From: Louis Tse [redacted]
Sent: Wednesday, December 4, 2024 4:47 PM
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Cc: [redacted]
Subject: [FI] S.16 Application No. A/YL-SK/371 - FI to address departemntal comments

Dear Sir,

Attached herewith the revised FI to **supersede** the FI submitted on 04/12/2024 (*below email*), 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]

寄件者: Louis Tse
寄件日期: 2024 年 12 月 4 日 下午 12:39
收件者: Town Planning Board <tpbpd@pland.gov.hk>
副本: [redacted]
主旨: [FI] S.16 Application No. A/YL-SK/371 - FI to address departemntal comments

Dear Sir,

Attached herewith the further information 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,

☐Urgent ☐Return receipt ☐Expand Group ☐Restricted ☐Prevent Copy

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

R-riches Property Consultants Limited | R-riches Planning Limited | R-riches Construction Limited
[redacted]

R-Riches
Property Consultants Ltd.

盈卓物業
顧問有限公司

Our Ref. : DD106 Lot 1012 & VL
Your Ref. : TPB/A/YL-SK/371

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

By Email

4 December 2024

Dear Sir,

2nd Further Information

Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government land, Shek Kong, Yuen Long, New Territories

(S.16 Planning Application No. A/YL-SK/371)

We are writing to submit further information to address departmental comments of 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.: [redacted])
(Attn.: [redacted])
(Attn.: [redacted])

[redacted]

Responses-to-Comments

Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories

(Application No. A/YL-SK/371)

(i) The applicant would like to provide clarifications for the proposed development:

Existing Condition, Filling of Land and Pond of the Application Site (the Site)

- The Site occupied an area of 78,557m^2, including 1,817m^2 of Government land (GL). Although the GL portion mostly encroached onto/in the vicinity of an existing natural stream located at the north of the Site flowing from east to west and connecting to Kam Tin River, according to the drainage impact assessment (DIA) submitted by the applicant (**Annex VI**), some of the runoff from the Site will be discharged into this existing stream. The GL portion is therefore deemed necessary to meet the operational needs for the proposed development.

- Portions of the Site (i.e. 22,190m^2), including the dried ponds (i.e. 9,287m^2) have been filled with soil at site level ranging from +12.7mPD to +15.1mPD (**Plan 1**). The current application seeks to regularize the existing land and pond filling areas. Under the current application, the Site is proposed to be filled with soil to a depth of no more than 2.3m for open storage area and circulation space, with approximately 1,320m^2 of the Site is proposed to be filled with no more than 0.2m of concrete at the top of the filled area to facilitate a flat surface for site formation of structures. The proposed site level varies from +15mPD to +16.6mPD after filling of land and pond (**Plan 1**). The applicant will strictly follow the proposed scheme, and no further filling of land or pond will be carried out during the planning approval period.

- A replacement page of application form is provided (**Annex I**).

Open Storage Activities within the Site

- The applicant intends to use the Site for open storage of the construction materials (i.e. tiles, pipes, socket, iron cover, water pump etc.), construction machineries (i.e. elevated platform, digging machine, generator, etc.), auto parts and vehicles (i.e. private car and light goods vehicle (LGV)) in order to support the open storage industry (**Annex II**). The open storage activities would only be carried out within the designated area as indicated in the layout plan. The stacking height of the open storage would not be more than 3m.

- 5.5 tonnes LGV will be deployed for transportation of construction materials, construction machineries, auto parts and goods to and out of the Site. As there is length restriction along the proposed routing to/out of the Site, only private car and LGV (i.e. gross weight not more than 5.5 tonnes) are allowed to enter/exit the Site at any time during the planning approval period. No medium or heavy goods vehicles exceeding 5.5 tonnes, including container tractors/trailers, as defined in the *Road Traffic Ordinance* are allowed to be parked/stored on or enter/exit the Site at any time during the planning approval period.

No Adverse Environmental Impact

- Solid metal walls (i.e. from 2.5m to 3.5m, subject to detail design during the construction stage) will be erected along the site boundary as sound and visual barriers, as well as to prevent dust and debris generated from the open storage activities, to minimize potential nuisance to the surrounding area. The boundary wall will be installed properly by licensed contractor to prevent misalignment of walls, to ensure that there is no gap or silt on boundary wall. In addition, maintenance will be conducted by the applicant on a regular basis.

- According to the landscape proposal provided by the applicant, preservation and direct plantation of a total number of 119 trees will also be adopted as a landscape buffer to minimize the landscape and visual impact to the nearby sensitive receivers (**Annex V**).

- During the operation of the proposed development, all dusty materials would be sprayed with water prior to any loading/unloading (L/UL) operation so as to maintain the dusty material wet, effective manual or automatic water spraying system would be provided and used at all L/UL areas. Wheel washing facilities would also be provided at the Site to thoroughly wash down muddy materials from the vehicle body and wheels before vehicles leaving the Site.

- During the construction stage, the applicant will follow the good practices stated in *Professional Persons Environmental Consultative Committee*

Practice Notes (ProPECC PNs) 2/23 to minimize the impact to the nearby watercourse water quality. Surface run-off from the construction phase will be discharged into storm drains through appropriately designed sand/silt removal facilities such as sand traps, silt traps, and sediment basins. Silt removal facilities, channels, and manholes will be maintained, and the deposited silt and grit will be removed on a regular basis, at the start and end of each rainstorm, to ensure that these facilities are always operational.

- During the operation of the proposed development, the major source of wastewater will be sewage from the portable toilet generated by staff. The applicant will implement good practices under *ProPECC PN 1/23* when designing on-site sewage system with the Site. Licensed collectors will be employed by the applicant to collect and dispose of sewage regularly.

- Sufficient drainage and fire installations facilities would be provided by the applicant after planning permission has been granted from the Town Planning Board to mitigate any adverse impact arising from the proposed development. Excavation work for the proposed drainage facilities will be carried out on top of the filled area upon the DIA is considered acceptable by the Drainage Services Department. As the excavation work is intended to facilitate the required drainage facilities and no excavation work would be conducted on the existing ground, adverse impact of Shui Lau Tin Site of Archaeological Interest should not be anticipated (**Annex III**). The applicant will reinstate the Site to a state that is suitable for agricultural activities after planning approval period.

(ii) A RtoC Table:

Departmental Comments		Applicant's Responses
1. Comments of the Antiquities and Monuments Office, Development Bureau (AMO, DEVB) (Contact Person: Ms. LAU Sin Yung; Tel: 2208 4462)		
(a)	The application site is situated within Shui Lau Tin Site of Archaeological Interest (SAI). After reviewing the Further Information (FI01) submitted by the applicant, the applicant is required to conduct a desktop studies to provide information of the current condition of the Subject Site (information including but not	Portions of the Site (i.e. 22,190m^2), including the dried ponds (i.e. 9,287m^2) have been filled with soil at site level ranging from +12.7mPD to +15.1mPD (**Plan 1**). Under the current application, the Site is proposed to be filled with soil to a depth of no more than 2.3m for open storage area and circulation space, with approximately 1,320m^2 of the Site is proposed to be filled with no more than 0.2m of concrete at the top of the filled area to facilitate a flat surface for site formation of structures.

	limited to the area that had been filled up, the thickness of the modern fill and area that had been disturbed) and details of the works, the disturbance to be caused by the proposed application to the archaeological deposits, the impact assessment on the archaeological potential of the Subject Site and so on in agreement with AMO. According to the result of the baseline review, if an archaeological investigation is necessary, the applicant shall engage an archaeologist to apply for a licence under the Antiquities and Monuments Ordinance, Cap. 53 to conduct it. An archaeological impact assessment (AIA) shall be submitted to AMO for agreement prior to applying for the licence. Subject to the findings of AIA, appropriate mitigation measures, if needed, shall be recommended for agreement by AMO and implemented by the Applicant to the satisfaction of AMO.	Regarding the drainage facilities, including peripheral u-channels and catchpits proposed in the revised DIA report, excavation work for the proposed drainage facilities (i.e. Approximately 478m^2 of the Site will be excavated of not more than 1m in depth for drainage facilities) will be carried out on top of the filled area upon the DIA is considered acceptable by the Drainage Services Department. As the small scale of excavation work is intended to facilitate the required drainage facilities and no excavation work would be conducted on the existing ground, adverse impact of Shui Lau Tin Site of Archaeological Interest should not be anticipated. Please refer to the photomontage and revised DIA at **Annexes III** and **VI** for details.
2. Comments of the Commissioner for Transport (C for T) (Contact Person: Mr. Phil CAI; Tel: 2399 2421)		
(a)	Given the size of the site is large, the applicant shall provide anticipated traffic generation during construction stage.	Mini dump trucks, flatbed trucks and mini excavators will be deployed for transportation of concrete to facilitate the land filling works during the construction stage. It is estimated that not more than 30 trips will be generated and attracted by the application site (the Site) per day, details are as follows:

<table>
<tr><td></td><td></td><td>
<table>
<tr><th>Time Period
(Mon to Sat)</th><th>Trip Generation</th><th>Trip Attraction</th><th>Total</th></tr>
<tr><td>08:00 – 10:00</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>10:00 – 12:00</td><td>5</td><td>5</td><td>10</td></tr>
<tr><td>13:00 – 15:00</td><td>5</td><td>5</td><td>10</td></tr>
<tr><td>15:00 – 17:00</td><td>5</td><td>5</td><td>10</td></tr>
</table>

