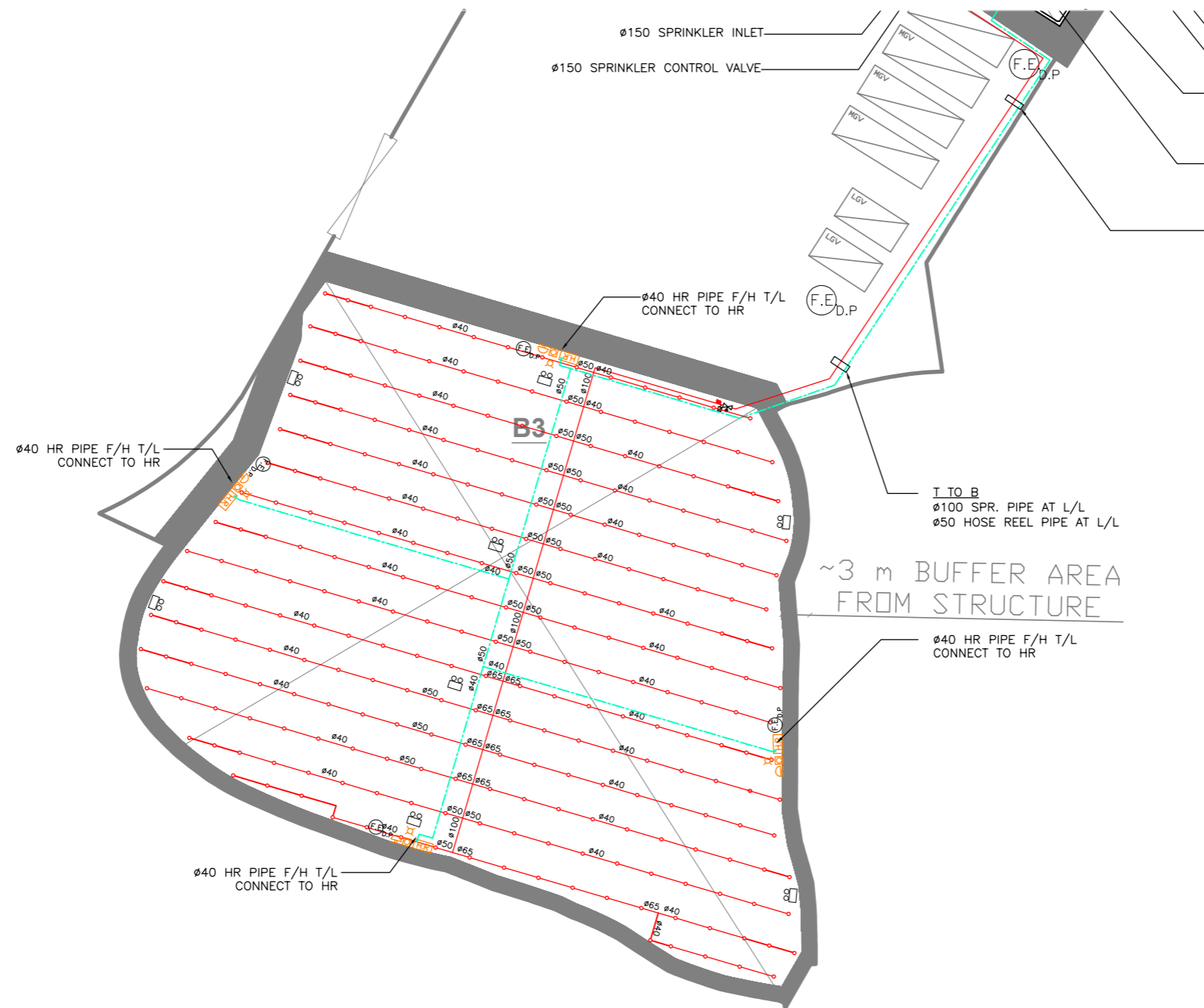
ø40 HR PIPE F/H T/L CONNECT TO HR

ø40 HR PIPE F/H T/L CONNECT TO HR

ø150 SPRINKLER INLET
 ø150 SPRINKLER CONTROL VALVE

T TO B
 ø100 SPR. PIPE AT L/L
 ø50 HOSE REEL PIPE AT L/L

~3 m BUFFER AREA FROM STRUCTURE



KEY PLAN

0	TPB SUBMISSION	05-08-2024	LH
REV	DESCRIPTION	DATE	BY

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building
 41 Chi Kiang Street, Tse Kwan, Kowloon
 Fax : 2394-3772 Tel. : 2397-3238

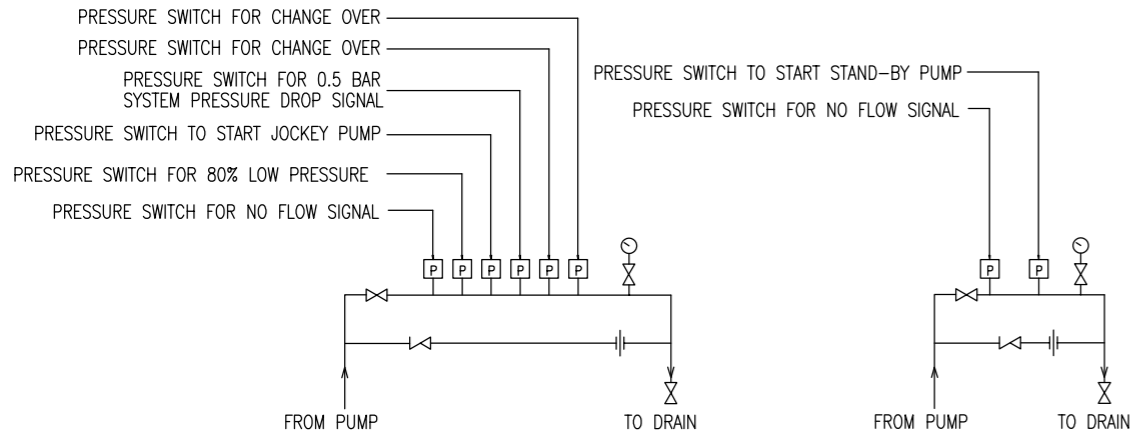
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 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
 FIRE SERVICES INSTALLATION LAYOUT PLAN-G/F LAYOUT PLAN (PART 2)

	INITIAL	DESIGNATION	DATE
DRAWN BY	HY	Eng.T	05-08-2024
DESIGNED BY	HY	Eng.T	05-08-2024
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PROJECT NO.	A_YL-KTN_1024		
PAPER SIZE	A3	PLOT SCALE	1 : 1
DRAWING NO.	YL-KTN1024-FS03		
SCALE	1 : 600	REVISION	0

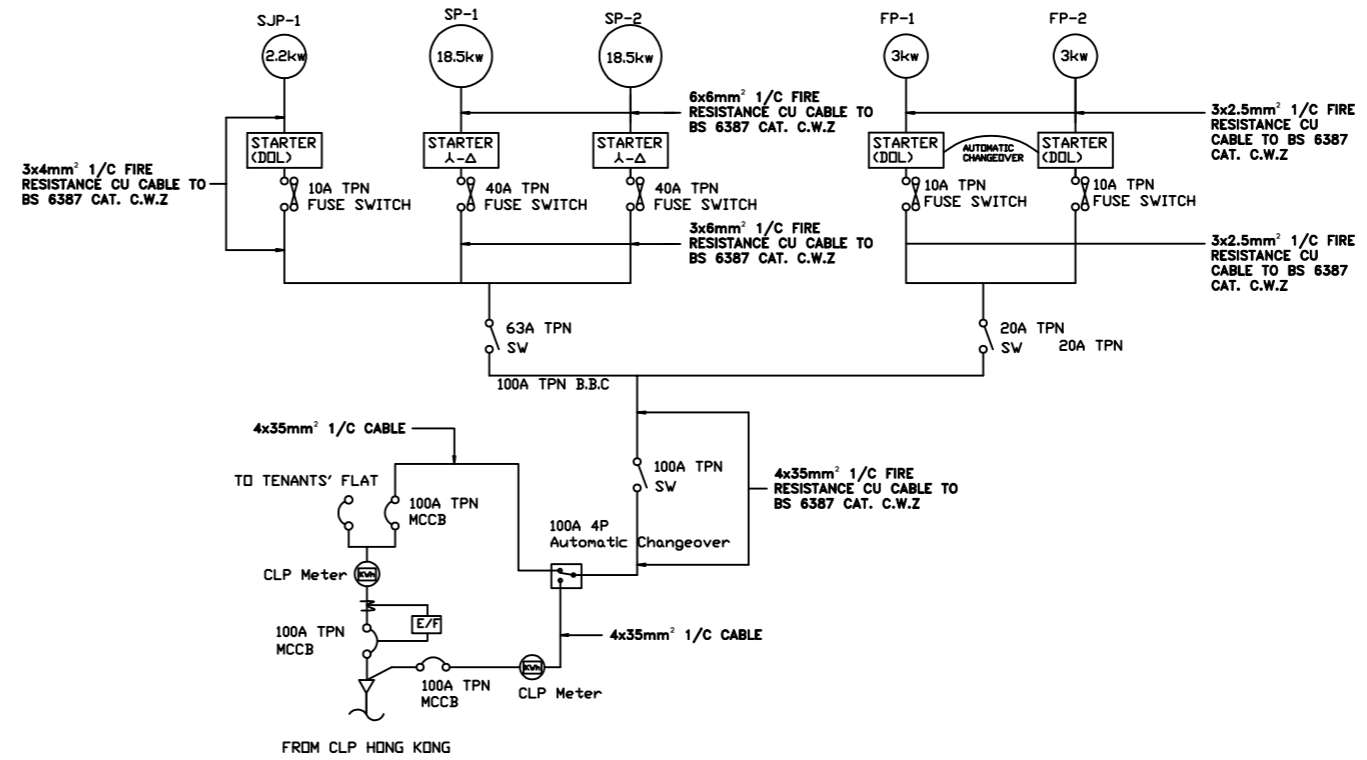
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DESCRIPTION	PRESSURE (BAR)	FLOW (L/MIN.)	PUMP SPEED (RPM)	PUMP RATING (KW)	POWER SUPPLY (volts/phases/Hz)
SPRINKLER JOCKEY PUMP (SJP-1)	5	60	2900 MAXIMUM	2.2 KW	380/3/50
TWO SPRINKLER PUMPS (SP-1 AS DUTY & SP-2 AS STAND-BY PUMP)	1.4 / 2.9 / 3.2	2250 / 1350 / 1100	2900 MAXIMUM	18.5 KW	380/3/50

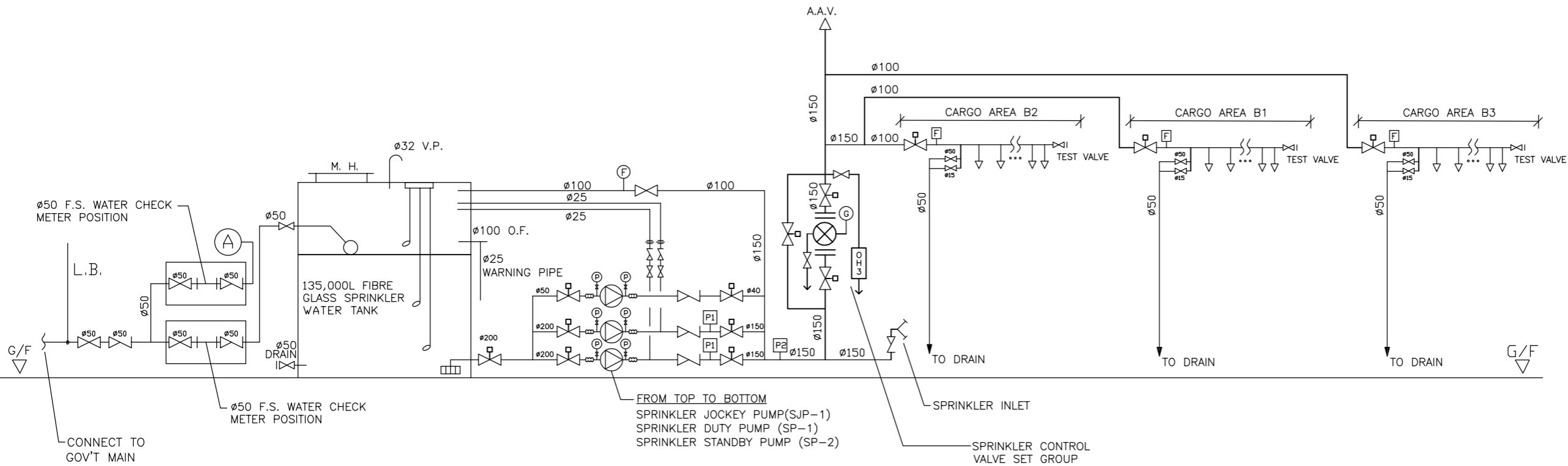


DETAIL ARRANGEMENT FOR 'P2'

DETAIL ARRANGEMENT FOR 'P1'



POWER DISTRIBUTION DIAGRAM FOR SPRINKLER AND FIRE SERVICE PUMPS



SCHEMATIC DIAGRAM FOR SPRINKLER SYSTEM

REV	DESCRIPTION	DATE	BY
0	TPB SUBMISSION	05-08-2024	LH

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building
 41 Chi Kiang Street, Tokwawan, Kowloon
 Fax. : 2394-3772 Tel. : 2397-3238

PROJECT
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
 SCHEMATIC DIAGRAM FOR SPRINKLER SYSTEM

	INITIAL	DESIGNATION	DATE
DRAWN BY	HY	Eng.T	05-08-2024
DESIGNED BY	HY	Eng.T	05-08-2024
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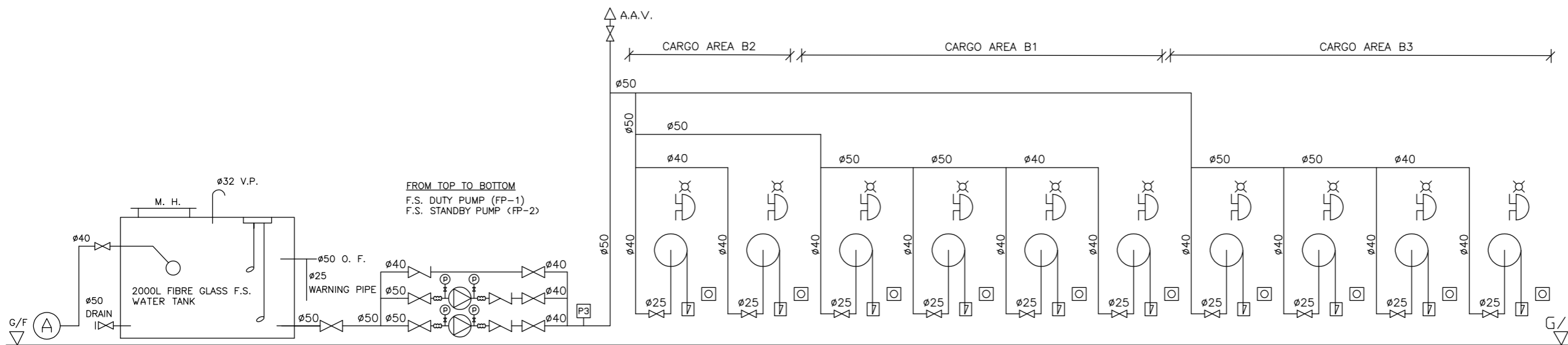
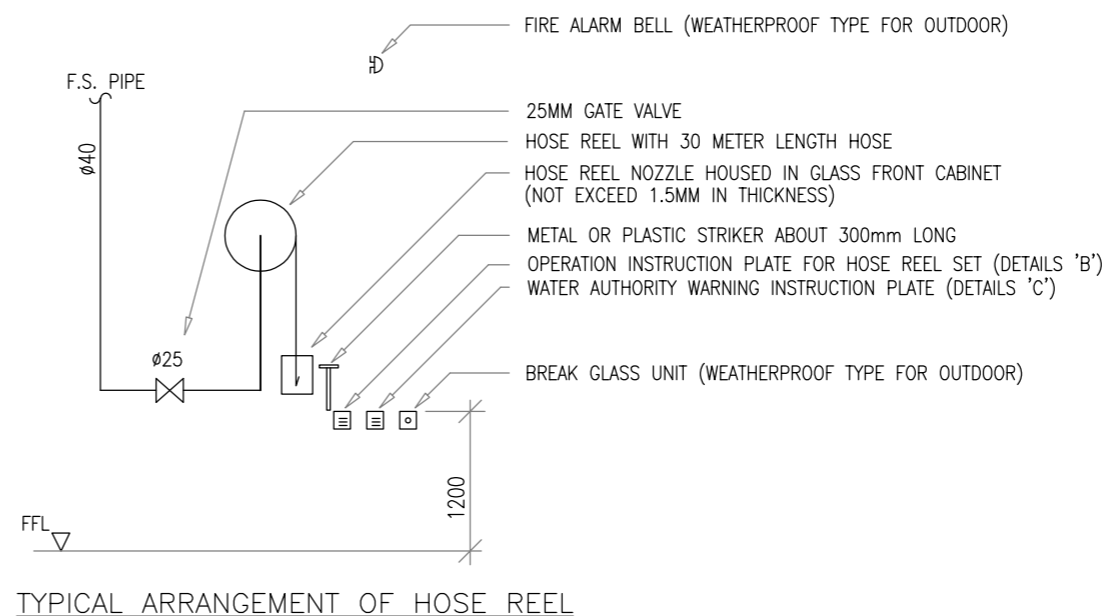
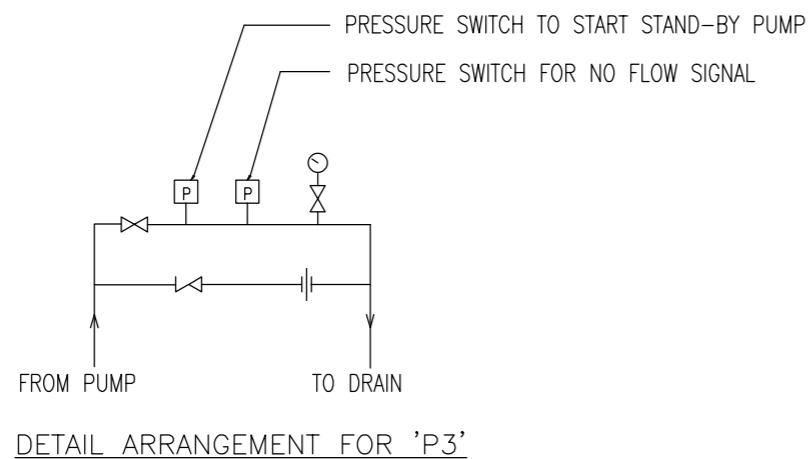
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PLOT SCALE	1 : 1