As number of vehicular trips generated and attracted by the proposed development is minimal, adverse traffic impact to nearby road network should not be anticipated.
</td></tr>
<tr><td>(b)</td><td>Please advise why 18 number of private car parking space is provided for staff but the trip generation at am and pm peak are 7 and 2 only.</td><td>
The proposed trip generation at am and pm peak are revised as follows:

<table>
<tr><th rowspan="2">Time Period</th><th colspan="5">Trip Generation and Attraction</th></tr>
<tr><th colspan="2">PC</th><th colspan="2">LGV</th><th rowspan="2">2-Way Total</th></tr>
<tr><th>In</th><th>Out</th><th>In</th><th>Out</th></tr>
<tr><td>Trips at AM peak per hour (09:00 – 10:00)</td><td>18</td><td>3</td><td>5</td><td>1</td><td>27</td></tr>
<tr><td>Trips at PM peak per hour (17:00 – 18:00)</td><td>3</td><td>18</td><td>2</td><td>6</td><td>29</td></tr>
<tr><td>Traffic trip per hour (average)</td><td>3</td><td>3</td><td>5</td><td>5</td><td>16</td></tr>
</table>
</td></tr>
<tr><td>(c)</td><td>Please elaborate the reason of allocating the parking as well as loading / unloading space in the corners of the site.</td><td>As the nature of the ‘open storage’ use requires efficient vehicle circulation L/UL areas, and adequate parking spaces. The proposed layout with allocating the parking and L/UL space in the corners of the Site is considered necessary to accommodate the seamless movement of light goods vehicles, trucks and other equipment, as well as the safe separation of staff and vehicular traffic.</td></tr>
</table>

3.	**Comments of the Chief Town Planner/Urban Design and Landscape, Planning Department (CTP/UD&L, PlanD) (Contact Person: Mr. HUI Yu San, Samuel; Tel: 3565 3957)**	
(a)	It is noted that the application site boundary is revised and the site area is reduced. 60 nos. of existing trees are surveyed within site. 35 nos. of new tree are proposed within site to mitigate the loss of 33 nos. of trees proposed to be felled. Please find our comments from landscape planning perspective: It is noted from the R to C table that no protected species was identified. However, *Dalbergia odorifera* (降香黃檀) (T12) which is the protected species under Protection of Endangered Species of Animals and Plants Ordinance (Cap.586) was identified in the Tree Survey Schedule. Please clarify.	According to the tree survey conducted on 16/08/2024, 31/10/2024, 29/11/2024 and 2/12/2024, a total of 119 nos. of trees were record within the Site, within which trees clusters were found among the northeastern, northwestern and western sides of the Site (**Annex IV**). 77 out of 119 nos. of identified trees are proposed to be felled, 42 are proposed to be retained and 77 of new trees are proposed to be planted. Please refer to tree treatment schedule at **Annex IV** for details of the tree information and treatment. To facilitate the proposed development, a tree preservation and landscape proposal (TPLP) has been submitted by the applicant to provide landscape mitigation measures within the Site (**Annex V**). Direct plantation and preservation of a total of 119 trees will be adopted as a landscape buffer to minimize the landscape and visual impact to the nearby sensitive receivers. Among the 119 nos. of identified trees, T12 and T92 are identified as *Pterocarpus indicus (紫檀)* and T61, T101 and T102 are identified as *Aquilaria sinensis 土沉香 (牙香樹)*, which are the protected species under Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) (**Annex IV**). These protected species will be preserved and maintained by the applicant during the planning approval period. As preservation and direct plantation will be adopted by the applicant to retain the tree resources within the Site, all these trees within the Site will be well maintained by the applicant during the planning approval period, adverse landscape impact generated from the proposed development should not be anticipated.

(b)	Based on our site photos taken in May 2024, approximate 3 nos. of *Aquilaria sinensis* (土沉香) and which is rare and protected species were observed in the west of the site near the annotation "GV05" in Tree Survey Plan (Plan3). The applicant is advised to review the Tree Survey Plan and avoid removal of rare and protected species.	T61, T101 and T102 were newly records as *Aquilaria sinensis 土沉香(牙香樹)* at the Site near "GV05". These trees will be preserved and maintained by the applicant during the planning approval period.
(c)	According to the aerial photo of 2023 and the site photos provided in the submission, dense woodland is observed in the west of the site. The applicant should review and provide the existing tree information for our consideration.	The existing tree information, including the west of the Site has been updated, please refer to the revised Tree Survey Report for details.
4. Comments of the Chief Engineer/Mainland North, Drainage Services Department (CE/MN, DSD) (Contact Person: Mr. Kenneth CHAN; Tel: 2300 1259)		
(a)	The application site is encroached onto/in the vicinity of an existing streamcourse. The applicant shall be required to place all the proposed works 3m away from the top of the bank of the streamcourse. All the proposed works in the vicinity of the streamcourse should not create any adverse drainage impacts, both during and after construction. Proposed flooding mitigation measures if necessary shall be provided at the resources of the applicant to my satisfaction.	Noted. All proposed works are 3m away from the top of the river bank. Fencing will also be erected along the existing streamcourse to separate the proposed development and streamcourse. All the proposed works in the vicinity of the streamcourse would not create any adverse drainage impacts. Please also refer to the revised drainage impact assessment report (**Annex VI**).

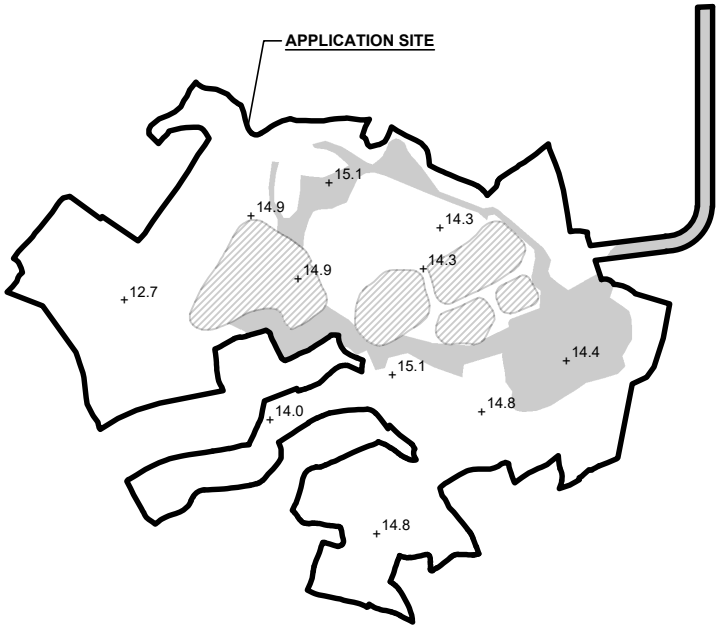
(b)	Please show the construction details as all discharge point and indicate all C.L., I.L and catchpit/streamcourse bottom level in the drawing.	Noted. The connection details at all discharge points are shown on Drawing No. V1053/003A~006A in Appendix A.
(c)	The details showing in the stormwater drainage design table are incompatible.	Noted. Please find the revised calculations in Appendix B.
(d)	Please show breakdown of catchment area (for each row) in the stormwater drainage table.	Noted. Please find the revised calculations in Appendix B.
(e)	Calculation to demonstrate the downstream drainage system receiving the discharge from the development has adequate spare capacity to accommodate the runoff is required.	Noted. The downstream drainage system for site discharges after development has sufficient spare capacity to accommodate the runoff. Please find the calculations in Appendix B.
(f)	The natural stream of the proposed discharge point near MH6 and Outlet C are not maintained by this Department, consent from the concerned department/maintenance parties/owners should be obtained for the proposed connection to their drainage systems.	Noted. Consent from the concerned departments/maintenance parties/owners would be obtained for the proposed connections to their drainage systems.
(g)	The applicant should submit form HBP1 to this Division for application of technical audit for any proposed connection to DSD's drainage facilities.	Noted. Form HBP1 shall be submitted for application of technical audit for any proposed connection to DSD's drainage facilities.

(h)	The applicant shall resolve any conflict/disagreement with relevant lot owner(s) and seek LandsD's permission for laying new drains/channels and/or modifying/upgrading existing ones in other private lots or on Government land outside the application site.	Noted. We will liaise with relevant lot owner(s) to resolve any conflict/disagreement and seek LandsD's permission for laying new drains/channels and/or modifying/upgrading existing ones in other private lots or on Government land outside the Site.

EXISTING CONDITION OF THE APPLICATION SITE

APPLICATION SITE AREA	: 78,557 m^2	(ABOUT)
EXISTING SITE SURFACE	: SOILED GROUND	(ABOUT)
EXISTING FILLED AREA	: 22,190 m^2 (ABOUT)	
EXISTING SITE LEVELS	: +12.7 mPD TO +15.1 mPD	(ABOUT)
EXISTING FILLING OF POND AREA	: 9,287 m^2	(ABOUT)
EXISTING FILLING OF LAND AREA	: 12,903 m^2	(ABOUT)

SITE LEVELS ARE FOR INDICATIVE PURPOSE ONLY.



EXISTING SITE LEVEL OF THE APPLICATION SITE

(INDICATIVE ONLY)

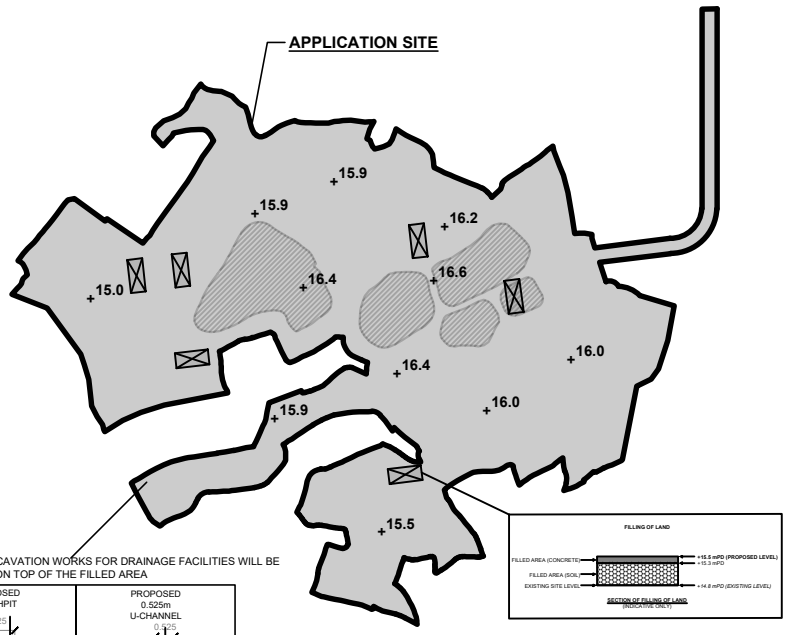
LEGEND

- APPLICATION SITE
- EXISTING FILLED LAND AREA
- EXISTING FILLED POND AREA
- +15.1 EXISTING SITE LEVEL

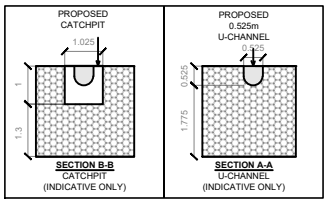
PROPOSED FILLING OF LAND AND POND AREA OF THE APPLICATION SITE

APPLICATION SITE AREA	: 78,557 m^2	(ABOUT)
PROPOSED FILLING OF LAND AREA	: 78,557 m^2	(ABOUT)
DEPTH OF LAND FILLING	: NOT MORE THAN 2.3 m	
PROPOSED SITE LEVELS	: +15.0 mPD TO +16.6 mPD	(ABOUT)
PROPOSED FILLING OF POND AREA	: 9,287 m^2	(ABOUT)
DEPTH OF POND FILLING	: NOT MORE THAN 0.5 m	(ABOUT)
MATERIAL OF LAND AND POND FILLING	: SOIL	
PURPOSE OF LAND FILLING	: OPEN STORAGE AREA, AND CIRCULATION SPACE	
FILLING OF LAND AND POND FOR SITE FORMATION OF STRUCTURES#	: 1,320 m^2	
MATERIAL OF FILLING FOR SITE FORMATION OF STRUCTURE	: CONCRETE	

#0.2m OF CONCRETE WILL BE FILLED ON TOP OF THE FILLED LAND/POND TO FACILITATE A FLAT SURFACE FOR SITE FORMATION OF STRUCTURES



PROPOSED EXCAVATION WORKS FOR DRAINAGE FACILITIES WILL BE CARRIED OUT ON TOP OF THE FILLED AREA

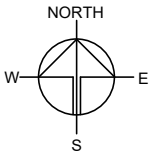


PROPOSED SITE LEVEL OF THE APPLICATION SITE

(INDICATIVE ONLY)

LEGEND

- APPLICATION SITE
- STRUCTURE
- FILLING OF POND AREA
- FILLING OF LAND AREA
- +16.4 PROPOSED SITE LEVEL



PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

PROJECT

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES, AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND

SITE LOCATION

VARIOUS LOTS IN D.D. 106 AND ADJOINING GOVERNMENT LAND SHEK KONG, PAT HEUNG, YUEN LONG, NEW TERRITORIES

SCALE

1 : 5000 @ A4

DRAWN BY	DATE
MN	26.3.2024
REVISED BY	DATE
LT	28.11.2024
APPROVED BY	DATE

DWG. TITLE

FILLING OF LAND & POND AREA

DWG NO.	VER.
PLAN 1	001

6. Type(s) of Application 申請類別

(A) Temporary Use/Development of Land and/or Building Not Exceeding 3 Years in Rural Areas or Regulated Areas
位於鄉郊地區或受規管地區土地上及/或建築物內進行為期不超過三年的臨時用途/發展
(For Renewal of Permission for Temporary Use or Development in Rural Areas or Regulated Areas, please proceed to Part (B))
(如屬位於鄉郊地區或受規管地區臨時用途/發展的規劃許可續期，請填寫(B)部分)

(a) Proposed use(s)/development 擬議用途/發展	Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond (Please illustrate the details of the proposal on a layout plan) (請用平面圖說明擬議詳情)
(b) Effective period of permission applied for 申請的許可有效期	☑ year(s) 年 ..... 3 ..... ☐ month(s) 個月 .....

(c) Development Schedule 發展細節表

Proposed uncovered land area 擬議露天土地面積	77,237	sq.m ☑About 約
Proposed covered land area 擬議有上蓋土地面積	1,320	sq.m ☑About 約
Proposed number of buildings/structures 擬議建築物／構築物數目	6	
Proposed domestic floor area 擬議住用樓面面積	N/A	sq.m ☐About 約
Proposed non-domestic floor area 擬議非住用樓面面積	1,320	sq.m ☑About 約
Proposed gross floor area 擬議總樓面面積	1,320	sq.m ☑About 約

Proposed height and use(s) of different floors of buildings/structures (if applicable) 建築物/構築物的擬議高度及不同樓層的擬議用途 (如適用) (Please use separate sheets if the space below is insufficient) (如以下空間不足，請另頁說明)

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
B2	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
B3	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
B4	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
B5	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
B6	SITE OFFICE AND WASHROOM	220 m² (ABOUT)	220 m² (ABOUT)	4 m (ABOUT)(1-STOREY)
	TOTAL	1,320 m² (ABOUT)	1,320 m² (ABOUT)	

Proposed number of car parking spaces by types 不同種類停車位的擬議數目

Private Car Parking Spaces 私家車車位	18
Motorcycle Parking Spaces 電單車車位	
Light Goods Vehicle Parking Spaces 輕型貨車泊車位	
Medium Goods Vehicle Parking Spaces 中型貨車泊車位	
Heavy Goods Vehicle Parking Spaces 重型貨車泊車位	
Others (Please Specify) 其他 (請列明)	

Proposed number of loading/unloading spaces 上落客貨車位的擬議數目

Taxi Spaces 的士車位	
Coach Spaces 旅遊巴車位	
Light Goods Vehicle Spaces 輕型貨車車位	18
Medium Goods Vehicle Spaces 中型貨車車位	
Heavy Goods Vehicle Spaces 重型貨車車位	
Others (Please Specify) 其他 (請列明)	

Annex II – Details of the Open Storage Uses

Open storage activities would only be taking place on the designated area within the application site (i.e. about 62,606m^2). The examples of the construction materials/machineries, auto parts and vehicles are shown as follows:

Type of Open Storage of Construction Materials

(1) Tiles: from 0.3 m (L) x 0.3 m (W) and up to 0.6 m (L) x 0.6 m (W)

(2) Iron cover: 0.6 m (L) x 0.6 cm (W) x 0.1 m (H)

(3) Stainless Steel Socket: 0.05 m (L) x 0.05 m (W) x 0.3 m (H)

(4) Pressure Pipe: ranges from 0.3 m (W) to 0.9 m (W), with lengths typically around 1 m

(5) Water pump: 0.35 m (L) x 0.4 m (W) x 0.3 m (H)

Type of Open Storage of Construction Machineries

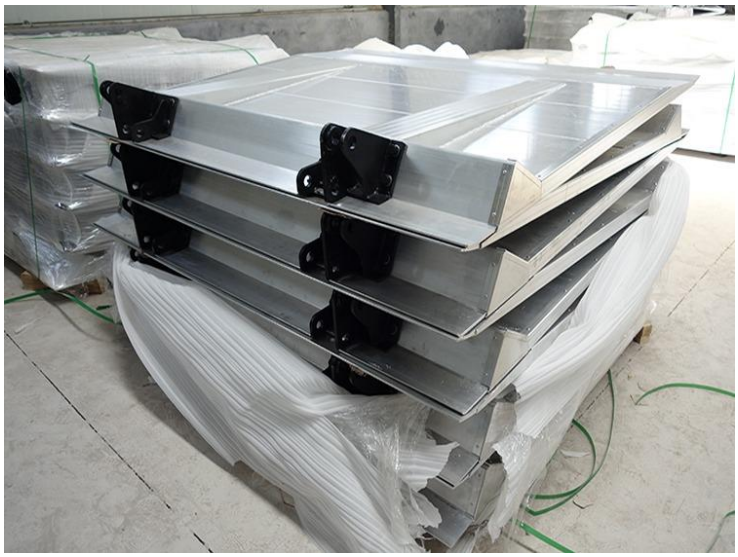
(1) Digging Machine: 0.4m (L) x 0.3m (W) x 0.4m (H)

(2) Generator: 1.2m (L) x 1.16 (W) x 1.2m (H)

(3) Elevated platform: 1.44m(L) x 0.76m (W) x 1.7m (H)