DRAWING NO.
 YL-KTN1024-FS04

SCALE	N. T. S.	REVISION	0
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PUMP SCHEDULE

DESCRIPTION	PRESSURE (BAR)	FLOW (L/MIN.)	PUMP SPEED (RPM)	PUMP RATING (KW)	POWER SUPPLY (volts/phases/Hz)
TWO FIRE SERVICES PUMPS (FP-1 AS DUTY & FP-2 AS STANDBY PUMP)	5	60	2900 MAXIMUM	2.2KW	380/3/50



REV	DESCRIPTION	DATE	BY
0	TPB SUBMISSION	05-08-2024	LH

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building
 41 Chi Kiang Street, Tokwawan, Kowloon
 Fax. : 2394-3772 Tel. : 2397-3238

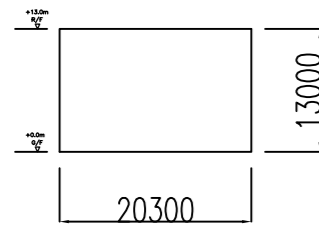
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 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
 SCHEMATIC DIAGRAM FOR HOSE REEL SYSTEM

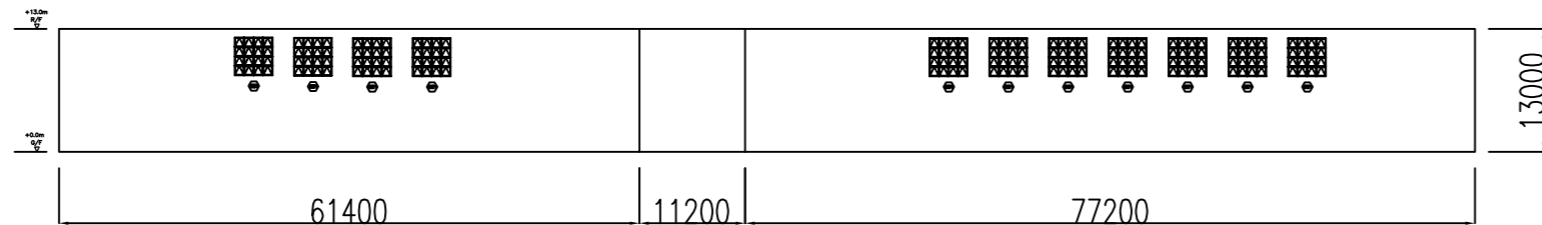
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DRAWN BY	HY	Eng.T	05-08-2024
DESIGNED BY	HY	Eng.T	05-08-2024
CHECKED BY	CM	PM	05-08-2024
APPROVED BY	-	-	-

PROJECT NO. A_YL-KTN_1024
 PAPER SIZE A3 PLOT SCALE 1 : 1

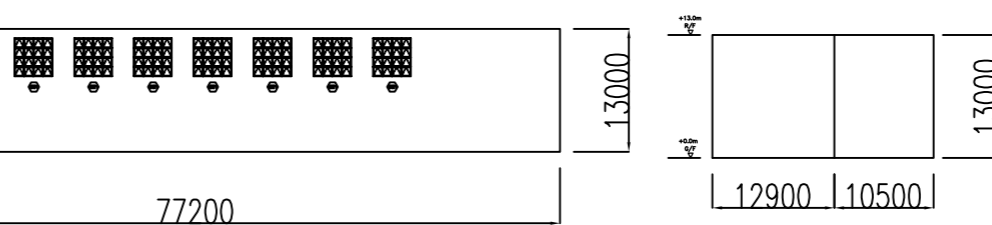
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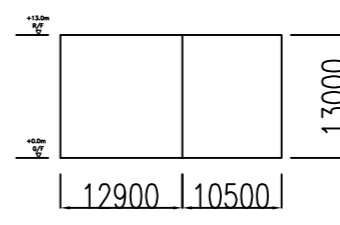
ELEVATION PLAN (ELV 1)



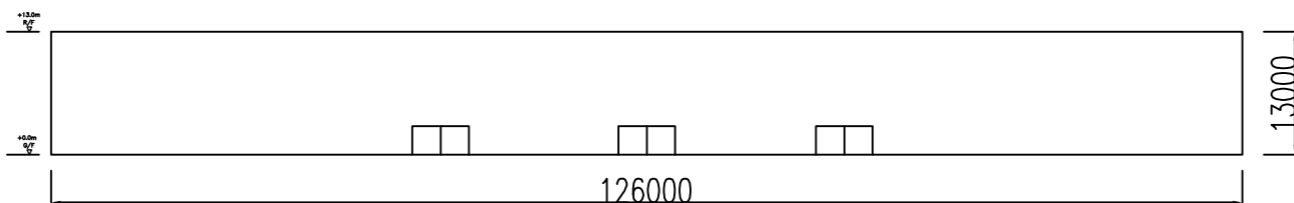
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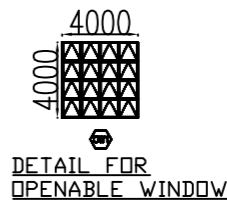
ELEVATION PLAN (ELV 3)



ELEVATION PLAN (ELV 4)

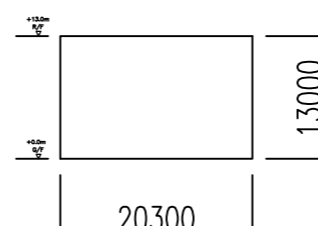
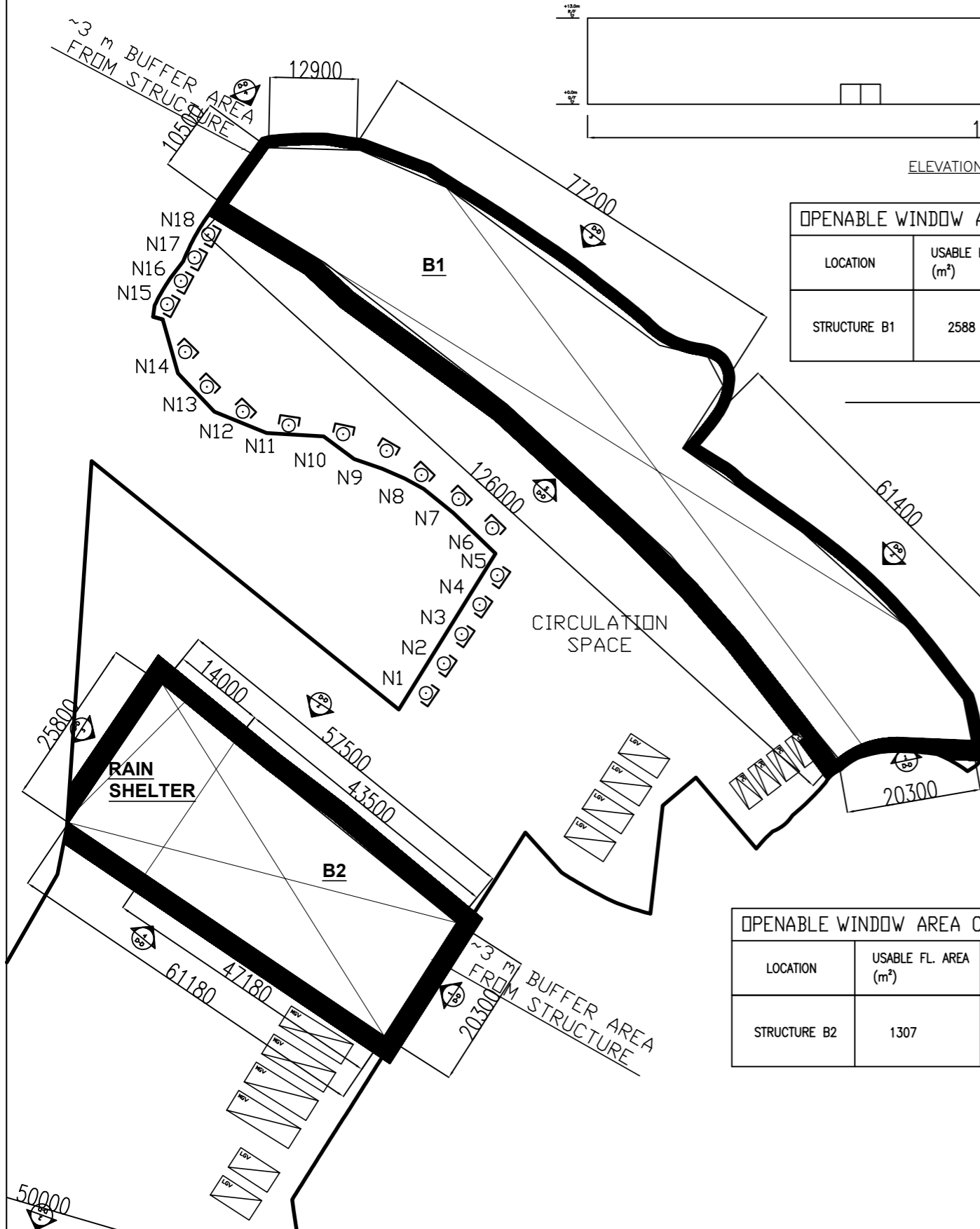


ELEVATION PLAN (ELV 5)

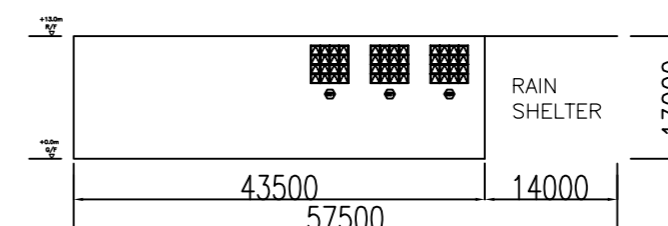


OPENABLE WINDOW AREA CALCULATION UNDER F.S.D. REQUIREMENT FOR COMPARTMENT EXCEEDING 7000m²

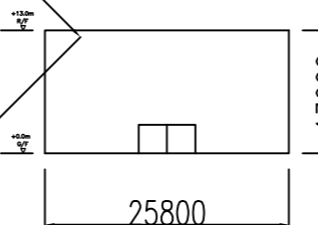
LOCATION	USABLE FL. AREA (m ²)	OPENABLE WINDOW AREA REQUIRED (m ²)	OPENABLE WINDOW AREA PROVIDED (m ²)
STRUCTURE B1	2588	2588 X 6.25% = 161.8	REFER TO ELEVATION 2 = 64 REFER TO ELEVATION 3 = 112 TOTAL = 176 > 161.8



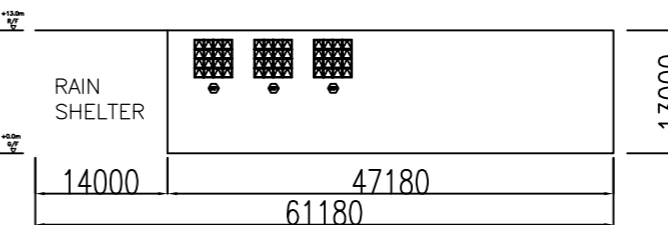
ELEVATION PLAN (ELV 1)



ELEVATION PLAN (ELV 2)



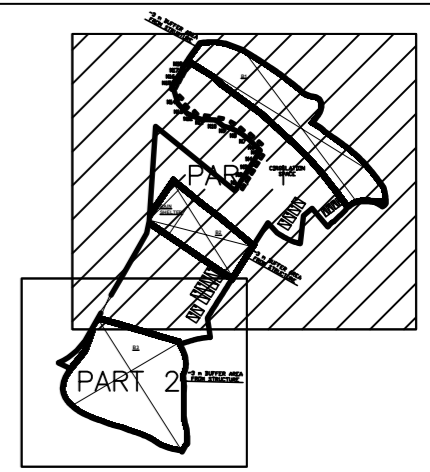
ELEVATION PLAN (ELV 3)



ELEVATION PLAN (ELV 4)

OPENABLE WINDOW AREA CALCULATION UNDER F.S.D. REQUIREMENT FOR COMPARTMENT EXCEEDING 7000m²

LOCATION	USABLE FL. AREA (m ²)	OPENABLE WINDOW AREA REQUIRED (m ²)	OPENABLE WINDOW AREA PROVIDED (m ²)
STRUCTURE B2	1307	2588 X 6.25% = 81.7	REFER TO ELEVATION 2 = 48 REFER TO ELEVATION 4 = 48 TOTAL = 96 > 81.7