Type of Open Storage of Auto Parts and Vehicles

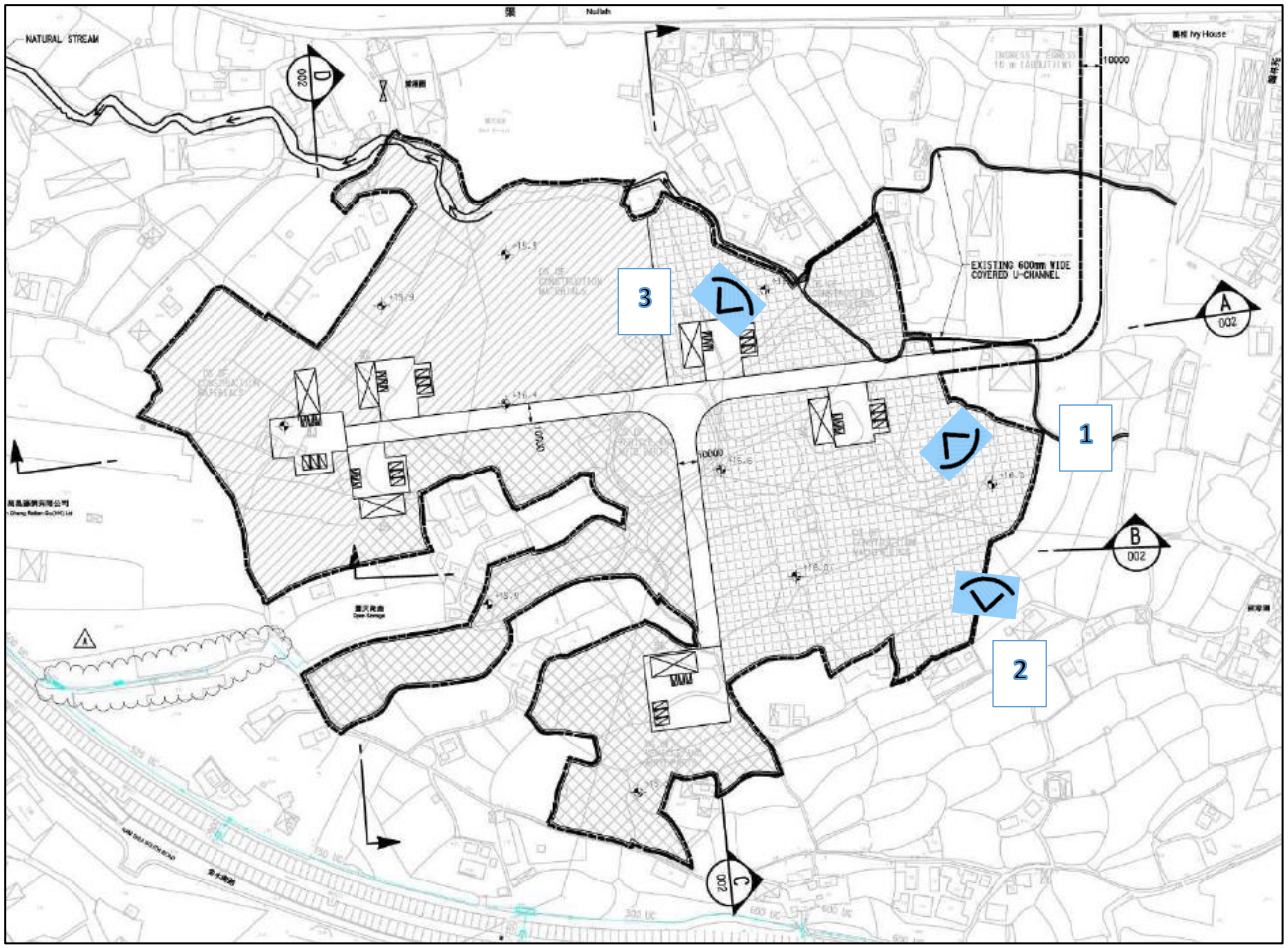
(1) Examples of Auto Parts



(2) Examples of Vehicle

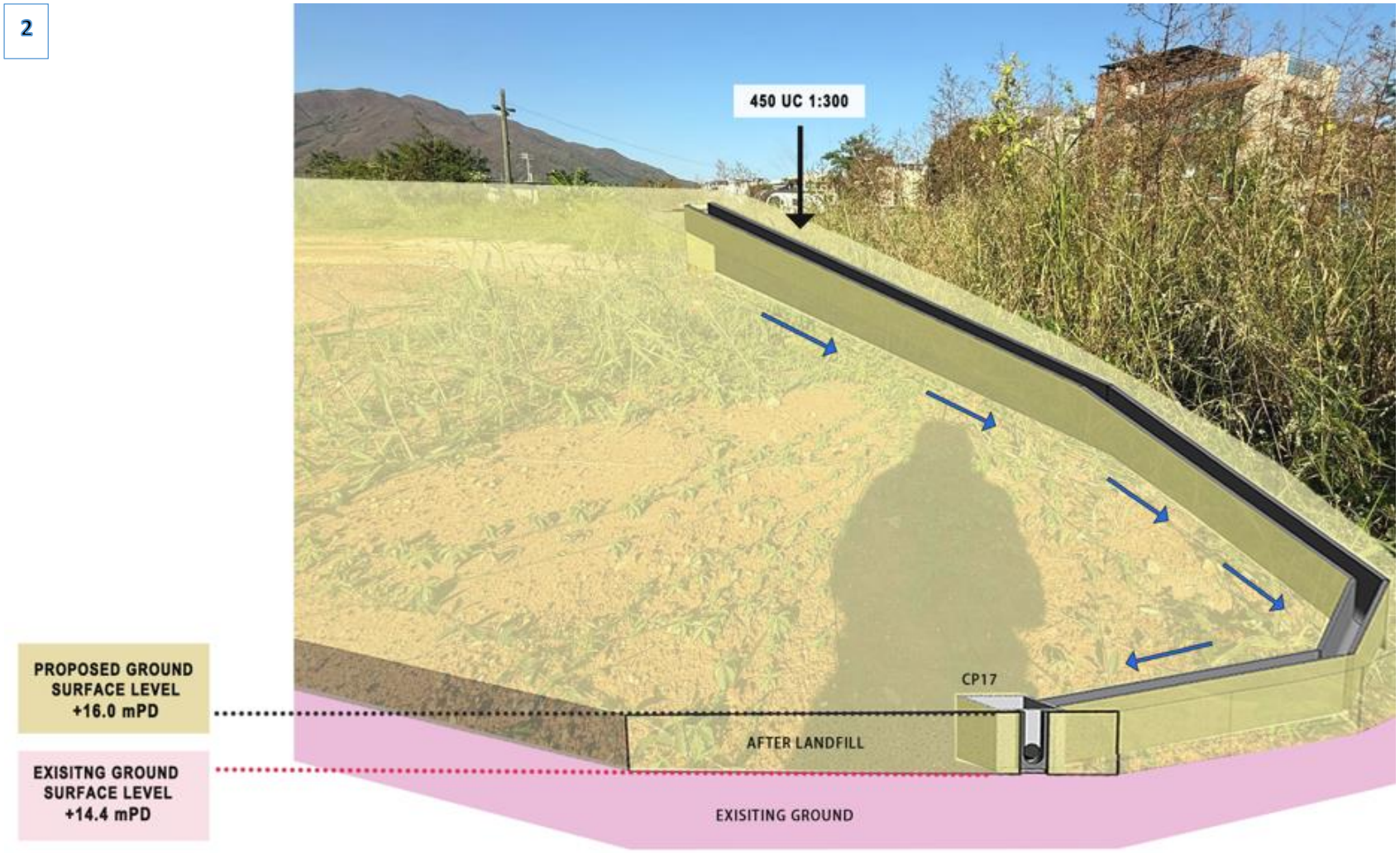
Annex III – Excavation Works for the Proposed Drainage Facilities

The proposed excavation work for the proposed drainage facilities will be carried out on top of the filled area upon the drainage Impact assessment is considered acceptable by the Drainage Services Department. As the excavation work is intended to facilitate the required drainage facilities and no excavation works would take place on the existing ground, adverse impact of Shui Lau Tin Site of Archaeological Interest should not be anticipated. Photomontage to illustrate the proposed filling of land and the provision of drainage facilities are shown as follows:

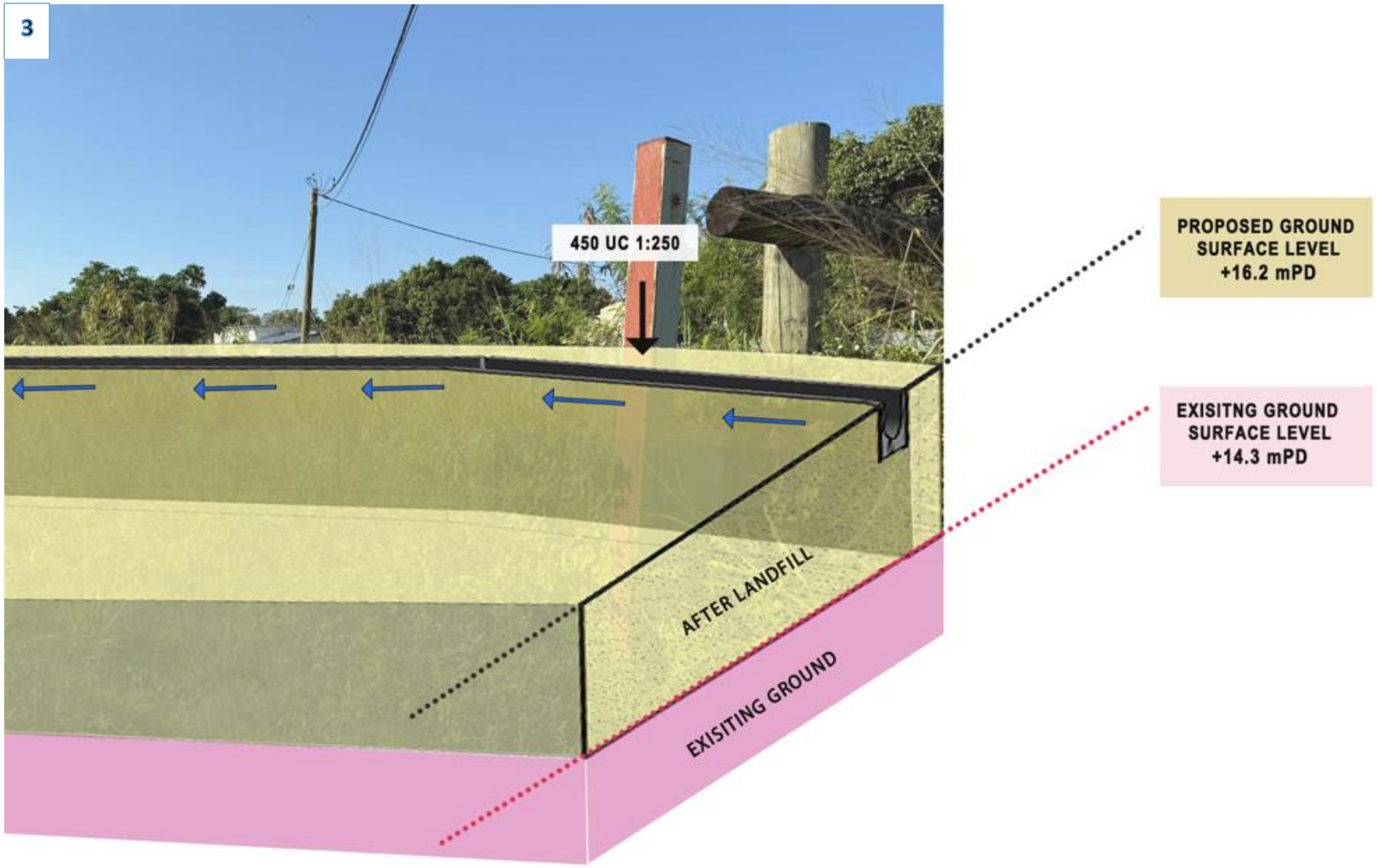


(Photo taken on 28.12.2024)

2



(Photo taken on 28.12.2024)



(Photo taken on 28.12.2024)

永豪園綠化工程有限公司
WING HO YUEN LANDSCAPING CO., LTD.

Tree Survey Report

Date of Survey: 16th August, 31st October, 29th November, 2nd December 2024

Location:

Various Lots in D.D. 106 and Adjoining Government Land
Shek Kong, Pat Heung, Yuen Long, New Territories

Prepared by:

Mak Ka Hei

Registered Arborist

Date: 2nd December 2024

永豪園綠化工程有限公司
WING HO YUEN LANDSCAPING CO., LTD.

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1. Introduction 3

2. Summary of Existing Trees 4

Appendix:

I. Tree Survey Plan

II. Tree Survey Schedule

III. Photo Records

Disclaimer:

The tree survey conducted indicates the condition of the surveyed trees at the time of inspection only. The assessments of amenity value, form, health and structural condition of the trees surveyed are based on visual inspection from the ground only. No aerial inspection, root digging or mapping, or diagnostic testing has been conducted as part of this survey. Wing Ho Yuen Landscaping Company Limited cannot accept responsibility for future failure or defects detected after the time of inspection of the trees surveyed in this report.

1. Introduction

The survey conducted is to record all the existing trees in the tree survey boundary. The survey include tree species identification, tree tagging with durable labels, the measurements of overall tree height, Diameter at Breast Height (DBH), average crown spread, the evaluation on amenity value, form, health and structural conditions.

The tree survey was conducted on 16th August, 31st October, 29th November, 2nd December 2024. Plants with DBH less than 95mm were not recorded in the survey.

2. Summary of Existing Trees

The surveyed site is located at Various Lots in D.D. 106 and Adjoining Government Land Shek Kong, Pat Heung, Yuen Long, New Territories

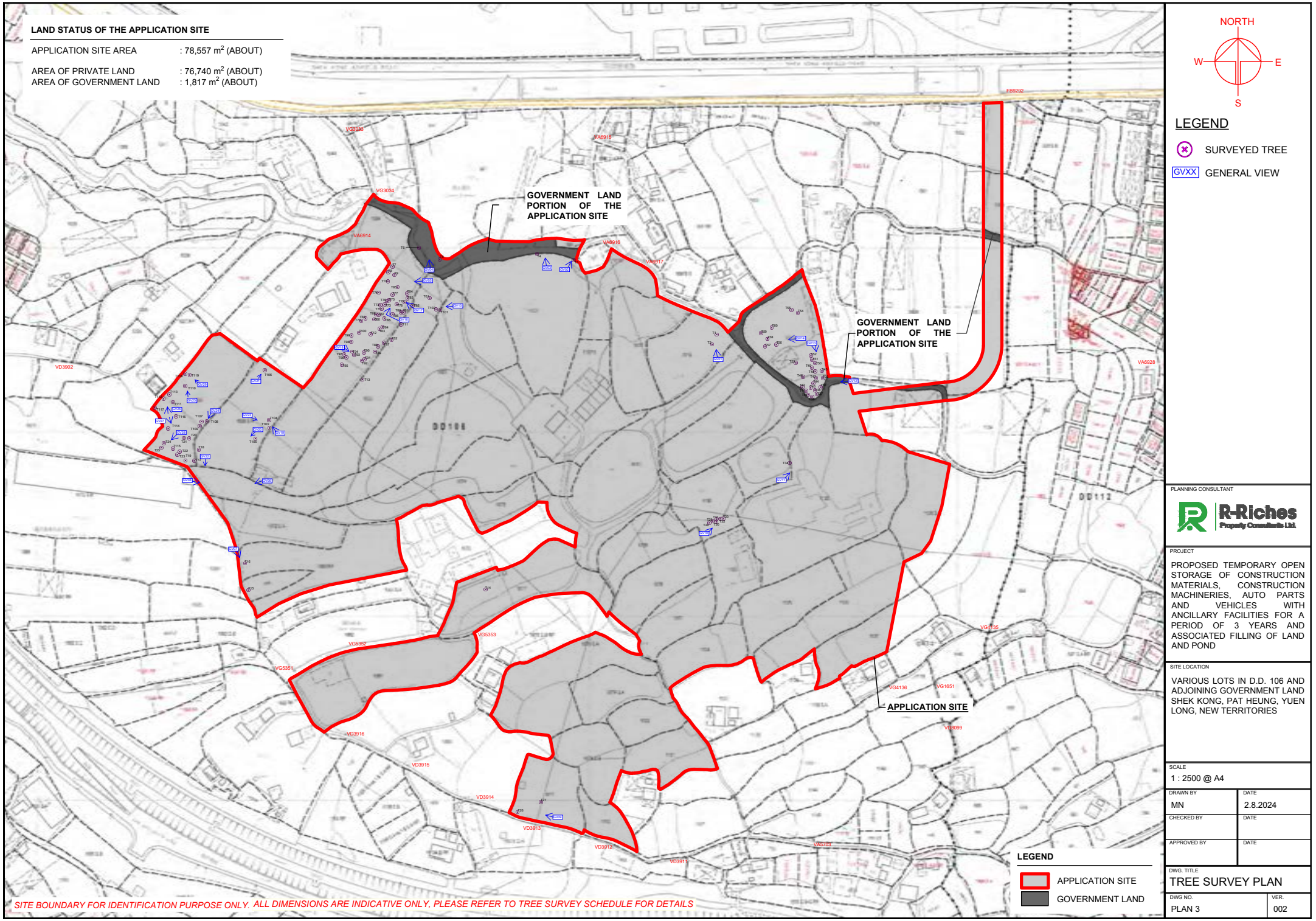
At the time of inspection on 16th August, 31st October, 29th November, 2nd December 2024, **119 nos.** tree were found within the Site. **6 nos.** of dead trees (T30, T101, T102, T103, T104, T109) were recorded in the surveyed area.

T12 and T92 were identified as *Pterocarpus indicus* 紫檀; T61, T101 and T102 were identified as *Aquilaria sinensis* 土沉香(牙香樹) which is rare and protected species. However, T101 and T102 were observed dead in the time of inspection.

Location of individual tree refers to Appendix I.

Details of tree conditions and photo records for individual tree are recorded in the Appendix II and Appendix III respectively.