KEY PLAN

REV	DESCRIPTION	DATE	BY
0	TPB SUBMISSION	05-08-2024	LH

REV	DESCRIPTION	DATE	BY
0	TPB SUBMISSION	05-08-2024	LH

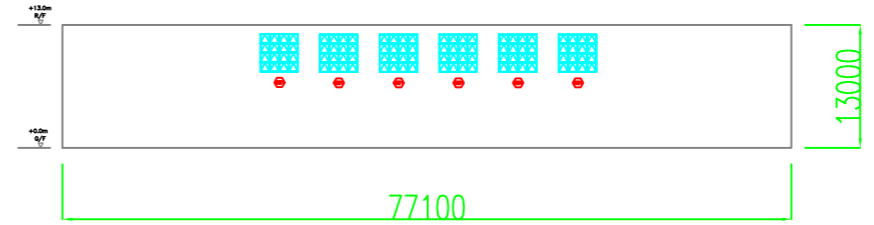
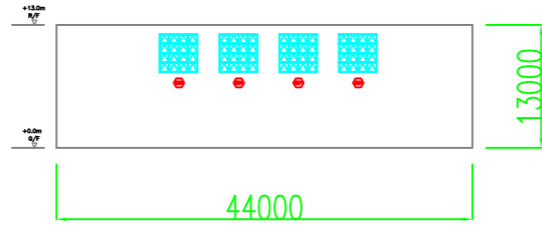
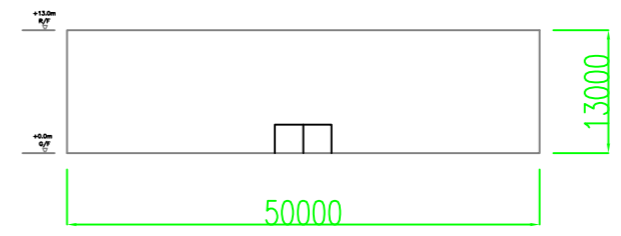
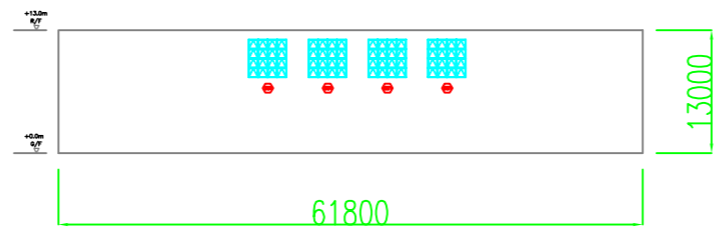
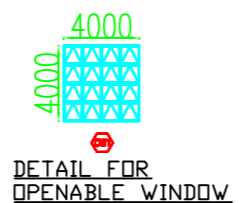
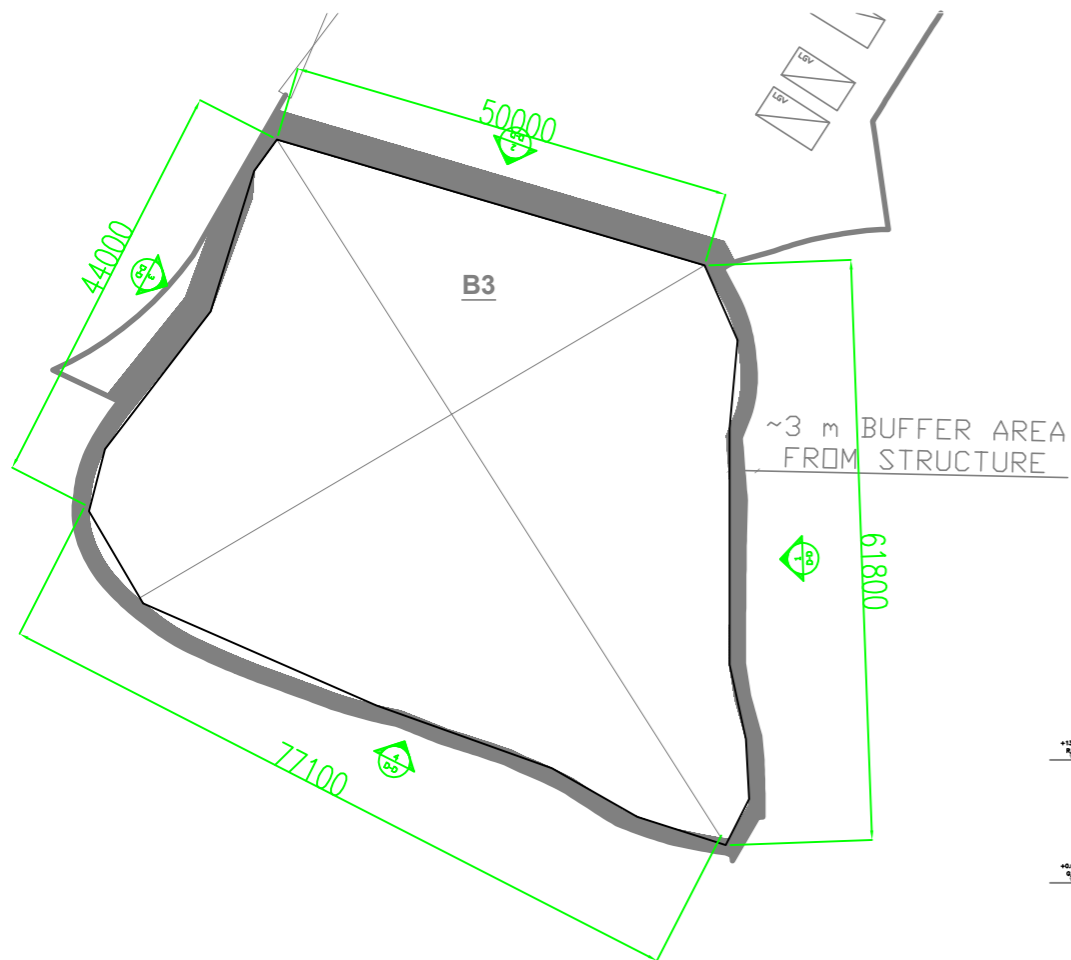
FSI CONTRACTOR
East Power Engineering Limited

Flat A, 7/F., Hop Shing Commercial Building
41 Chi Kiang Street, Tokwawan, Kowloon
Fax : 2394-3772 Tel. : 2397-3238

PROJECT
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

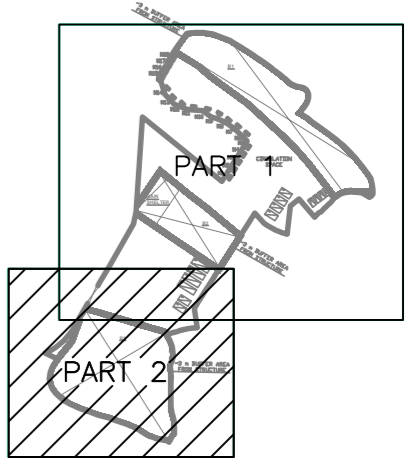
DRAWING TITLE
OPENABLE WINDOW AREA CALCULATION FOR STRUCTURE (PART 1)

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HY	HY	Eng.T	05-08-2024
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DRAWING NO.	YL-KTN1024-FS06		
SCALE	1 : 800	REVISION	0



OPENABLE WINDOW AREA CALCULATION UNDER F.S.D. REQUIREMENT FOR COMPARTMENT EXCEEDING 7000m²

LOCATION	USABLE FL. AREA (m ²)	OPENABLE WINDOW AREA REQUIRED (m ²)	OPENABLE WINDOW AREA PROVIDED (m ²)
STRUCTURE B3	3426	3426 X 6.25% = 214.25	REFER TO ELEVATION 1 = 64 REFER TO ELEVATION 3 = 64 REFER TO ELEVATION 4 = 96 TOTAL = 224 > 214.25



KEY PLAN

0	TPB SUBMISSION	05-08-2024	LH
REV	DESCRIPTION	DATE	BY

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building
 41 Chi Kiang Street, Tseungwan, Kowloon
 Fax : 2394-3772 Tel. : 2397-3238

PROJECT
 PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND AT VARIOUS LOTS IN D.D.107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES.

DRAWING TITLE
 OPENABLE WINDOW AREA CALCULATION FOR STRUCTURE (PART 2)

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PROJECT NO.	A_YL-KTN_1024		
PAPER SIZE	A3	PLOT SCALE	1 : 1
DRAWING NO.	YL-KTN1024-FS07		
SCALE	1 : 800	REVISION	0

Excel Link Development Limited

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in “Agriculture” Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories

**Drainage Impact Assessment
(Section 16 Planning Application No. A/YL-KTN/1024)**



Document No. V1094/02
Issue 2

December 2024

V1094/02
Issue 2
December 2024

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in “Agriculture” Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories

**Drainage Impact Assessment
(Section 16 Planning Application No. A/YL-KTN/1024)**

Approved for Issue by:	
	

Kenny W K Lam RPE (Civil) FW0275905	
Position:	Deputy Managing Director
Date:	17 December 2024

Excel Link Development Ltd
205A Sik Kong Tsuen
Ha Tsuen, Yuen Long
New Territories

Mannings (Asia) Consultants Ltd
5/F, Winning Commercial Building
46-48 Hillwood Road
Tsim Sha Tsui
Kowloon

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in “Agriculture” Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories

**Drainage Impact Assessment
(Section 16 Planning Application No. A/YL-KTN/1024)**

Issue	Prepared by	Reviewed by	Date
1	EM	BLE	25 Sep 2024
2	EM	BLE	17 Dec 2024

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Content

1.0 Introduction1

2.0 Design Methodology and Assumptions.....2

3.0 Current Flooding Susceptibility and Proposed Drainage.....5

4.0 Changes to the Drainage Characteristics and Potential Drainage Impact7

5.0 Drainage Impact Mitigation Measures.....10

6.0 Monitoring Requirements..... 11

7.0 Conclusion12

List of Appendix

- Appendix A: Drawing
- Appendix B: Design Calculation
- Appendix C: Site Photos
- Appendix D: Layout Plans of Future Development for Adjacent Area

List of Tables

- Table 2-1: Runoff Coefficient
- Table 2-2: Minimum Pipeline Cover and Manhole Spacing Requirements
- Table 2-3: Storm Constant for SDM
- Table 4-1: Estimated Runoff and Capacities of Existing Drainage
- Table 6.1 : Detailed Requirements for Drainage Monitoring

Abbreviations

- D.D. Demarcation District
- DSD Drainage Services Department
- SDM Stormwater Drainage Manual



1.0 Introduction

- 1.1 This submission presents the drainage impact assessment of the proposed temporary warehouse (excluding dangerous goods godown) with ancillary facilities for a period of 3 years, the associated filling of land and pond at various lots in D.D. 107 and the adjoining government land at Fung Kat Heung, Kam Tin, Yuen Long, New Territories (“Site”).
- 1.2 The Site has an area of about 16,657m² and it is currently occupied by the open space uses. 3 nos. of a 1- storey structure is proposed at the Site for temporary warehouse (excluding dangerous goods godown) with total GFA of about 7,321 m². The general layout plan and cross sections of the Site are shown on the **Drawing Nos. V1094/101 &102** enclosed in **Appendix A**.
- 1.3 Due to the concerns of possible drainage impact arising from the change of uses, Mannings (Asia) Consultants Limited (MACL) was appointed by the Excel Link Development Limited to undertake a Drainage Impact Assessment (DIA) to demonstrate the acceptability of drainage impact upon the surrounding environment.



2.0 Design Methodology and Assumptions

Design Code

2.1 The below design codes are to be followed for this design assessment:

- Stormwater Drainage Manual (DSD) - Fifth Edition, January 2018;
- Stormwater Drainage Manual (DSD) - Corrigendum No. 1/2022;
- Stormwater Drainage Manual (DSD) - Corrigendum No. 1/2024;
- Stormwater Drainage Manual (DSD) - Corrigendum No. 2/2024;
- BS 5911 Code of Practice for Precast Concrete Pipe Design
- DSD Standard Drawings

Design Parameters

2.2 Design Parameters

a) Runoff Coefficient

Table 2-1 Runoff Coefficients

Surface Characteristic	Runoff Coefficient, C
Roof of Structure	1.00
Grassland (heavy soil**) Flat	0.25

Roughness Coefficient for pipe flow $k_s = 3$

b) Minimum Pipeline Cover and Manhole Spacing Requirements

Table 2-2 Minimum Pipeline Cover and Manhole Spacing Requirements

Minimum pipeline cover	
In Roads	0.9 m
In footways and verges	0.45 m
Manhole spacing requirements	
D < 675 mm	80 m
675 < D < 1050	100 m
D > 1050	120 m

c) Bedding factors

- Granular bedding : 1.9
- Plain concrete bedding : 2.6
- Reinforced concrete bedding with allowance for minimum steel area : 3.4
- Concrete Surround : 4.5



d) Design Flow Velocity

- Minimum : 1 m/s
- Maximum : 3 m/s (desirable)
- : 6 m/s (absolute)

3.3 The return period of 1 in 50 years is to be adopted for the drainage impact assessment.

3.4 Description of Analysis Method

- a) Rational method is to be adopted for calculation of the peak runoff. The formula is extracted from Section 7.5.2(a) of Stormwater Drainage Manual (SDM) which is to estimate the stormwater runoff as shown below:

$$Q_p = 0.278 CiA$$

Where

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

- b) 10% reduction of the flow area is allowed taken into account of the decomposition of siltation as per DSD's SDM 2018.
- c) The time of concentration used for determining the duration of the design storm is considered by the time of entry and the time of flow,

$$t_c = t_e + t_f \quad t_f = L/V$$

- d) where t_o = inlet time (time taken for flow from the remotest point to reach the most upstream point of the urban drainage system)

Where

t_f	=	flow time
L	=	Length of drain
V	=	flow velocity

- e) The time of entry or time of flow in the hinterland is calculated using the Bransby William's Equation.

$$t_e = \frac{0.14465 L}{A^{0.1} H^{0.2}}$$

Where

t_e	=	time of concentration (min)
L	=	catchment length (m)
A	=	catchment area (m^2)
H	=	average catchment slope (m/100m)



- f) The rainfall intensity is extracted from the Section 4.3.2 of SDM which is to estimate the Intensity-Duration –Frequency (IDF) Relationship.

$$i = a / (t_d + b)^c$$

Where I = extreme mean intensity in mm/hr
 t_d = duration in minutes (t_d < 240), and
 a, b, c = storm constants given in table 3 of SDM as below

Table 2-3 Storm Constant of SDM

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

- g) Colebrook-White Equation is used in hydraulic design for pipe flow.

$$V = -\sqrt{(32gRs)} \log \left(\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{(32gRs)}} \right)$$

Where:

V = mean velocity (m/s)
 g = gravitational acceleration (m/s²)
 R = hydraulic radius (m)
 D = pipe diameter (m)
 k_s = equivalent sand roughness (m)
 v = kinematic viscosity of fluid (m²/s)
 s = frictional slope (energy gradient due to frictional loss)



3.0 Current Flooding Susceptibility and Proposed Drainage

Current Site Condition and Flooding Susceptibility

- 3.1 The topography of the Site is generally flat and currently situated with levels ranging from +4.60 mPD to +6.40 mPD. In general, the direction of existing surface runoff flows from east to southern west. Since the ground levels of the Site are generally higher than the existing surrounding area, flooding susceptibility of the Site is considered as low.
- 3.2 Catchment plan before development are shown in **Drawing No. V1094/106** in **Appendix A**.

Proposed Development

- 3.3 3 nos. of a 1-storey structure is proposed at the Site for temporary warehouse as stated in Para. 1.2. After completion of the project, the finished ground level of the Site will be raised to approximately +5.20 mPD to +7.10 mPD. Part of the unpaved areas is proposed to be occupied by 3 new covered structures whilst the remaining unpaved area would be unchanged in regards of the finished surface and continued to be an opened space area. In addition, some of these unpaved opened areas are proposed to be served as access road and parking spaces. A layout plan of the proposed development with **Drawing No. V1094/101** is enclosed in **Appendix A**.

Proposed Drainage

- 3.3 According to the site survey and observation, there is a 7.5m wide open channel located at the south of the Site flowing from east to west and connecting to the Kam Tin River. Based on site survey, the existing 750mm wide U-channel is located at the south of the site, connecting to the existing 750mm dia, outfall pipe at the south of the site, and finally flows into the 7.5m wide open channel. All surface runoff from the site will be discharged to the existing 750mm wide U-channel. The photo records of the existing drainage are presented in Appendix C.
- 3.4 The catchment plan after upon completion of the proposed development is demonstrated on the **Drawing No. V1094/107** enclosed in **Appendix A**. Then the surface runoff within the Site's area will be collected by the proposed drainage systems and to be discharged into the existing drains. The proposed drainage system consists U-channels and underground pipes. Drainage layout plan and details of drainage are shown in **Drawing Nos. V1094/103 - 104** in **Appendix A**.
- 3.5 The runoff from the roof portion of the Site and the open areas will be collected by the proposed 450mm wide U-channels on the eastern, southern and northern side of the Site. The final discharge is via proposed 675mm dia. drainage pipe to existing 750mm wide U-channel and finally discharge runoff through the existing 750mm dia. outfall pipe into the existing 7.5m wide open channel.
- 3.6 Calculation of the proposed drainage are presented in Section 2 and enclosed in **Appendix B**.



- 3.7 The proposed U-channels and drainage pipes are designed to have sufficient capacities for the estimated runoff from the unpaved area and structure roofing in the Site. Details of the calculation are enclosed in **Appendix B**.

Changes in Land Use and Planned Drainage Works in Adjacent Area

- 3.8 It is noted that changes of land use might happen at the adjacent area of west of the Site. The layout plans of the proposed works and the proposed drainage works for the adjacent area are attached in **Appendix D** for information.
- 3.9 Since the surface runoff of the adjacent area will be collected and discharged to an existing drainage system near Shui Mei Road as shown in **Drawing No. V1094/001, 003 and 004** in **Appendix D**, no drainage impact to the Site in this report is anticipated.



4.0 Changes to the Drainage Characteristics and Potential Drainage Impact

Changes of Land Use and Surface Runoff Characteristics

- 4.1 The Site is currently covered in grassland with few temporary structures. After completion of the project, the Site will remain as an unpaved area except the proposed structure. Runoff coefficient are shown in Table 2-1 under Para. 2.2.

Changes to Surface Runoff Hydrographs

- 4.2 Changes in land use from unpaved area to paved area would lead to higher and faster surface runoff. However, with considering the scale of the proposed development is relatively small, the changes to surface runoff hydrographs is considered as negligible.

Changes in Flood Storage

- 4.3 According to the site survey and observation, there is no flood storage was found near the Site.

Changes in Timing of Peak runoff

- 4.4 Changes of time of concentration of existing 750mm wide U-channel and 750mm dia. outfall pipe before and after development are summarized in below table. The calculation is attached in **Appendix B**.

	Time of concentration (min)	
	Before Development	After Development
Existing 750mm wide U-channel	26.76	28.70
750mm dia. Outfall Pipe	26.85	28.78

Hydraulic Bankfull Capacity of the Proposed Drainage System

- 4.5 The proposed drainage system mentioned in Para. 3.3 to Para 3.5 are designed to have sufficient capacity to cater the flow from the Site. Detailed calculation is attached in **Appendix B**.
- 4.6 The design runoff, capacity and utilization of the U-channels are summarized in below table.