Appendix I – Tree Survey Plan



PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

PROJECT

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES, AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND

SITE LOCATION

VARIOUS LOTS IN D.D. 106 AND ADJOINING GOVERNMENT LAND SHEK KONG, PAT HEUNG, YUEN LONG, NEW TERRITORIES

SCALE	1 : 2500 @ A4
DRAWN BY	MN
DATE	2.8.2024
CHECKED BY	
DATE	
APPROVED BY	
DATE	

DWG. TITLE

TREE SURVEY PLAN

DWG NO.	PLAN 3
VER.	002

Appendix II –Tree Treatment Schedule

Tree Treatment Schedule

Tree No.	Photo No.	Species		Tree Size			Proposed Treatment (Retain / Transplant / Fell)	Remarks (Old and Valuable Tree (OVT), potentially registrable OVT, rare species, protected species, ecological and historical significance, etc.)
		Scientific Name	Chinese Name	Height (m)	DBH (mm)	Crown Spread (m)		
T1	1	*Dimocarpus longan*	龍眼	6.0	180	7.5	Retain	
T2	2	*Dimocarpus longan*	龍眼	6.0	210	6.0	Fell	
T3	3	*Dimocarpus longan*	龍眼	8.0	220	7.0	Retain	
T4	4	*Citrus maxima*	柚	8.0	190	7.0	Retain	
T5	5	*Ficus religiosa*	菩提樹	6.0	130	5.0	Retain	
T6	6	*Macaranga tanarius var. tomentosa*	血桐	5.0	140	7.0	Retain	
T7	7	*Leucaena leucocephala*	銀合歡	7.0	120	4.0	Fell	
T8	8	*Leucaena leucocephala*	銀合歡	8.0	140	2.0	Fell	
T9	9	*Leucaena leucocephala*	銀合歡	8.0	150	3.0	Fell	
T10	10	*Leucaena leucocephala*	銀合歡	8.0	130	5.0	Fell	
T11	11	*Leucaena leucocephala*	銀合歡	8.0	160	5.0	Fell	
T12	12-15	*Pterocarpus indicus*	紫檀	16.0	410	10.0	Retain	rare species, protected species
T13	16	*Macaranga tanarius var. tomentosa*	血桐	5.0	100	3.0	Fell	
T14	17	*Dimocarpus longan*	龍眼	7.0	210	5.0	Fell	
T15	18	*Macaranga tanarius var. tomentosa*	血桐	7.0	180	6.0	Retain	
T16	19	*Macaranga tanarius var. tomentosa*	血桐	7.0	190	6.0	Retain	
T17	20	*Macaranga tanarius var. tomentosa*	血桐	7.0	300	8.0	Retain	
T18	21	*Celtis sinensis*	朴樹	10.0	180	6.0	Retain	
T19	22	*Celtis sinensis*	朴樹	11.0	170	5.0	Retain	
T20	23	*Celtis sinensis*	朴樹	10.0	160	5.0	Retain	
T21	24	*Celtis sinensis*	朴樹	9.0	170	6.0	Retain	
T22	25	*Macaranga tanarius var. tomentosa*	血桐	8.0	160	5.0	Retain	
T23	26	*Macaranga tanarius var. tomentosa*	血桐	8.0	150	4.0	Retain	
T24	27	*Macaranga tanarius var. tomentosa*	血桐	7.0	170	5.0	Retain	
T25	28	*Macaranga tanarius var. tomentosa*	血桐	8.0	160	7.0	Retain	
T26	29	*Morus alba*	桑	7.0	120	3.0	Fell	
T27	30	*Macaranga tanarius var. tomentosa*	血桐	6.0	130	4.0	Fell	
T28	31	*Ficus hispida*	對葉榕(牛乳樹)	7.0	160	5.0	Fell	
T29	32	*Macaranga tanarius var. tomentosa*	血桐	8.0	170	6.0	Fell	
T30	33	Dead tree	死樹	7.0	170	4.0	Fell	
T31	34	*Ficus hispida*	對葉榕(牛乳樹)	8.0	190	5.0	Fell	
T32	35	*Celtis sinensis*	朴樹	9.0	150	4.0	Fell	
T33	36	*Celtis sinensis*	朴樹	9.0	160	4.0	Fell	

Tree Treatment Schedule

Tree No.	Photo No.	Species		Tree Size			Proposed Treatment (Retain / Transplant / Fell)	Remarks (Old and Valuable Tree (OVT), potentially registrable OVT, rare species, protected species, ecological and historical significance, etc.)
		Scientific Name	Chinese Name	Height (m)	DBH (mm)	Crown Spread (m)		
T34	37	*Celtis sinensis*	朴樹	9.0	155	5.0	Fell	
T35	38	*Litchi chinensis*	荔枝	6.0	140	4.0	Retain	
T36	39	*Litchi chinensis*	荔枝	6.0	180	5.0	Fell	
T37	40	*Litchi chinensis*	荔枝	6.0	160	4.0	Fell	
T38	41	*Litchi chinensis*	荔枝	6.0	120	5.0	Fell	
T39	42	*Litchi chinensis*	荔枝	7.0	120	5.0	Fell	
T40	43	*Dimocarpus longan*	龍眼	7.0	130	4.0	Fell	
T41	44	*Dimocarpus longan*	龍眼	7.0	140	5.0	Fell	
T42	45	*Dimocarpus longan*	龍眼	7.0	170	4.0	Fell	
T43	46	*Syzygium hancei*	韓氏蒲桃(紅鱗蒲桃)	8.0	350	8.0	Fell	
T44	47	*Averrhoa carambola*	楊桃	5.0	170	6.0	Fell	
T45	48	*Litchi chinensis*	荔枝	6.0	180	6.0	Retain	
T46	49	*Averrhoa carambola*	楊桃	5.0	140	5.0	Fell	
T47	50	*Psidium guajava*	番石榴	6.0	120	2.0	Retain	
T48	51	*Psidium guajava*	番石榴	6.0	110	4.0	Retain	
T49	52	*Psidium guajava*	番石榴	6.0	120	3.0	Retain	
T50	53	*Dimocarpus longan*	龍眼	6.0	130	4.0	Retain	
T51	54	*Dimocarpus longan*	龍眼	6.0	140	5.0	Retain	
T52	55	*Dimocarpus longan*	龍眼	6.0	110	6.0	Retain	
T53	56	*Mangifera indica*	芒果	7.0	140	4.0	Fell	
T54	57	*Dimocarpus longan*	龍眼	8.0	230	5.0	Fell	
T55	58	*Dimocarpus longan*	龍眼	8.0	240	6.0	Fell	
T56	59	*Dimocarpus longan*	龍眼	8.0	220	5.0	Fell	
T57	60	*Dimocarpus longan*	龍眼	8.0	260	6.0	Fell	
T58	61	*Dimocarpus longan*	龍眼	8.0	250	5.5	Fell	
T59	62	*Dimocarpus longan*	龍眼	8.0	220	6.0	Fell	
T60	63	*Litchi chinensis*	荔枝	8.0	210	6.0	Fell	
T61	64-65	*Aquilaria sinensis*	土沉香(牙香樹)	5.5	210	3.0	Retain	rare species, protected species
T62	66	*Macaranga tanarius var. tomentosa*	血桐	6.0	240	4.0	Fell	
T63	67	*Macaranga tanarius var. tomentosa*	血桐	6.0	180	4.0	Fell	
T64	68	*Ficus hispida*	對葉榕(牛乳樹)	7.0	130	5.0	Fell	
T65	69	*Leucaena leucocephala*	銀合歡	7.0	150	4.0	Fell	

Tree Treatment Schedule

Tree No.	Photo No.	Species		Tree Size			Proposed Treatment (Retain / Transplant / Fell)	Remarks (Old and Valuable Tree (OVT), potentially registrable OVT, rare species, protected species, ecological and historical significance, etc.)
		Scientific Name	Chinese Name	Height (m)	DBH (mm)	Crown Spread (m)		
T66	70	*Pongamia pinnata*	水黃皮	7.0	130	6.0	Fell	
T67	71	*Macaranga tanarius var. tomentosa*	血桐	7.0	140	5.0	Fell	
T68	72	*Pongamia pinnata*	水黃皮	7.0	140	6.0	Fell	
T69	73	*Macaranga tanarius var. tomentosa*	血桐	6.0	120	4.0	Fell	
T70	74	*Macaranga tanarius var. tomentosa*	血桐	5.0	100	5.0	Fell	
T71	75	*Macaranga tanarius var. tomentosa*	血桐	6.5	110	6.0	Fell	
T72	76	*Macaranga tanarius var. tomentosa*	血桐	8.0	95	4.0	Fell	
T73	77	*Macaranga tanarius var. tomentosa*	血桐	6.0	95	5.0	Fell	
T74	78	*Macaranga tanarius var. tomentosa*	血桐	6.0	220	5.5	Fell	
T75	79	*Leucaena leucocephala*	銀合歡	6.0	100	5.0	Fell	
T76	80	*Macaranga tanarius var. tomentosa*	血桐	6.0	120	3.0	Fell	
T77	81	*Leucaena leucocephala*	銀合歡	7.0	130	4.0	Fell	
T78	82	*Macaranga tanarius var. tomentosa*	血桐	5.0	100	3.0	Fell	
T79	83	*Macaranga tanarius var. tomentosa*	血桐	6.0	95	3.0	Fell	
T80	84	*Leucaena leucocephala*	銀合歡	7.0	130	4.0	Fell	
T81	85	*Leucaena leucocephala*	銀合歡	6.0	140	3.0	Fell	
T82	86	*Leucaena leucocephala*	銀合歡	6.0	150	4.0	Fell	
T83	87	*Leucaena leucocephala*	銀合歡	7.0	120	5.0	Fell	
T84	88	*Leucaena leucocephala*	銀合歡	7.0	120	3.5	Fell	
T85	89	*Macaranga tanarius var. tomentosa*	血桐	6.0	130	4.0	Fell	
T86	90	*Macaranga tanarius var. tomentosa*	血桐	6.0	140	4.5	Fell	
T87	91	*Leucaena leucocephala*	銀合歡	7.0	100	4.0	Fell	
T88	92	*Macaranga tanarius var. tomentosa*	血桐	6.0	120	3.0	Fell	
T89	93	*Macaranga tanarius var. tomentosa*	血桐	7.0	110	4.0	Fell	
T90	94	*Macaranga tanarius var. tomentosa*	血桐	6.0	120	4.5	Fell	
T91	95-96	*Ficus hispida*	對葉榕(牛乳樹)	7.0	160	6.0	Fell	
T92	98	*Pterocarpus indicus*	紫檀	10.0	400	8.0	Retain	rare species, protected species
T93	99	*Macaranga tanarius var. tomentosa*	血桐	5.0	95	4.0	Fell	
T94	100	*Macaranga tanarius var. tomentosa*	血桐	6.0	120	3.0	Fell	
T95	101	*Macaranga tanarius var. tomentosa*	血桐	7.0	110	3.0	Fell	
T96	102	*Macaranga tanarius var. tomentosa*	血桐	7.0	100	3.0	Fell	
T97	103	*Macaranga tanarius var. tomentosa*	血桐	6.0	95	4.0	Fell	
T98	104	*Macaranga tanarius var. tomentosa*	血桐	6.0	100	3.0	Fell	

Tree Treatment Schedule

Tree No.	Photo No.	Species		Tree Size			Proposed Treatment (Retain / Transplant / Fell)	Remarks (Old and Valuable Tree (OVT), potentially registrable OVT, rare species, protected species, ecological and historical significance, etc.)
		Scientific Name	Chinese Name	Height (m)	DBH (mm)	Crown Spread (m)		
T99	105	*Macaranga tanarius var. tomentosa*	血桐	7.0	100	4.0	Fell	
T100	106	*Macaranga tanarius var. tomentosa*	血桐	6.0	95	2.0	Fell	
T101	107	*Aquilaria sinensis*	土沉香(牙香樹)	5.0	110	2.0	Retain	rare species, protected species
T102	108	*Aquilaria sinensis*	土沉香(牙香樹)	5.0	100	2.0	Retain	rare species, protected species
T103	109	Dead tree	死樹	6.0	130	2.0	Fell	
T104	110	Dead tree	死樹	6.0	210	4.0	Fell	
T105	111	*Ficus hispida*	對葉榕(牛乳樹)	5.0	120	4.0	Fell	
T106	112	*Macaranga tanarius var. tomentosa*	血桐	4.0	110	4.0	Retain	
T107	113	*Ficus hispida*	對葉榕(牛乳樹)	5.0	120	4.0	Retain	
T108	114	*Bischofia javanica*	秋楓	8.0	210	5.0	Retain	
T109	115	Dead tree	死樹	7.0	140	4.0	Fell	
T110	116	*Cinnamomum camphora*	樟	9.0	230	5.0	Retain	
T111	117	*Macaranga tanarius var. tomentosa*	血桐	6.0	150	4.0	Retain	
T112	118	*Melia azedarach*	楝(苦楝)	8.0	210	4.0	Retain	
T113	119	*Macaranga tanarius var. tomentosa*	血桐	7.0	110	3.0	Retain	
T114	120	*Melia azedarach*	楝(苦楝)	8.0	130	5.0	Retain	
T115	121	*Celtis sinensis*	朴樹	12.0	680	13.0	Retain	
T116	122	*Macaranga tanarius var. tomentosa*	血桐	7.0	140	4.0	Retain	
T117	123	*Macaranga tanarius var. tomentosa*	血桐	8.0	130	4.0	Retain	
T118	124-125	*Celtis sinensis*	朴樹	12.0	450	11.0	Retain	
T119	126	*Livistona chinensis*	蒲葵	9.0	240	4.0	Retain	

Summary Table

	Number of Tree(s)
Tree to be Retained	42
Tree to be Transplanted	0
Tree to be Felled	77
Total Number of Existing Tree(s)	119

Appendix III – Photo Records

General View

General view 01

General view 02

General View

General view 03

General view 04

General View

General view 05

General view 06

General View

General view 07

General view 08

General View

General view 09

General view 10

General View

General view 11

General view 12

General View

General view 13

General view 14

General View

General view 15

General view 16

General View

General view 17

General view 18

General View

General view 19

General view 20

General View

General view 21

General view 22

General View

General view 23

General view 24

General View

General view 25

General view 26

General View

General view 27

General view 28

General View

General view 29

Photo Records

1 - T1 (Overview)

2 - T2 (Overview)

3 - T3 (Overview)

4 - T4 (Overview)

Photo Records

5 - T5 (Overview)

6 - T6 (Overview)

7 - T7 (Overview)

8 - T8 (Overview)

Photo Records

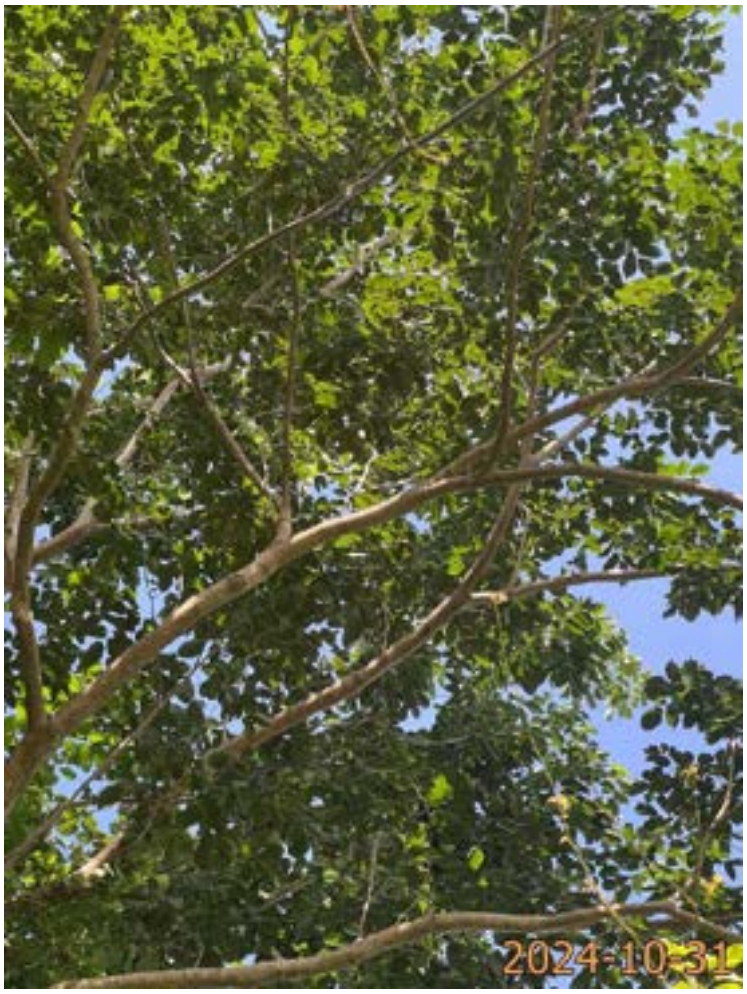
9 - T9 (Overview)

10 - T10 (Overview)

11 - T11 (Overview)

12 - T12 (Overview)

Photo Records



13 - T12 Branch

14 - T12 Crown

15 - T12 Root

16 - T13 (Overview)

Photo Records

17 - T14 (Overview)

18 - T15 (Overview)

19 - T16 (Overview)

20 - T17 (Overview)

Photo Records

21 - T18 (Overview)

22 - T19 (Overview)

23 - T20 (Overview)

24 - T21 (Overview)

Photo Records

25 - T22 (Overview)

26 - T23 (Overview)

27 - T24 (Overview)

28 - T25 (Overview)

Photo Records

29 - T26 (Overview)

30 - T27 (Overview)

31 - T28 (Overview)

32 - T29 (Overview)

Photo Records

33 - T30 (Overview) (Dead tree)

34 - T31 (Overview)

35 - T32 (Overview)

36 - T33 (Overview)

Photo Records

37 - T34 (Overview)

38 - T35 (Overview)

39 - T36 (Overview)

40 - T37 (Overview)

Photo Records

41 - T38 (Overview)

42 - T39 (Overview)

43 - T40 (Overview)

44 - T41 (Overview)

Photo Records

45 - T42 (Overview)

46 - T43 (Overview)

47 - T44 (Overview)

48 - T45 (Overview)

Photo Records

49 - T46 (Overview)

50 - T47 (Overview)

51 - T48 (Overview)

52 - T49 (Overview)

Photo Records

53 - T50 (Overview)

54 - T51 (Overview)

55 - T52 (Overview)

56 - T53 (Overview)

Photo Records

57 - T54 (Overview)

58 - T55 (Overview)

59 - T56 (Overview)

60 - T57 (Overview)

Photo Records

61 - T58 (Overview)

62 - T59 (Overview)

63 - T60 (Overview)

64 - T61 (Overview)

Photo Records

65 - T61 Co-dominant trunks

66 - T62 (Overview)

67 - T63 (Overview)

68 - T64 (Overview)

Photo Records

69 - T65 (Overview)

70 - T65 Uprooted

71 - T66 (Overview)

72 - T67 (Overview)

Photo Records

73 - T68 (Overview)

74 - T69 (Overview)

75 - T70 (Overview)

76 - T71 (Overview)

Photo Records

77 - T72 (Overview)

78 - T73 (Overview)

79 - T74 (Overview)