Proposed U-Channel	Design Runoff (m ³ /s)	Capacity (m ³ /s)	Utilization
U1	0.10	0.18	0.56
U2	0.14	0.24	0.58
U3 and U4	0.16	0.39	0.41
U5 and U6	0.17	0.38	0.45
U7	0.18	0.43	0.42
U8	0.04	0.24	0.17
U9	0.21	0.49	0.43
U10	0.04	0.24	0.17



U11	0.26	0.58	0.45
U12 and U13	0.26	0.80	0.33
U14	0.33	0.44	0.75
U15 and U16	0.09	0.78	0.12

4.7 The design runoff, capacity and utilization of the proposed pipes are summarized in below table.

Proposed Pipe	Design Runoff (m ³ /s)	Capacity (m ³ /s)	Utilization
To Existing 750mm wide U-Channel			
CP13 to MH1	0.403	0.531	0.76
MH1 to MH2	0.401	0.506	0.79
MH2 to Outlet	0.399	0.479	0.83

Changes in Peak Runoff and Peak Velocity at Critical Locations (Outfalls)

4.8 Below table shows the comparison of the peak runoff and peak velocity of the existing 750mm wide U-channel and 750mm dia. outfall pipe before and after the development. Detailed calculation is attached in **Appendix B**.

	Existing 750mm wide U-Channel		750mm dia. Outfall Pipe	
	Peak Runoff (m ³ /s)	Peak Velocity (m/s)	Peak Runoff (m ³ /s)	Peak Velocity (m/s)
Before Development	0.170	1.840	0.170	2.051
After Development	0.510	1.840	0.514	2.051

Potential Drainage Impact to Existing Drainage System

4.9 The proposed drainage systems are proposed to discharge to existing 750mm wide U-channel and 750mm dia, outfall pipe as mentioned in Para. 3.3. Flows to will be increased.

4.10 For the existing drainage system, the existing 750mm wide U-channel and 750mm dia. outfall pipe located at the south of the Site are checked and they shall provide sufficient capacity to cater for this additional flow upon completion of the proposed development. The estimated runoffs and the capacities after development are summarized in Table 4-1.

Table 4-1 Estimated Runoff and Capacities of Existing Drainage

Existing Drainage	Estimated runoff (m ³ /s)	Capacity (m ³ /s)	Utilization
750mm Wide U-Channel	0.510	0.930	0.55
750mm DIA. Outfall Pipe	0.514	0.815	0.63



Temporary Drainage during Construction

- 4.11 According to the site survey and observation, there is no existing drainage system in the Site. Therefore, no existing drainage system would be affected during the construction. Temporary drainage is considered not necessary.

Details of Works to Existing Drainage System

- 4.12 Proposed drainage systems are connecting to existing 750mm wide U-channel as shown in **Drawing No. V1094/103 and 104 in Appendix A.**

Potential Drainage Impacts to Other Land Users

- 4.13 All runoff in the Site will be collected and drain to existing drainage system as stated in Para. 3.3, no drainage impact to other land users is anticipated.



5.0 Drainage Impact Mitigation Measures

- 5.1 As discussed in Para. 4.11 and 4.13, no existing drainage system would be affected and no drainage impact to other land users is anticipated. Therefore, Mitigation measures is considered no necessary.
- 5.2 The Contractor should monitor during the construction to ensure that there is no adverse drainage impact to the nearby drainage systems and adjacent land users.



6.0 Monitoring Requirements

Monitoring During Construction

- 6.1 Monitoring of the drainage system is required during construction to ensure that there are no adverse impacts which may result in flooding or deterioration in the water quality.
- 6.2 Monitoring shall include:
- any siltation or blockages in channels, slit traps or sediment basins;
 - checking the drainage is performing in accordance with the design;
 - checking for damage; and
 - visual inspection of any high sediment levels
- 6.3 The detailed requirements of drainage monitoring should be as shown in the following table:

Table 6.1 – Detailed Requirements for Drainage Monitoring

Type / location of monitoring	Minimum Frequency	Action by
Prepare method statements	Before the start of any works that could impact on drainage	Contractor
Inspect existing drainage systems and all construction drainage systems for blockages or breakages	Daily, Weekly, Before every rainstorm warning	Contractor
	After every rainstorm	Contractor
Inspect sedimentation basins and silt traps	Daily, Weekly, Before every rainstorm warning	Contractor
	After every rainstorm	Contractor



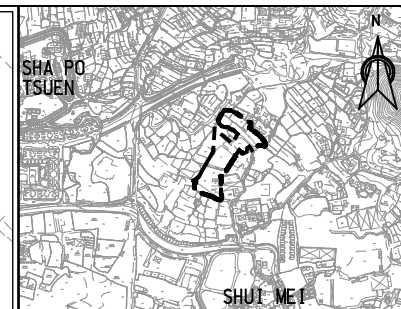
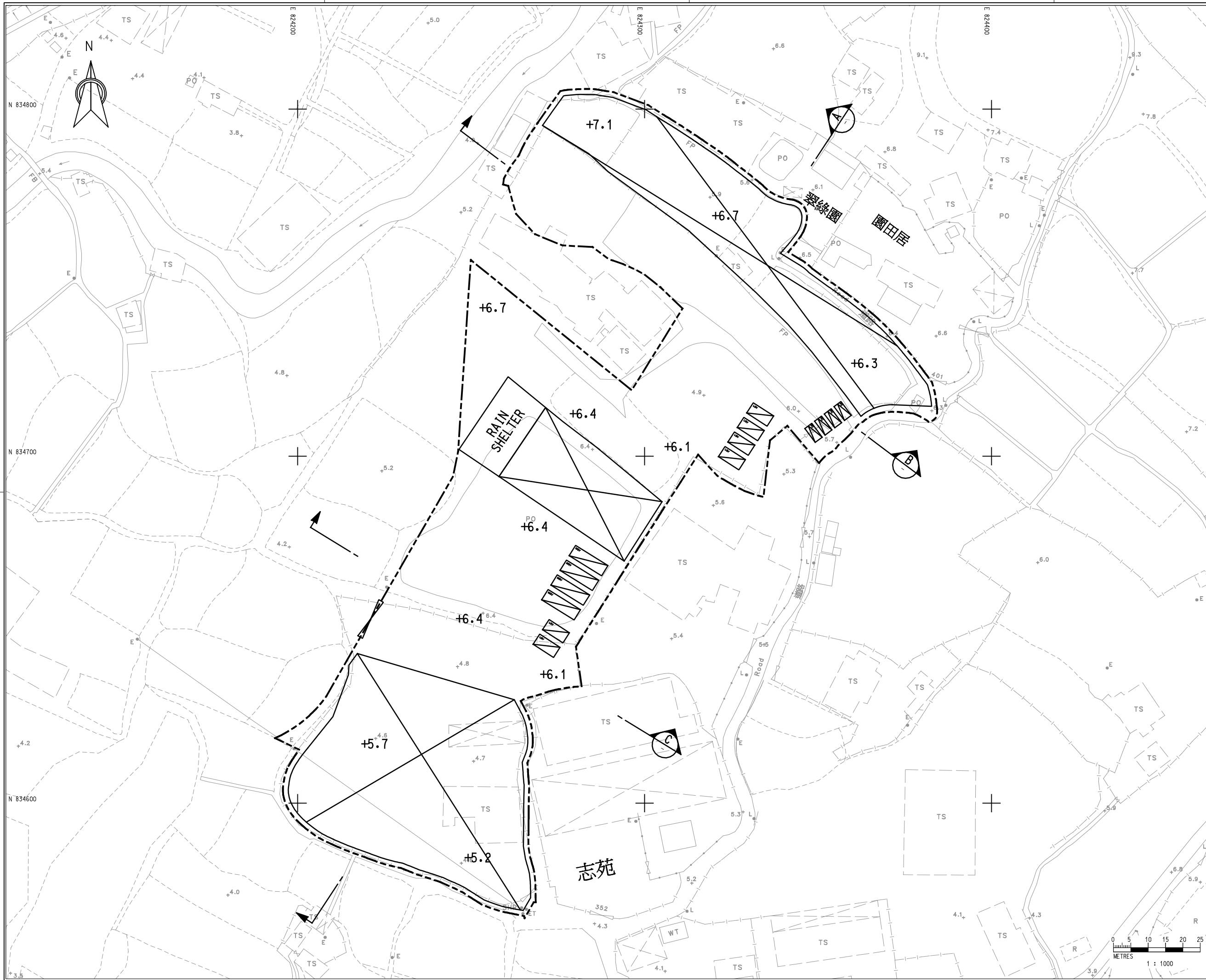
7.0 Conclusion

- 7.1 A Drainage Impact Assessment has been conducted for the proposed land use changes in Fung Kat Heung. The existing drainage system has been checked for the updated runoff from the catchment area and based on our assessment, the existing drainage system would provide sufficient capacity to cater for this additional stormwater. No adverse drainage impact shall be aroused due to the development.



Appendix A

Drawings



KEY PLAN
SCALE 1:20000

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

LEGEND :

- STRUCTURE
- PARKING SPACE (PC)
- L/U/L SPACE (LGV)
- L/U/L SPACE (MGV)
- INGRESS / EGRESS
- +6.4** PROPOSED SITE LEVEL

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

Consultants
MANNINGS (Asia) Consultants Limited

Scale 1:n A3 AS SHOWN	Date SEP 2024	
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	Date SEP 2024
Approved KTC	Date SEP 2024	Date SEP 2024

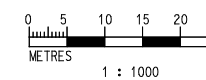
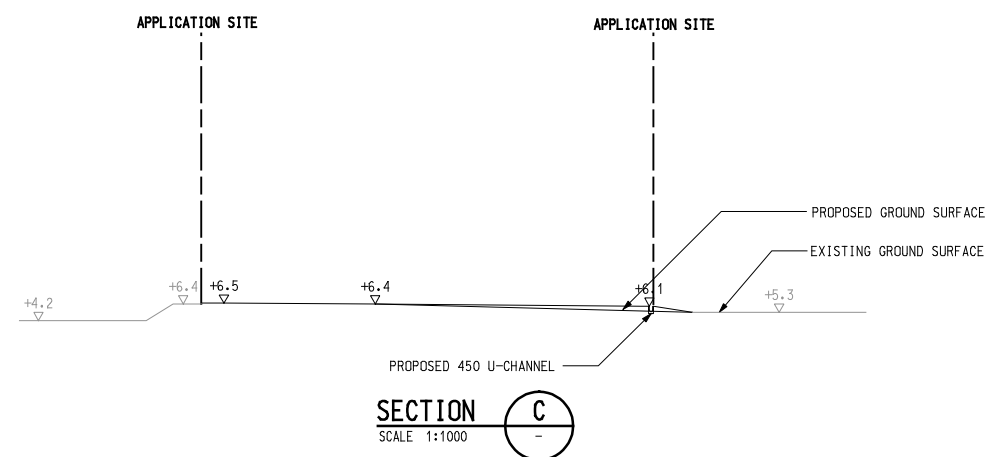
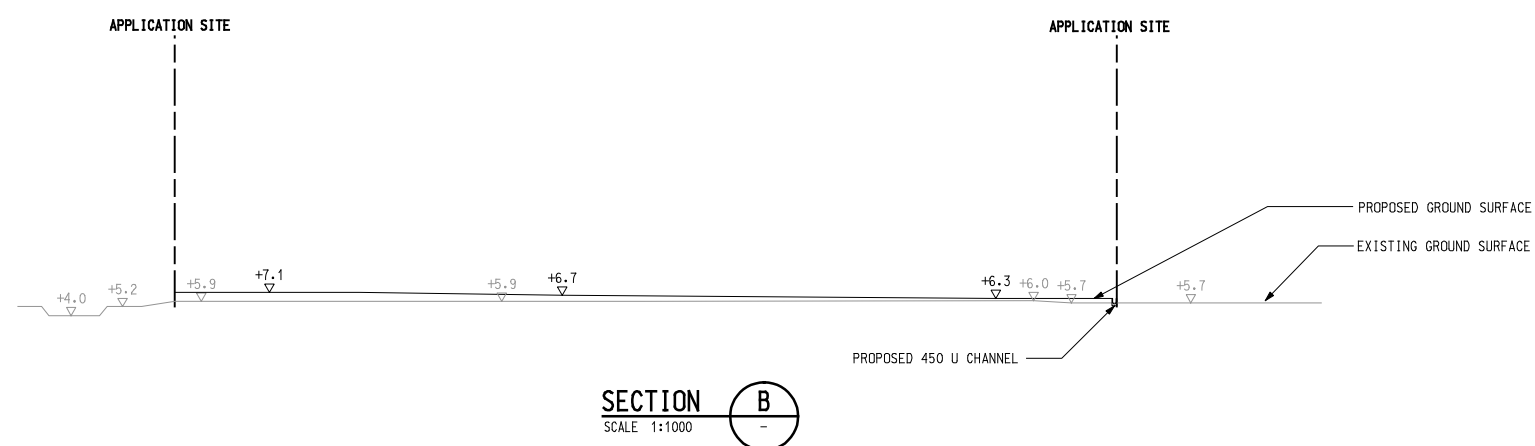
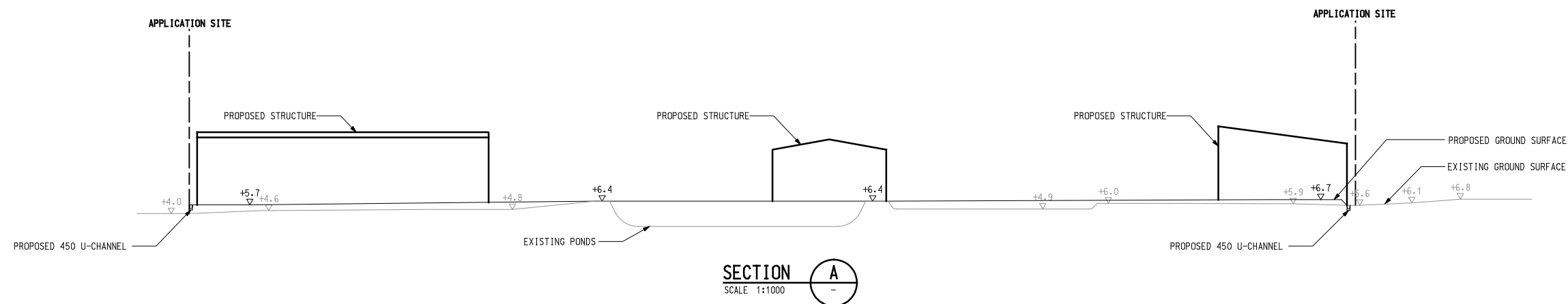
Project
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND

Title
LAYOUT PLAN

Drawing No. V1094/101	Stage P	Rev. -
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NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.



Rev.	Description of Revision	Date	Ckd.

Client
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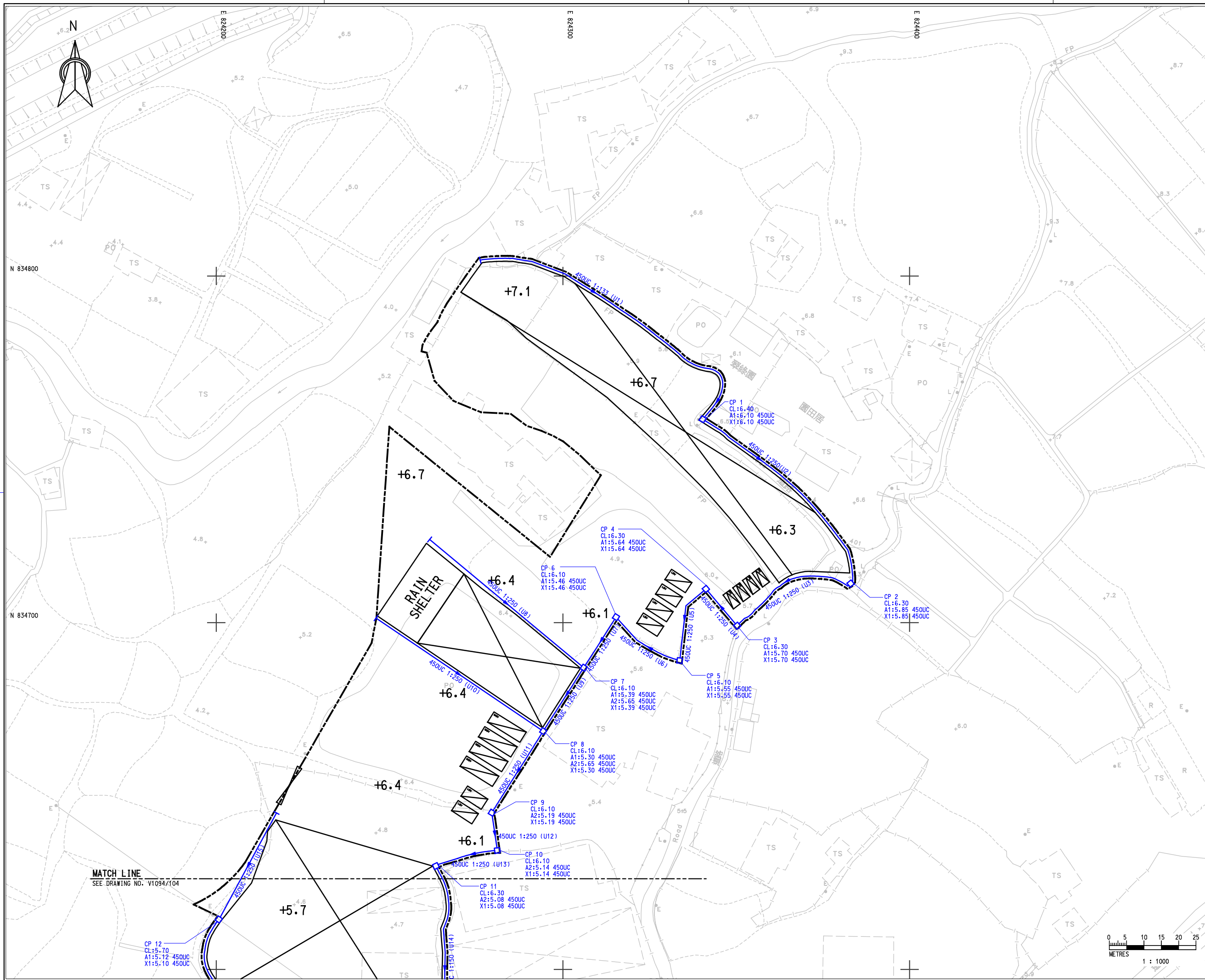
Consultants
MANNINGS (Asia) Consultants Limited

Scale In A3 AS SHOWN	Date SEP 2024	
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC		Date SEP 2024
Approved KTC		Date SEP 2024

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

Title
CROSS SECTION

Drawing No. V1094/102	Stage P	Rev. -
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KEY PLAN
SCALE 1:20000

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN MPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

- LEGEND :**
- APPLICATION SITE
 - EXISTING U-CHANNEL
 - EXISTING PIPE
 - EXISTING MANHOLE
 - EXISTING CATCHPIT
 - ▭ STRUCTURE
 - ▭ PARKING SPACE (PC)
 - ▭ L/UL SPACE (LGV)
 - ▭ L/UL SPACE (MGV)
 - ▭ INGRESS / EGRESS
 - +6.4 PROPOSED SITE LEVEL
 - PROPOSED U-CHANNEL
 - PROPOSED PIPE
 - PROPOSED MANHOLE
 - PROPOSED CATCHPIT

Rev.	Description of Revision	Date	Ckd.

Client
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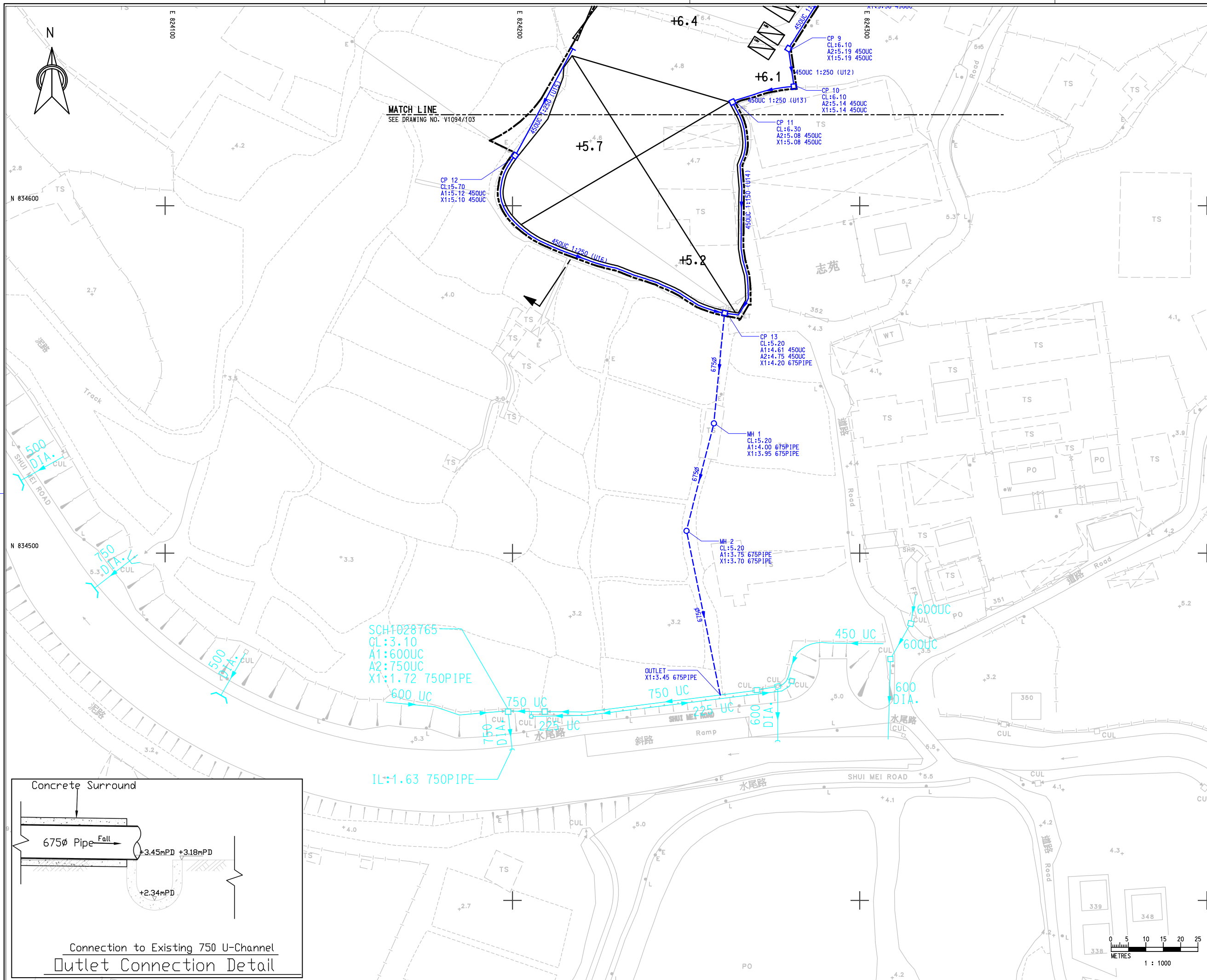
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Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	
Approved KTC	Date SEP 2024	

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

Title
DRAINAGE LAYOUT PLAN

Drawing No. V1094/103	Stage Rev. P -
---------------------------------	--------------------------





KEY PLAN
SCALE 1:20000

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

- LEGEND :**
- APPLICATION SITE
 - EXISTING U-CHANNEL
 - EXISTING PIPE
 - EXISTING MANHOLE
 - EXISTING CATCHPIT
 - ▭ STRUCTURE
 - ▭ PARKING SPACE (PC)
 - ▭ L/UL SPACE (LGV)
 - ▭ L/UL SPACE (MGV)
 - ▭ INGRESS / EGRESS
 - +6.4 PROPOSED SITE LEVEL
 - PROPOSED U-CHANNEL
 - PROPOSED PIPE
 - PROPOSED MANHOLE
 - PROPOSED CATCHPIT

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

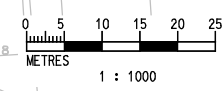
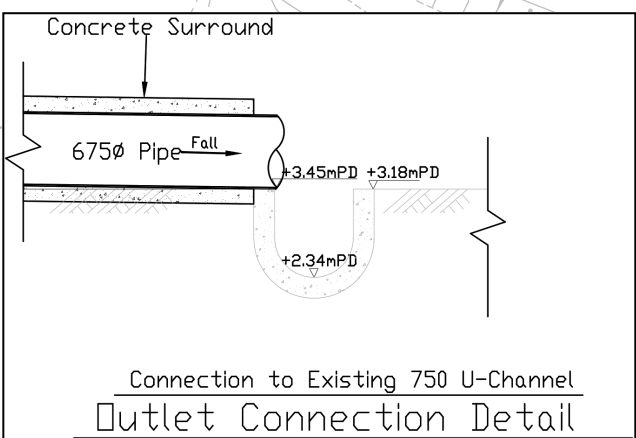
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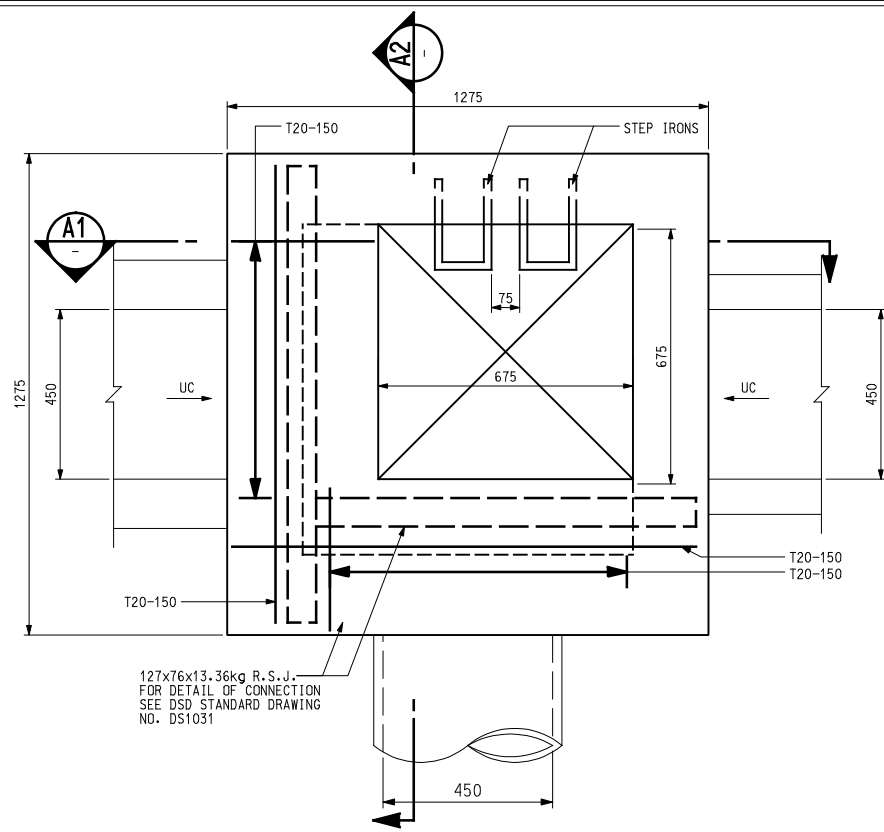
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Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	Approved Date SEP 2024
Approved KTC	Date SEP 2024	

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

Title
DRAINAGE LAYOUT PLAN

Drawing No. V1094/104	Stage Rev. P -
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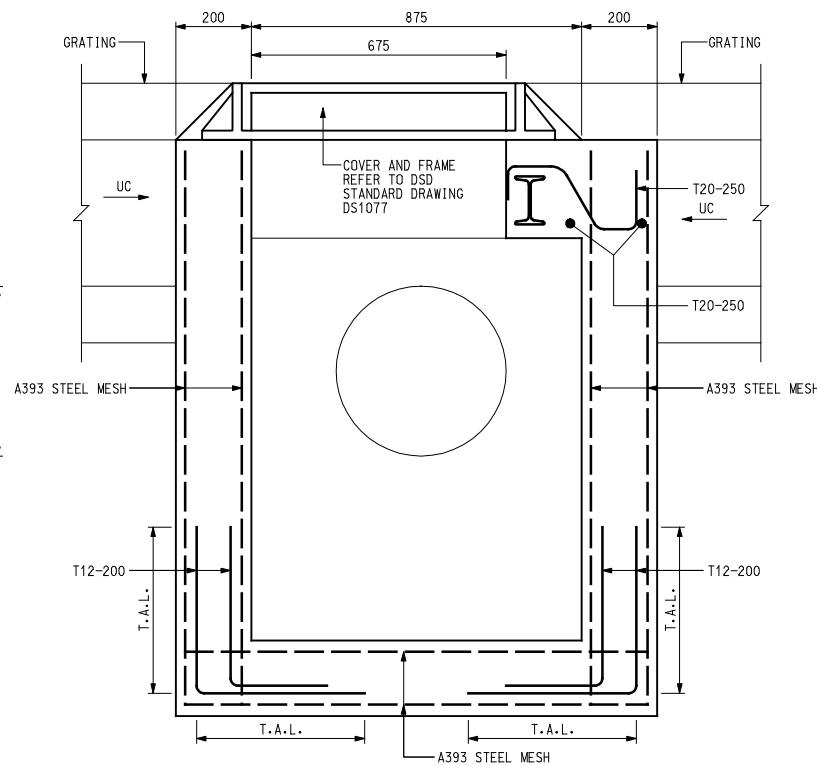




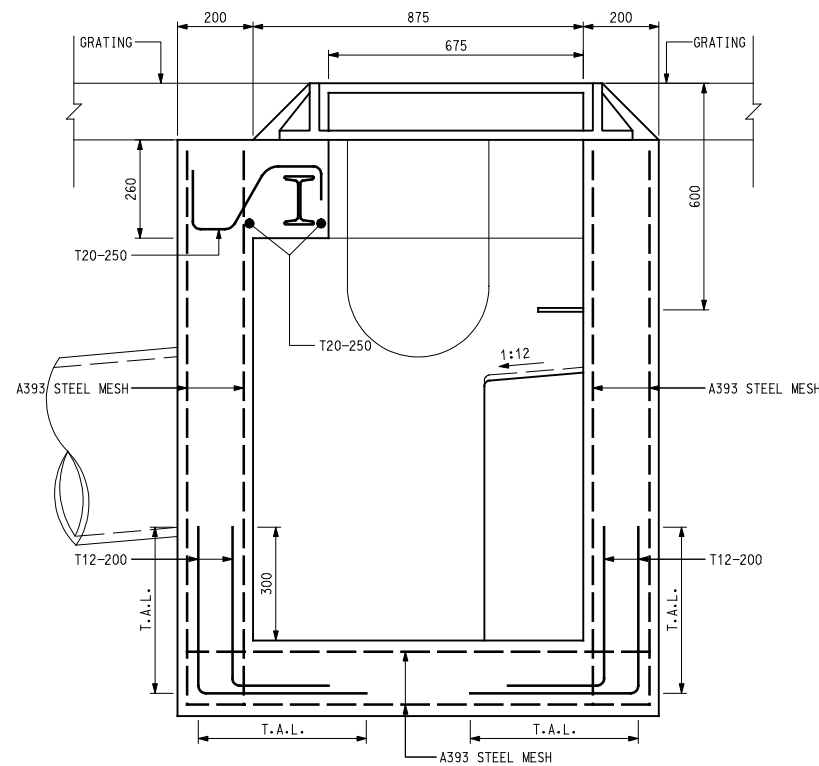
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FOR DETAIL OF CONNECTION
SEE DSD STANDARD DRAWING
NO. DS1031

TYPICAL DETAILS OF CATCHPIT TYPE A

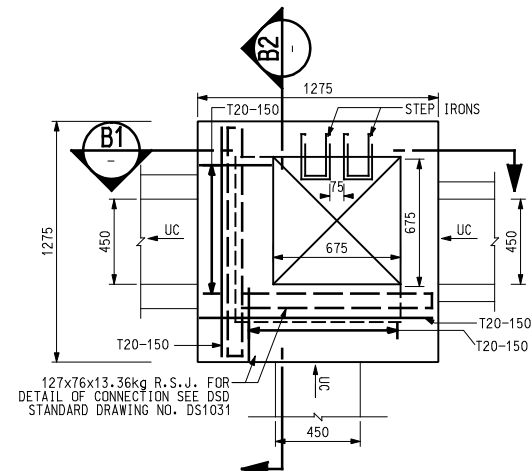
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SECTION A1
SCALE 1:20



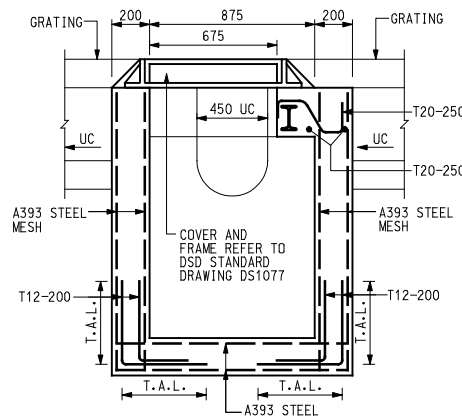
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SCALE 1:20



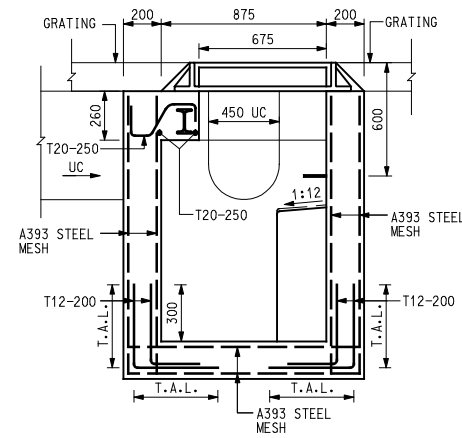
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FOR DETAIL OF CONNECTION SEE DSD
STANDARD DRAWING NO. DS1031

TYPICAL DETAILS OF CATCHPIT TYPE B

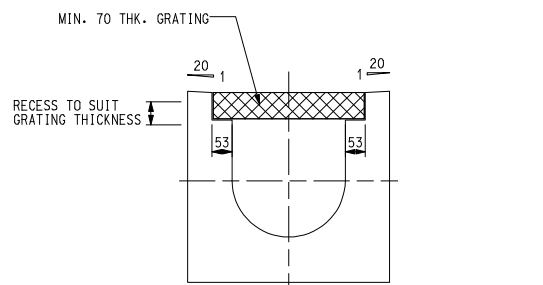
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SECTION B1
SCALE 1:40

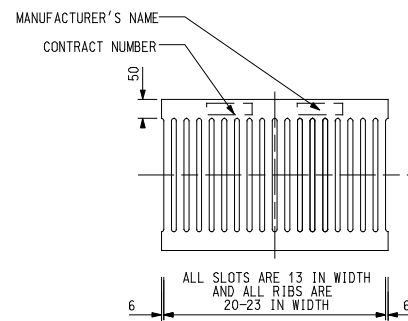


SECTION B2
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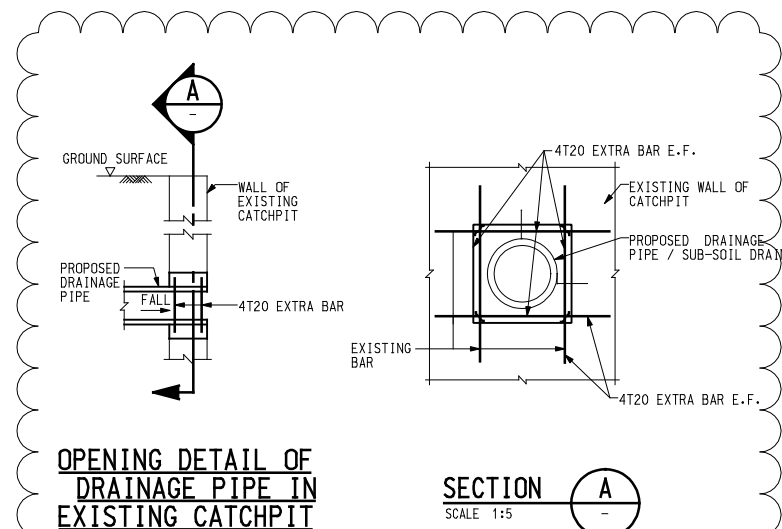
TYPICAL CROSS SECTION OF CHANNEL

SCALE 1:20

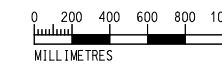
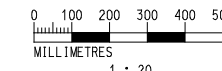
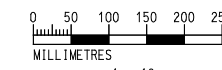


TYPICAL GRATING

SCALE 1:10



SECTION A
SCALE 1:5



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

Rev.	Description of Revision	Date	Ckd.
A	GENERAL REVISION	NOV 24	-

Client
EXCEL LINK DEVELOPMENT LIMITED

Consultants
MANNINGS (Asia) Consultants Limited

Scale	Date
In A3 AS SHOWN	AUG 2024

Designed	Drawn	Checked
EM	KAM	BLE

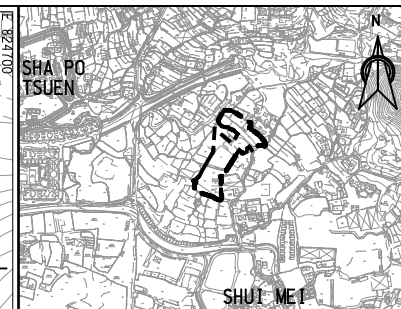
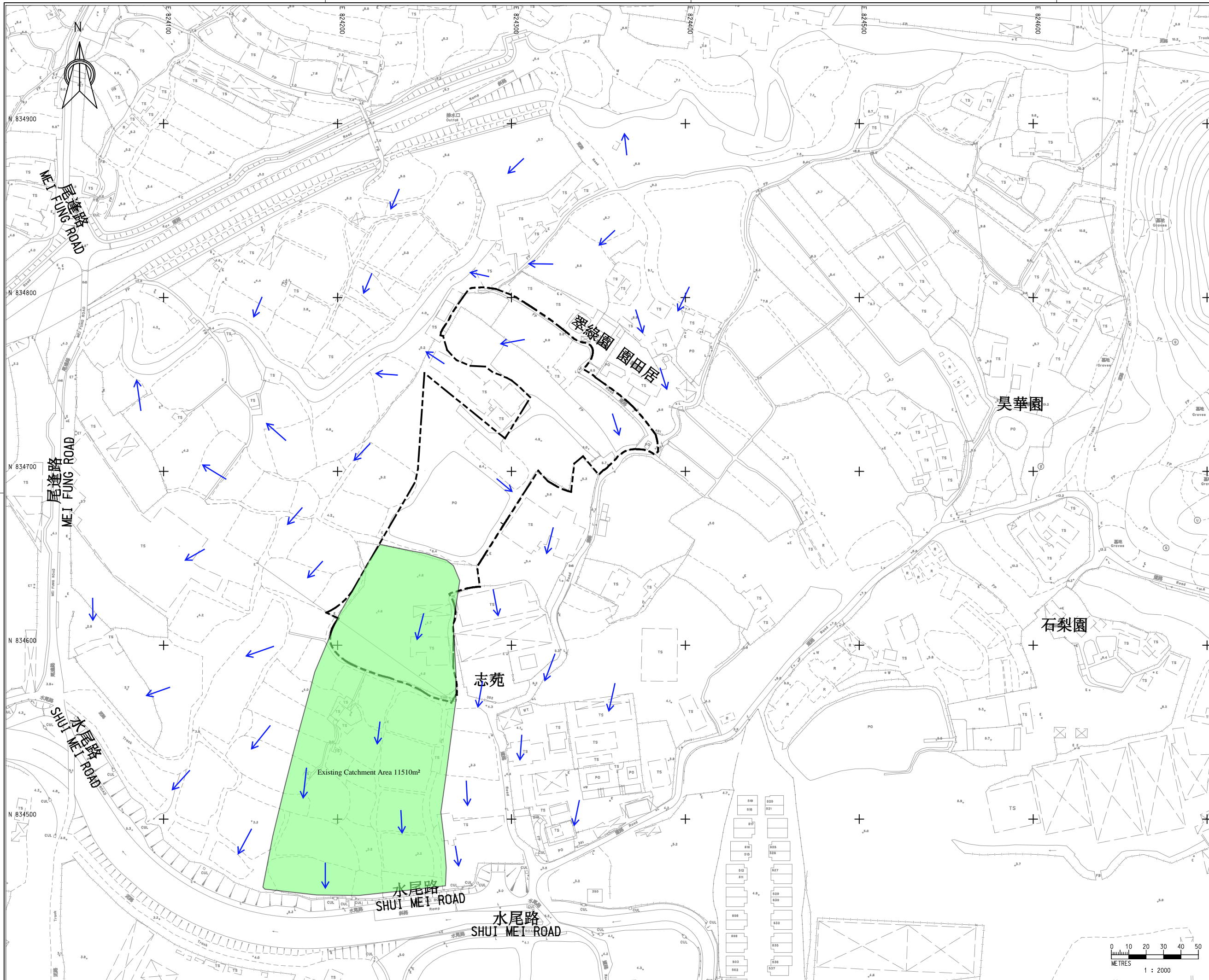
Design Team Leader	Date
SC	AUG 2024

Approved	Date
KTC	AUG 2024

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

Title
TYPICAL DETAILS OF DRAINAGE

Drawing No.	Stage	Rev.
V1094/105	P	A



KEY PLAN
SCALE 1:20000

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN MPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

LEGEND :

- APPLICATION SITE
- UNPAVED AREA
- RUNOFF DIRECTION

A	GENERAL REVISION	NOV 24	-
Rev.	Description of Revision	Date	Ckd.

Client

**EXCEL LINK
DEVELOPMENT LIMITED**

Consultants



Scale 1:n A3 AS SHOWN	Date SEP 2024
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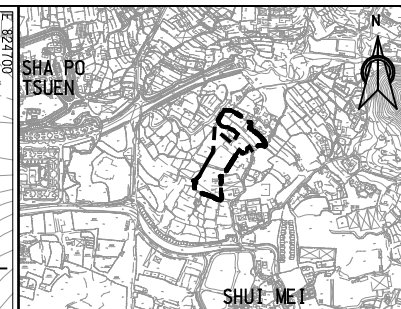
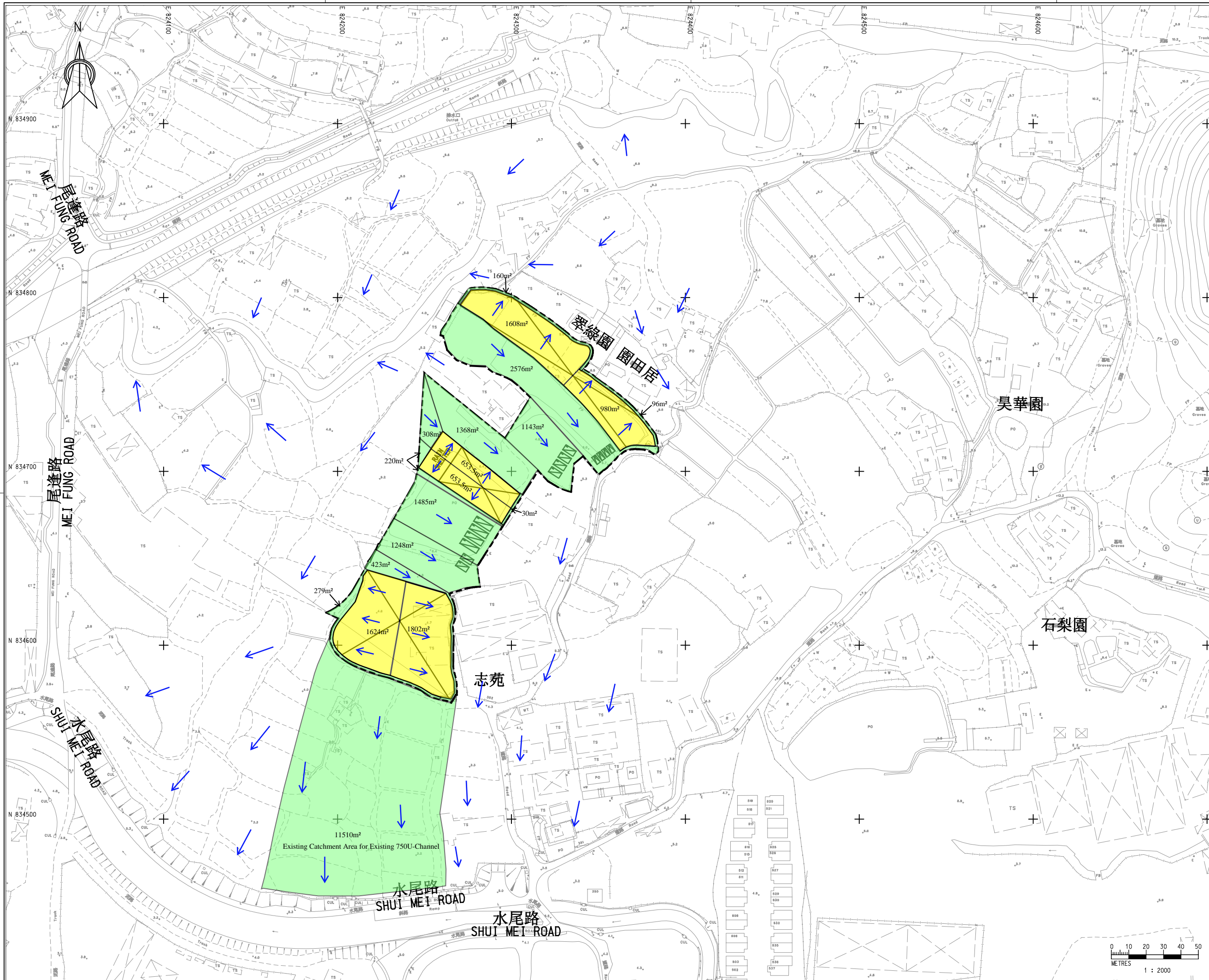
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	Date SEP 2024
Approved KTC	Date SEP 2024	Date SEP 2024

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

Title

**CATCHMENT PLAN - BEFORE
DEVELOPMENT**

Drawing No. V1094/106	Stage P	Rev. A
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KEY PLAN
SCALE 1:20000

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. ALL LEVELS ARE IN MPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

- LEGEND :**
- APPLICATION SITE
 - ☒ STRUCTURE
 - ☐ PARKING SPACE (PC)
 - ☐ L/U/L SPACE (LGV)
 - ☐ L/U/L SPACE (MGV)
 - INGRESS / EGRESS
 - ← RUNOFF DIRECTION
 - PAVED AREA
 - UNPAVED AREA

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

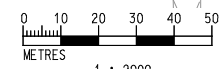
Consultants
MANNINGS (Asia) Consultants Limited

Scale 1:n A3 AS SHOWN	Date SEP 2024	
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	
Approved KTC	Date SEP 2024	

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

Title
CATCHMENT PLAN - AFTER DEVELOPMENT

Drawing No. V1094/107	Stage P	Rev. -
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Appendix B

Design Calculations



Existing Scenario

Mannings (Asia) Consultants Ltd.		Job No.	V1094	Sheet No.	Rev.
Calculation Sheet		Member / Location			
Job Title:	Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining	Drg. Ref.			
		Made By	Date		

The drainage design is referring to DSD's SDM 2018 & Corrigendum No. 1/2022 and Corrigendum No. 1/2024
 1 in 50 year design return period is taken.

Rational method is used for calculation of the peak runoff. The formula is extracted from Section 7.5.2 (a) of SDM.

$$Q_p = 0.278 C i A$$

Where Q_p = peak runoff in m^3/s

i = rainfall intensity in mm/hr

A = catchment area in km^2

Runoff Estimation for Existing 750U-Channel (Existing Scenario)

Location	Natural Catch. (m^2)	Longest flow path (m)	Gradient (m per 100m)	to (min) = $0.14465L / (H^{0.2}A^{0.1})$	Runoff coeff.	Total Catch. Area (m^2)	50 year Intensity (mm/hr)	50 year design runoff = $0.278CiA$ (m^3/s)	Total Flow(m^3/s)
750 U-Channel	16190	188	0.01	26.76	0.25	16190	151.03	0.17	0.17

Stormwater Drainage Design

Existing Scenario

Manhole		Catchment Area		Length (m)	Nominal Diameter (mm)	Gradient, S _f		Roughness Coefficient (m)	Velocity (m/s)	Time of Flow (min)	Time of Conc. (min)	Rainfall Duration (min)	50 year Intensity (mm/hr)	Runoff Coeff.	50 year Runoff (m ³ /s)	Total Flow (m ³ /s)	Capacity (m ³ /s)	Adjusted Capacity > Total Flow ?	Cover Level		Invert Level	
From	To	Increment (m ²)	Accu. (m ²)			(%)	1 in												From (mPD)	To (mPD)	From (mPD)	To (mPD)
SCH1028765	Existing Open Channel	0	16190	10	750	0.9	111.1	3.0	2.051	0.08	26.85	26.85	150.89	0.25	0.170	0.170	0.815	Yes	3.10	3.10	1.72	1.63

Mean Velocity is calculated by Colebrook- White equation

Where:

\bar{V} =Mean Velocity (m/s)

R =Hydraulic Diameter (m)

K_s =Surface Roughness (m)

ν =Kinematic viscosity (kg/ms)

S_f =Slope of Hydraulic Gradient

g =Gravity (m/s²)

The Roughness Coefficient K_s is assumed to be 3 for concrete.

Peak Runoff is estimated using rational method according to SDM.

$$\bar{V} = -\sqrt{32gRS_f} \log \left[\frac{k_s}{14.8R} + \frac{1.255\nu}{R\sqrt{32gRS_f}} \right]$$



Proposed Scenario

Mannings (Asia) Consultants Ltd.		Job No.	V1094	Sheet No.	Rev.
Calculation Sheet		Member / Location			
Job Title:	Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
		Made By		Date	

The drainage design is referring to DSD's SDM 2018 & Corrigendum No. 1/2022 and Corrigendum No. 1/2024
1 in 50 year design return period is taken.

Rational method is used for calculation of the peak runoff. The formula is extracted from Section 7.5.2 (a) of SDM.

$$Q_p = 0.278 C i A$$

Where Q_p = peak runoff in m^3/s

i = rainfall intensity in mm/hr

A = catchment area in km^2

U Channel Runoff Estimation

Location	Natural Catch. (m ²)	Longest flow path (m)	Gradient (m per 100m)	t_o (min) = $0.14465L / (H^{0.2}A^{0.1})$	$t_f = L/v$ (min)	$t_c = t_o + t_f$ (min)	Runoff coeff.	Total Catch. Area (m ²)	50 year Intensity (mm/hr)	50 year design runoff = $0.278CiA$ (m ³ /s)	Total Flow(m ³ /s)
U1	160	93.7	0.75	6.80	0.97	7.78	0.25	160	215.32	0.00	0.10
	1608						1.00	1608		0.10	
U2	256	156.5	0.61	11.29	1.99	13.28	0.25	256	186.58	0.00	0.14
	2588						1.00	2588		0.13	
U3 and U4	2832	208.8	0.56	14.38	2.30	16.68	0.25	2832	174.63	0.03	0.16
	2588						1.00	2588		0.13	
U5 and U6	3975	254.5	0.53	17.37	0.51	17.88	0.25	3975	171.04	0.05	0.17
	2588						1.00	2588		0.12	
U7	5343	272.1	0.52	18.28	0.19	18.47	0.25	5343	169.37	0.06	0.18
	2588						1.00	2588		0.12	
U8	308	100	0.40	9.80	0.22	10.01	0.25	308	201.71	0.00	0.04
	653.5						1.00	653.5		0.04	
U9	5681	293.9	0.50	19.66	0.43	20.09	0.25	5681	165.11	0.07	0.21
	3242						1.00	3241.5		0.15	
U10	220	100	0.40	10.13	0.64	10.77	0.25	220	197.80	0.00	0.04
	653.5						1.00	653.5		0.04	
U11	7386	322.4	0.50	21.06	0.80	21.86	0.25	7386	160.88	0.08	0.26
	3895						1.00	3895		0.17	
U12 and U13	8634	348.1	0.49	22.57	1.16	23.73	0.25	8634	156.85	0.09	0.26
	3895						1.00	3895		0.17	
U14	9057	419.3	0.52	26.44	0.85	27.29	0.25	9057	150.10	0.09	0.33
	5697						1.00	5697		0.24	
U15 and U16	279	122	0.40	12.07	1.55	13.62	0.25	279	185.23	0.00	0.09
	1624						1.00	1624		0.08	

Check Existing U-Channel

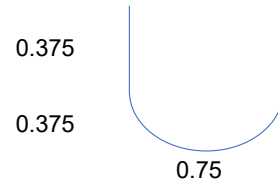
750 UC	20846	125	0.01	28.16	0.54	28.70	0.25	20846	147.72	0.21	0.51
	7321						1.00	7321		0.30	

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity of Existing 750U-Channel

Input Data

Width of UC = 0.75 m
 Height of UC = 0.75 m
 Design Runoff = 0.51 m³/s
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.502143 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 1.93 m
 r = 0.26 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

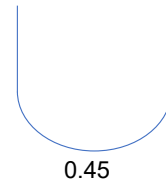
Q = 0.93 m³/s > Design runoff, OK!
 V = Q/A = 1.84 m/s

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Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U1)

Input Data

Width of UC = 0.45 m 0.075
 Height of UC = 0.30 m
 Design Runoff = 0.10 m³/s 0.225
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.113272 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 0.86 m
 r = 0.13 m

Slope

s = 0.007 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

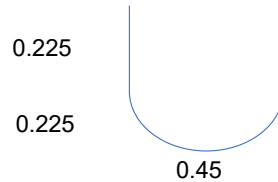
Q = 0.18 m³/s > Design runoff, OK!
 V = Q/A = 1.60 m/s

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Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U2)

Input Data

Width of UC = 0.45 m
 Height of UC = 0.45 m
 Design Runoff = 0.10 m³/s
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.180862 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 1.16 m
 r = 0.16 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

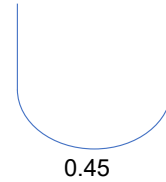
Q = 0.24 m³/s > Design runoff, OK!
 V = Q/A = 1.31 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
	Calculation Sheet			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Member / Location			
	Drg. Ref.			
	Made By	Date		

Checking of Capacity (U3 and U4)

Input Data

Width of UC = 0.45 m 0.435
 Height of UC = 0.66 m
 Design Runoff = 0.16 m³/s 0.225
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.275452 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 1.58 m
 r = 0.17 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

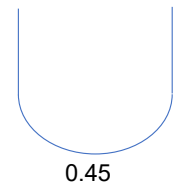
Q = 0.39 m³/s > Design runoff, OK!
 V = Q/A = 1.41 m/s

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Calculation Sheet		Member / Location		
Job Title:	Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.		
		Made By	Date	

Checking of Capacity (U5 and U6)

Input Data

Width of UC = 0.45 m 0.418
Height of UC = 0.64 m
Design Runoff = 0.17 m³/s 0.225
(Q_{after,uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.267712 m²
r = hydraulic radius (m)
s = slope of the water surface or the linear hydraulic head loss (m/m)
n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
p = wetted perimeter (m) = 1.54 m
r = 0.17 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

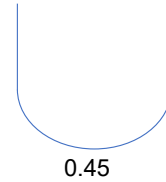
Q = 0.38 m³/s > Design runoff, OK!
V = Q/A = 1.41 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
	Calculation Sheet			
	Member / Location			
Job Title:	Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories			Drg. Ref.
Made By			Date	

Checking of Capacity (U7)

Input Data

Width of UC = 0.45 m 0.489
 Height of UC = 0.71 m
 Design Runoff = 0.18 m³/s 0.225
 (Q_{after,uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.299392 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 1.68 m
 r = 0.18 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

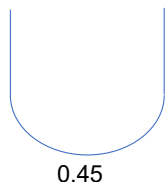
Therefore,

Q = 0.43 m³/s > Design runoff, OK!
 V = Q/A = 1.43 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.	
	Calculation Sheet				
	Member / Location			Drg. Ref.	
	Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories			Made By	Date

Checking of Capacity (U8)

Input Data

Width of UC	=	0.45 m	0.225	
Height of UC	=	0.45 m	0.225	
Design Runoff	=	0.04 m ³ /s	0.225	
		(Q _{after, uncov.})		

Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where

A	=	cross sectional area of flow (m ²)	=	0.180772 m ²
r	=	hydraulic radius (m)		
s	=	slope of the water surface or the linear hydraulic head loss (m/m)		
n	=	Manning coefficient of roughness		

Hydraulic radius

r	=	$\frac{A}{P}$		
p	=	wetted perimeter (m)	=	1.16 m
r	=	0.16 m		

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

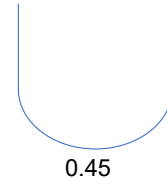
Q	=	0.24 m ³ /s	> Design runoff, OK!
V	=	Q/A	= 1.31 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
	Calculation Sheet			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Member / Location			
	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U9)

Input Data

Width of UC	=	0.45 m	0.575
Height of UC	=	0.80 m	
Design Runoff	=	0.21 m ³ /s	0.225
		(Q _{after, uncov.})	



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where

A	=	cross sectional area of flow (m ²)	=	0.338272 m ²
r	=	hydraulic radius (m)		
s	=	slope of the water surface or the linear hydraulic head loss (m/m)		
n	=	Manning coefficient of roughness		

Hydraulic radius

r	=	$\frac{A}{P}$	
p	=	wetted perimeter (m)	= 1.86 m
r	=	0.18 m	

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

Q	=	0.49 m ³ /s	> Design runoff, OK!
V	=	Q/A =	1.45 m/s

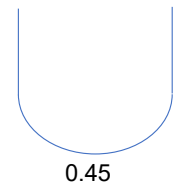
Mannings (Asia) Consultants Ltd.		Job No.	V1094	Sheet No.	Rev.
		Calculation Sheet		Member / Location	
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.				
	Made By			Date	
Checking of Capacity (U10)					
Input Data					
Width of UC	=	0.45	m	0.225	
Height of UC	=	0.45	m		
Design Runoff	=	0.04	m ³ /s	0.225	
				(Q _{after, uncov.})	0.45
Flow capacity, Q					
$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$					
where	A	=	cross sectional area of flow (m ²)	=	0.180772 m ²
	r	=	hydraulic radius (m)		
	s	=	slope of the water surface or the linear hydraulic head loss (m/m)		
	n	=	Manning coefficient of roughness		
Hydraulic radius					
	r	=	$\frac{A}{P}$		
	p	=	wetted perimeter (m)	=	1.16 m
	r	=	0.16 m		
Slope					
	s	=	0.004 m/m		
Manning coefficient of roughness					
	n	=	0.014		
Therefore,					
	Q	=	0.24 m ³ /s	>	Design runoff, OK!
	V	=	Q/A	=	1.31 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
	Calculation Sheet			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Member / Location			
	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U11)

Input Data

Width of UC = 0.45 m
 Height of UC = 0.91 m
 Design Runoff = 0.26 m³/s
 (Q_{after, uncov.}) 0.225



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.389932 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 2.09 m
 r = 0.19 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

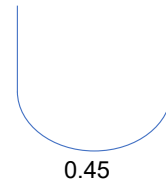
Q = 0.58 m³/s > Design runoff, OK!
 V = Q/A = 1.48 m/s

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Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U12 and U13)

Input Data

Width of UC = 0.45 m 0.993
 Height of UC = 1.22 m
 Design Runoff = 0.26 m³/s 0.225
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.526192 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 2.69 m
 r = 0.20 m

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

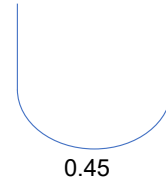
Q = 0.80 m³/s > Design runoff, OK!
 V = Q/A = 1.52 m/s

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Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U14)

Input Data

Width of UC = 0.45 m 0.367
 Height of UC = 0.59 m
 Design Runoff = 0.33 m³/s 0.225
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.244792 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 1.44 m
 r = 0.17 m

Slope

s = 0.007 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

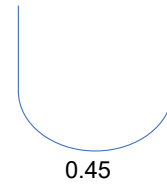
Q = 0.44 m³/s > Design runoff, OK!
 V = Q/A = 1.79 m/s

Mannings (Asia) Consultants Ltd.	Job No.	V1094	Sheet No.	Rev.
Calculation Sheet	Member / Location			
Job Title: Proposed Temporary Warehouse(Excluding Dangerous Goods Godown) with Ancillary Facilities for A Period of 3 Years and Associated Filling of Land and Pond and in "Agriculture" Zone, Various Lots in D.D. 107 and Adjoining Government Land, Fung Kat Heung, Kam Tin Yuen Long, New Territories	Drg. Ref.			
	Made By		Date	

Checking of Capacity (U15 and U16)

Input Data

Width of UC = 0.45 m 0.725
 Height of UC = 0.95 m
 Design Runoff = 0.09 m³/s 0.225
 (Q_{after, uncov.})



Flow capacity, Q

$$Q = \frac{A \times r^{2/3} \times s^{1/2}}{n}$$

where A = cross sectional area of flow (m²) = 0.405772 m²
 r = hydraulic radius (m)
 s = slope of the water surface or the linear hydraulic head loss (m/m)
 n = Manning coefficient of roughness

Hydraulic radius

$r = \frac{A}{P}$
 p = wetted perimeter (m) = 2.16 m
 r = 0.19 m

Slope

s = 0.007 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

Q = 0.78 m³/s > Design runoff, OK!
 V = Q/A = 1.91 m/s

Stormwater Drainage Design

Manhole		Catchment Area		Length (m)	Nominal Diameter (mm)	Gradient, S _f		Roughness Coefficient (m)	Velocity (m/s)	Time of Flow (min)	Time of Conc. (min)	Rainfall Duration (min)	50 year Intensity (mm/hr)	Runoff Coeff.	50 year Runoff (m ³ /s)	Total Flow (m ³ /s)	Capacity (m ³ /s)	Adjusted Capacity > Total Flow ?	Cover Level		Invert Level	
From	To	Increment (m ²)	Accu. (m ²)			(%)	1 in												From (mPD)	To (mPD)	From (mPD)	To (mPD)
CP 13	MH1	0	9336	30	675	0.7	150.0	3.0	1.648	0.30	27.29	27.29	150.10	0.25	0.097	0.403	0.531	Yes	5.20	5.20	4.20	4.00
		0	7321											1.00	0.305							
MH 1	MH 2	0	9336	33	675	0.6	165.0	3.0	1.571	0.35	27.64	27.64	149.49	0.25	0.097	0.401	0.506	Yes	5.20	5.20	3.95	3.75
		0	7321											1.00	0.304							
MH 2	Outlet	0	9336	46	675	0.5	184.0	3.0	1.487	0.52	28.16	28.16	148.62	0.25	0.096	0.399	0.479	Yes	5.20	5.20	3.70	3.45
		0	7321											1.00	0.302							
Check Existing Pipe																						
SCH1028765	Existing Open Channel	11510	20846	10	750	0.9	111.1	3.0	2.051	0.08	28.78	28.78	147.58	0.25	0.214	0.514	0.815	Yes	3.10	3.10	1.72	1.63
		0	7321											1.00	0.300							

Mean Velocity is calculated by Colebrook- White equation

Where:

\bar{V} =Mean Velocity (m/s)

R =Hydraulic Diameter (m)

Ks =Surface Roughness (m)

ν =Kinematic viscosity (kg/ms)

Sf =Slope of Hydraulic Gradient

g =Gravity (m/s²)

The Roughness Coefficient Ks is assumed to be 3 for concrete.

Peak Runoff is estimated using rational method according to SDM.

$$\bar{V} = -\sqrt{32gRS_f} \log \left[\frac{k_s}{14.8R} + \frac{1.255\nu}{R\sqrt{32gRS_f}} \right]$$



Appendix C

Site Photo



Photo V1



Photo V2



Photo V3



Photo V4



Photo V5



Photo V6



Photo V7



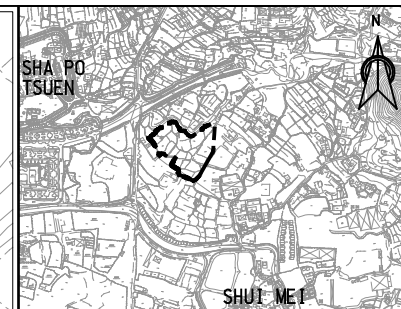
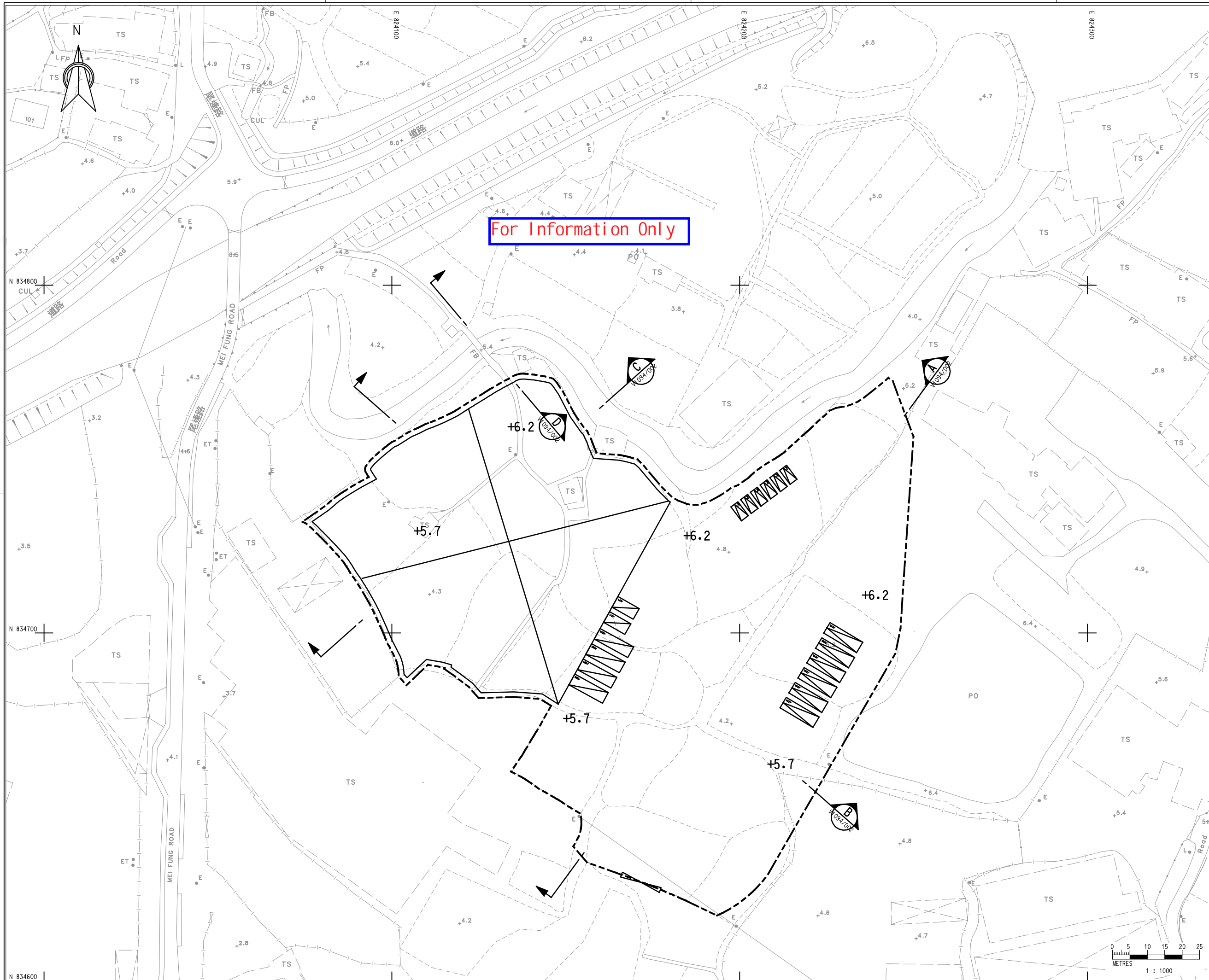
Photo V8





Appendix D

Layout Plans of Future Development for Adjacent Area



KEY PLAN
SCALE 1:20000

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN MPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

LEGEND :

- APPLICATION SITE
- STRUCTURE
- PARKING SPACE
- L/UL SPACE
- INGRESS / EGRESS
- +6.4** PROPOSED SITE LEVEL

For Information Only

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

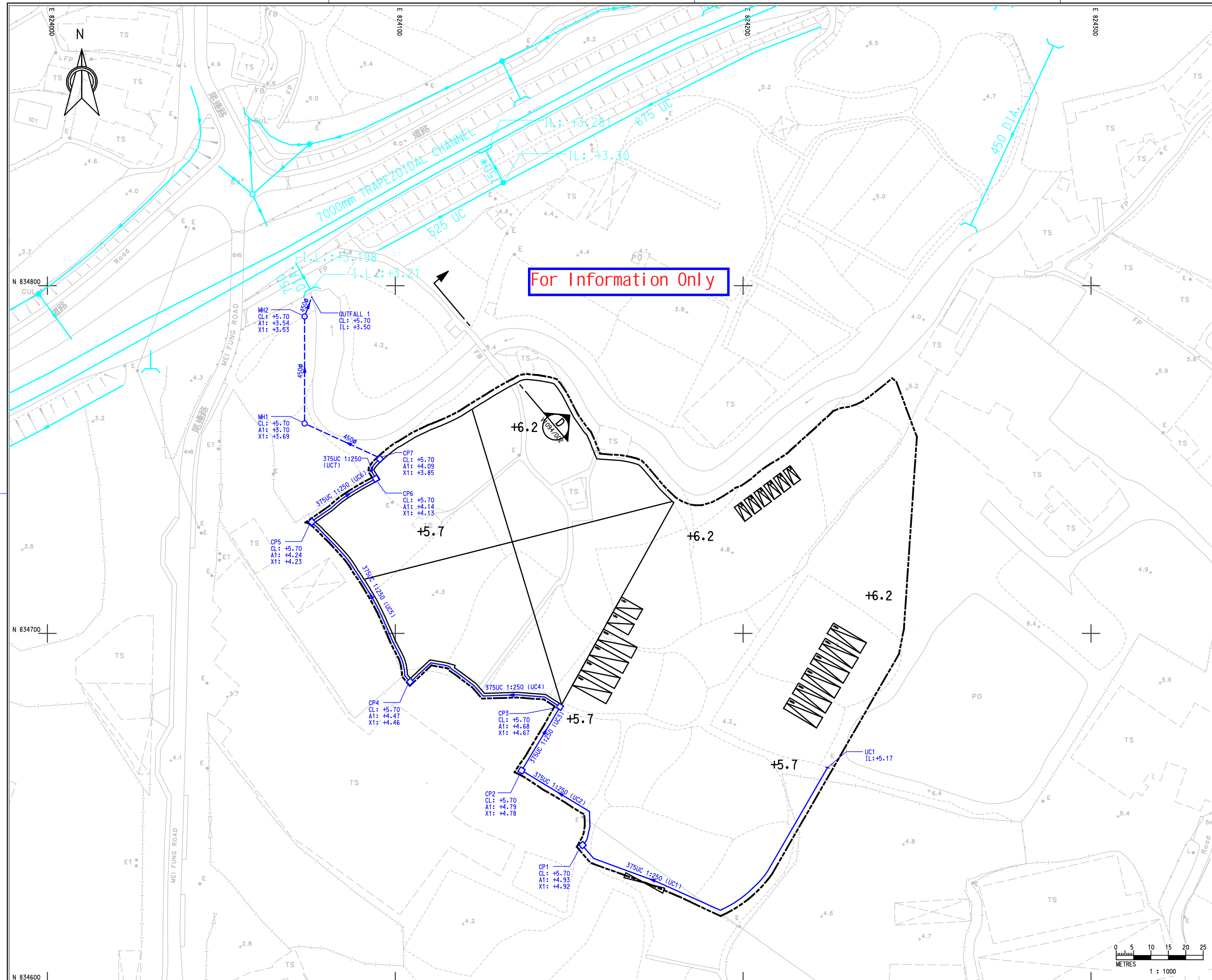
Consultants
MANNINGS (Asia) Consultants Limited

Scale 1m A3 AS SHOWN	Date SEP 2024	
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	
Approved KTC	Date SEP 2024	

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

Title
LAYOUT PLAN

Drawing No. V1094/001	Stage P	Rev. -
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For Information Only



KEY PLAN
SCALE 1:20000

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN MPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

LEGEND :

- APPLICATION SITE
- STRUCTURE
- PARKING SPACE
- L/UJ SPACE
- INGRESS / EGRESS
- PROPOSED U-CHANNEL
- PROPOSED PIPE
- EXISTING DRAINAGE PIPE/ U-CHANNEL
- PROPOSED CATCHPIT
- PROPOSED MANHOLE
- EXISTING MANHOLE

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

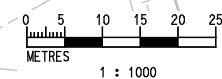
Consultants
MANNINGS (Asia) Consultants Limited

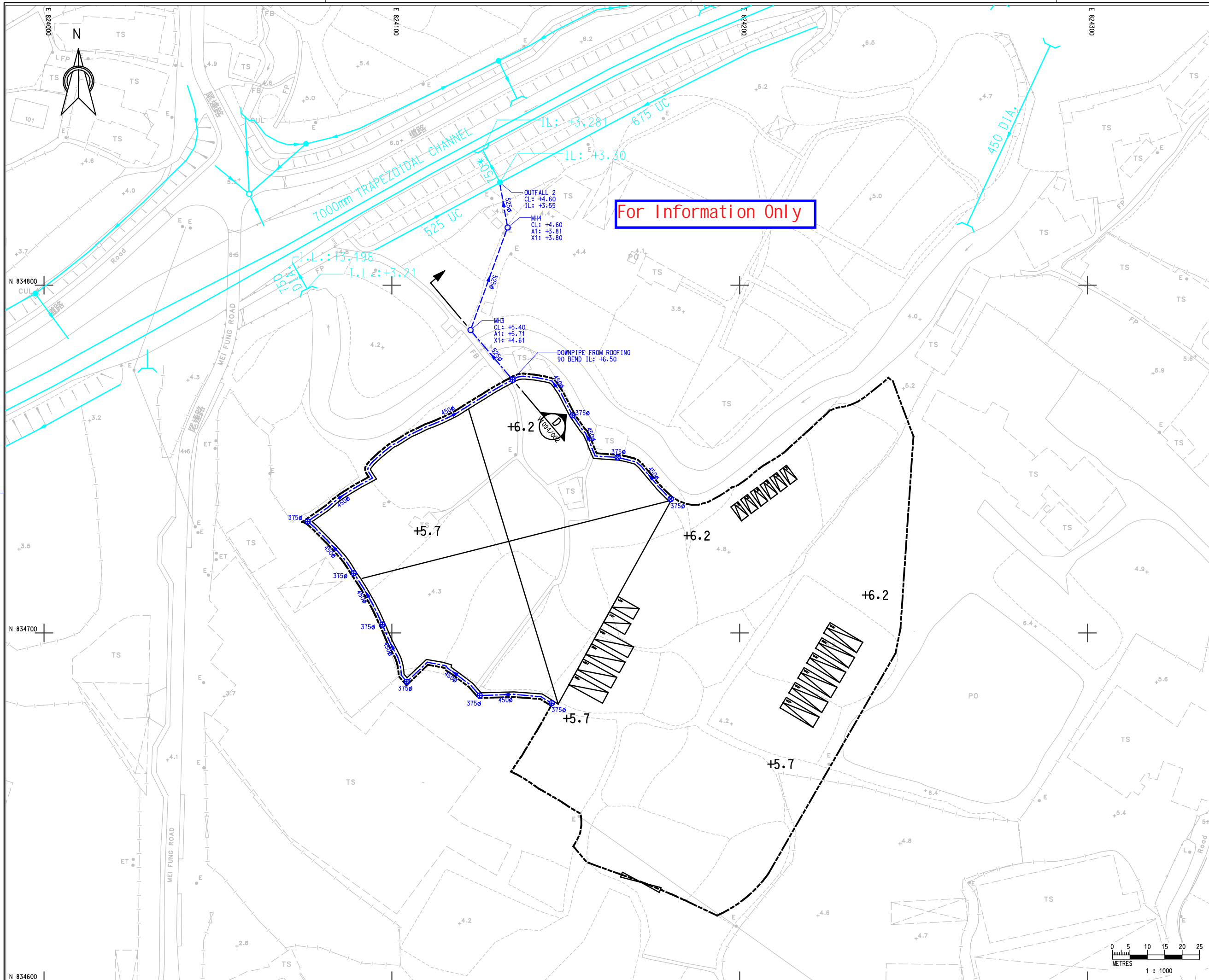
Scale 1/A3 AS SHOWN		Date SEP 2024
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC		Date SEP 2024
Approved KTC	Date SEP 2024	

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

Title
DRAINAGE LAYOUT PLAN - UNPAVED AREA

Drawing No. V1094/003	Stage P	Rev. -
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KEY PLAN
SCALE 1:20000

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.

LEGEND :

- APPLICATION SITE
- STRUCTURE
- PARKING SPACE
- L/UL SPACE
- INGRESS / EGRESS
- PROPOSED ELEVATED PIPE
- PROPOSED PIPE
- EXISTING DRAINAGE PIPE/ U-CHANNEL
- PROPOSED DOWNPIPE
- PROPOSED MANHOLE
- EXISTING MANHOLE

For Information Only

Rev.	Description of Revision	Date	Ckd.

Client
EXCEL LINK DEVELOPMENT LIMITED

Consultants
MANNINGS (Asia) Consultants Limited

Scale 1:1 A3 AS SHOWN	Date SEP 2024	
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC	Date SEP 2024	Date SEP 2024
Approved KTC	Date SEP 2024	Date SEP 2024

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

Title
DRAINAGE LAYOUT PLAN - STRUCTURE ROOFING

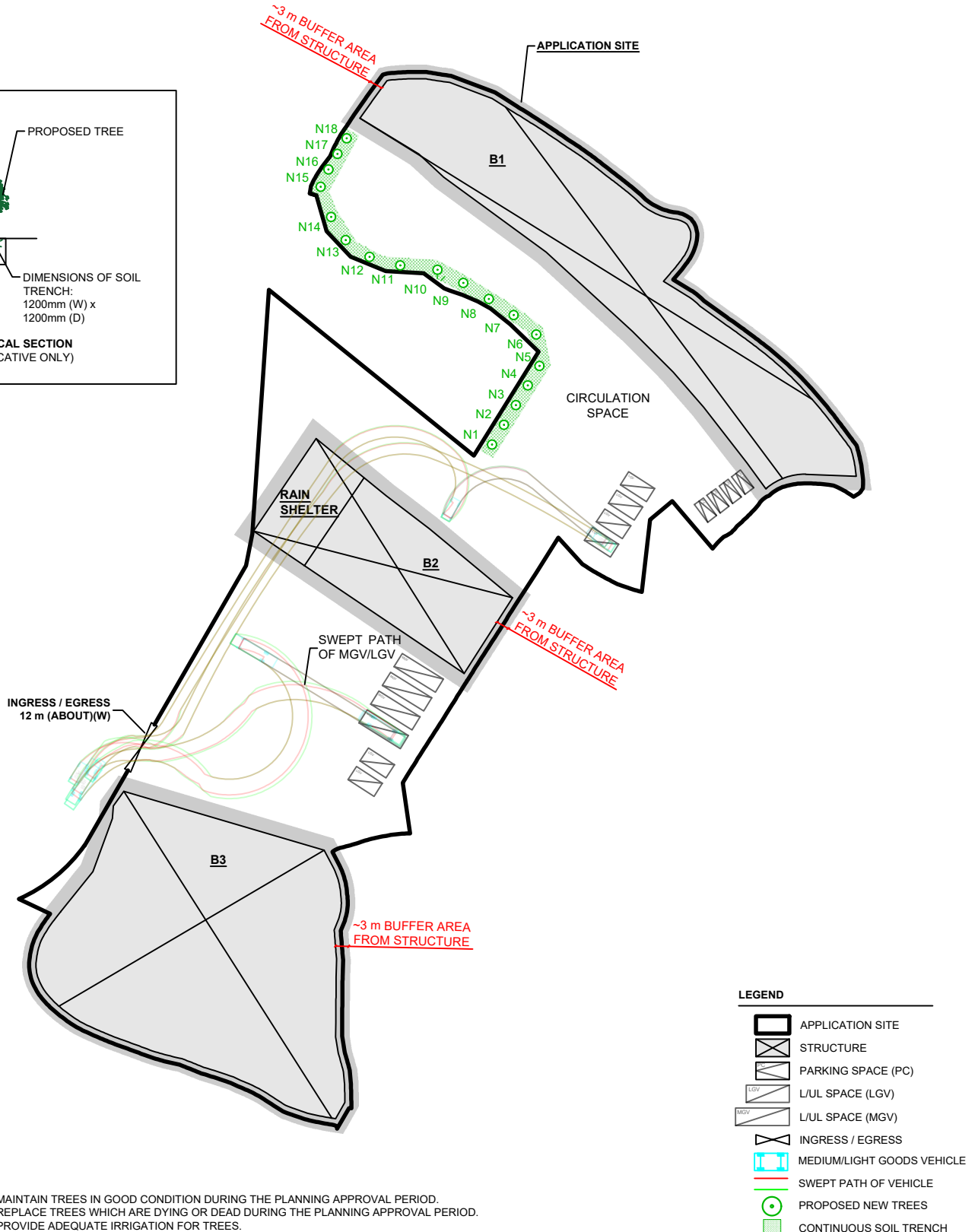
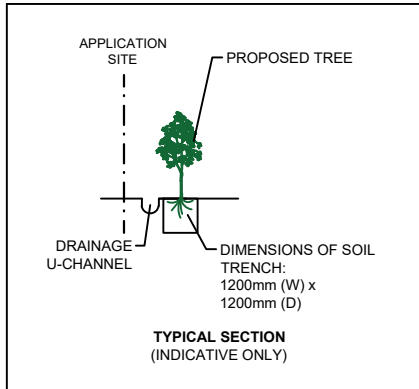
Drawing No. V1094/004	Stage P	Rev. -
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LANDSCAPE PROPOSAL

APPLICATION SITE AREA	: 16,657 m ²	(ABOUT)
COVERED AREA	: 7,321 m ²	(ABOUT)
UNCOVERED AREA	: 9,336 m ²	(ABOUT)

NO. OF NEW TREES WILL BE PLANTED	: 18 (N1 TO N18)
SPECIES OF NEW TREES	: POLYSPORA AXILLARIS
HEIGHT OF NEW TREES	: NO LESS THAN 2.75 m
SPACING OF NEW TREES	: NOT LESS THAN 4 m
DIMENSION OF TREE PITS	: 1.2 m (W) X 1.2 m (D)

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	WAREHOUSE (EXCLUDING D.G.G.) SITE OFFICE AND WASHROOM	2,588 m ² (ABOUT)	2,588 m ² (ABOUT)	13 m (ABOUT)(1-STOREY)
B2	WAREHOUSE (EXCLUDING D.G.G.) AND RAIN SHELTER	1,307 m ² (ABOUT)	1,307 m ² (ABOUT)	13 m (ABOUT)(1-STOREY)
B3	WAREHOUSE (EXCLUDING D.G.G.)	3,426 m ² (ABOUT)	3,426 m ² (ABOUT)	13 m (ABOUT)(1-STOREY)
TOTAL		7,321 m² (ABOUT)	7,321 m² (ABOUT)	



	PROJECT PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND	ADDRESS VARIOUS LOTS IN D.D. 107 AND ADJOINING GOVERNMENT LAND, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES	SCALE 1 : 1300 @ A4		TITLE LANDSCAPE PROPOSAL
			DRAWN BY LT	DATE 15.7.2024	