80 - T75 (Overview)

Photo Records

81 - T76 (Overview)

82 - T77 (Overview)

83 - T78 (Overview)

84 - T79 (Overview)

Photo Records

85 - T80 (Overview)

86 - T81 (Overview)

87 - T82 (Overview)

88 - T83 (Overview)

Photo Records

89 - T84 (Overview)

90 - T85 (Overview)

91 - T86 (Overview)

92 - T87 (Overview)

Photo Records

93 - T88 (Overview)

94 - T89 (Overview)

95 - T90 (Overview)

96 - T91 (Overview)

Photo Records

97 - T91 Co-dominant trunks

98 - T92 (Overview)

99 - T93 (Overview)

100 - T94 (Overview)

Photo Records

101 - T95 (Overview)

102 - T96 (Overview)

103 - T97 (Overview)

104 - T98 (Overview)

Photo Records

105 - T99 (Overview)

106 - T100 (Overview)

107 - T101 (Overview) (Dead tree)

108 - T102 (Overview) (Dead tree)

Photo Records

109 - T103 (Overview) (Dead tree)

110 - T104 (Overview) (Dead tree)

111 - T105 (Overview)

112 - T106 (Overview)

Photo Records

113 - T107 (Overview)

114 - T108 (Overview)

115 - T109 (Overview) (Dead tree)

116 - T110 (Overview)

Photo Records

117 - T111 (Overview)

118 - T112 (Overview)

119 - T113 (Overview)

120 - T114 (Overview)

Photo Records

121 - T115 (Overview)

122 - T116 (Overview)

123 - T117 (Overview)

124 - T118 (Overview)

Photo Records

125 - T118 (Overview)2

126 - T119 (Overview)

Annex V

Tree Preservation and Landscape Proposal

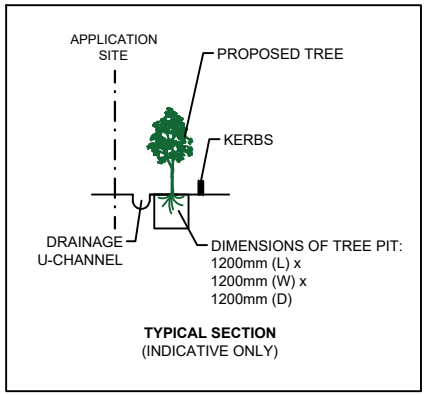
TREE PRESERVATION AND LANDSCAPE PROPOSAL

APPLICATION SITE AREA	: 78,557 m^2 (ABOUT)
NO. OF EXISTING TREE	: 119 (T1 TO T119)
SPECIES OF TREES	: 119 X *VARIOUS SPECIES*
NO. OF TREES WILL BE PRESERVED	: 42 (T1, T3 to T6, T12, T15 to T25, T35, T45, T47 to T52, T61, T92, T101, T102, T106 to T108, T110 to T119)
NO. OF DEAD TREES	: 6 (T30, T101 to T104, T109)
NO. OF TREES WILL BE FELLED	: 77 (T2, T7 to T11,T13, T14, T26 to T34, T36 to T44, T46, T53 to T60, T62 to T91, T93 to T100, T103 to T105, T109)
NO. OF NEW TREES WILL BE PLANTED	: 77 (N1 TO N77)
SPECIES OF NEW TREES	: *SENNA SURATTENSIS*
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 (L) X 1.2 m (D)

(TREE CROWN SIZE IS FOR INDICATIVE ONLY)

LEGEND

- EXISTING TREES (WILL BE PRESERVED)
- EXISTING TREES (WILL BE FELLED)
- PROPOSED NEW TREES



TYPICAL SECTION
(INDICATIVE ONLY)

LEGEND

- APPLICATION SITE
- STRUCTURE
- OPEN STORAGE OF CONSTRUCTION MATERIALS
- OPEN STORAGE CONSTRUCTION MACHINERIES
- OPEN STORAGE OF VEHICLE AND AUTO PARTS
- PC — PARKING SPACE (PRIVATE CAR)
- LGV — L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS / EGRESS
- LIGHT GOODS VEHICLE
- SWEPT PATH OF VEHICLE

NOTES:

1) THE APPLICANT WILL MAINTAIN TREES IN GOOD CONDITION DURING THE PLANNING APPROVAL PERIOD.
2) THE APPLICANT WILL REPLACE TREES WHICH ARE DYING OR DEAD DURING THE PLANNING APPROVAL PERIOD.
3) THE APPLICANT WILL PROVIDE ADEQUATE IRRIGATION FOR TREES.

NORTH / W / E / S

PLANNING CONSULTANT
R-Riches Property Consultants Ltd.

PROJECT
PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES, AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND

SITE LOCATION
VARIOUS LOTS IN D.D. 106 AND ADJOINING GOVERNMENT LAND SHEK KONG, PAT HEUNG, YUEN LONG, NEW TERRITORIES

SCALE	1 : 2500 @ A4
DRAWN BY: LT	DATE: 19.8.2024
REVISED BY: LT	DATE: 02.12.2024
APPROVED BY:	DATE:

DWG. TITLE
TREE PRESERVATION AND LANDSCAPE PROPOSAL

DWG NO. ANNEX V | VER. 001

United Crown Holdings Limited

Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories

Drainage Impact Assessment

Document No. V1053/01
Issue 2

December 2024

MANNINGS
(Asia) Consultants Limited

V1053/01
Issue 2
December 2024

Proposed Temporary Open Storage of Construction Materials Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories

Drainage Impact Assessment

Approved for Issue by:

Kenny W K Lam RPE (Civil)
FW0275905

Position: Deputy Managing Director

Date: 3 December 2024

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V1053/01
Issue 2
December 2024

Proposed Temporary Open Storage of Construction Materials Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories

Drainage Impact Assessment

Issue	Prepared by	Reviewed by	Date
1	EM	BLE	20 Sep 2024
2	EM	BLE	3 Dec 2024

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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 open storage for construction materials construction machineries, auto parts and vehicles with ancillary facilities for a period of 3 years, the associated filling of land and pond at various lots in D.D. 106 and the adjoining government land at Shek Kong, Pat Heung, Yuen Long, New Territories ("Site").

1.2 The Site has an area of about 78,557m^2 and it is currently occupied by the open space uses. 6 nos. of a 1- storey structure are proposed at the Site for offices and washrooms with total GFA of about 1,320 m^2. The general layout plan of the Site is shown on the **Drawing No. V1053/001A.**

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 United Crown Holdings 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
Existing Concrete	0.95
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)

2.3 The return period of 1 in 10 years is to be adopted for the drainage impact assessment.

2.4 According to Section E of the SDM Corrigendum No. 1/2022, Table 28 representing the rainfall increase due to climate change in mid of 21st Century in Table 2.3 below.

Table 2.3 Rainfall Increase due Climate Change

Time	Rainfall Increase
Mid of 21st Century (2041-2060)	11.1%

2.5 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,

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

d) where to = 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 (m2)
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.

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

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

g) According to Section A of the SDM Corrigendum No. 1/2024, Table 3a representing the Storm Constants for 10 years Return Periods of HKO Headquarters in Table 2.4 below.

Table 2-4 Storm Constant of SDM

Return Period T (years)	**10**
a	485
b	3.11
c	0.397

h) 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/s^2)
R = hydraulic radius (m)
D = pipe diameter (m)
k_s = equivalent sand roughness (m)
v = kinematic viscosity of fluid (m^2/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 +12.7 mPD to +15.10 mPD. In general, the direction of existing surface runoff flows from east to west. Since the ground levels of the Site are generally higher than those of the existing surrounding area, flooding susceptibility of the Site is considered as low.

Proposed Development

3.2 6 nos. of a 1- storey structure are proposed at the Site for offices and washrooms as stated in Para. 1.2. After completion of the project, the finished ground level of the Site will be raised to approximately +15.0 mPD to +16.6 mPD. Part of the unpaved areas is proposed to be occupied by 6 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. V1053/001A** is enclosed in **Appendix A**.

Proposed Drainage

3.3 According to the site survey and observation, there is a natural stream located at the north of the Site flowing from east to west and connecting to the Kam Tin River. Site photos are shown in **Appendix C**. Some of the runoff from the Site will be discharged into this natural stream which the assessment of the flow would be shown in the following of this report.

3.4 In addition, there are existing u-channels and underground pipes located at the south of the Site. From our observations, these existing facilities discharge part of the storm drain of the Site's surface runoff into the stream at the south. Site photos are shown in **Appendix C**.

3.5 The catchment plan after upon completion of the proposed development is demonstrated on the **Drawing No. V1053/010A** in **Appendix A.** 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 drainage layout plans are shown on the **Drawing Nos. V1053/003A to 006A** in **Appendix A.**

3.6 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**.

4.0 Changes to the Drainage Characteristics and Potential Drainage Impact

Changes in 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 paged area would lead to higher and faster surface runoff. However, considering the paved area of the proposed development is relatively small, the changes to surface runoff hydrographs is considered as negligible.

Changes in Flood Storage

4.3 No flood storage was found near the Site.

Changes of Timing of Peak Runoff

4.4 Changes of time of concentration of Outlet A, B, C and D before and after development are summarized in below table. The calculation is attached in **Appendix B**.

Outlet	**Time of concentration (min)**	
	Before Development	**After Development**
Outlet A	7.87	7.94
Outlet B	12.38	14.84
Outlet C	5.77	5.79
Outlet D	9.42	9.27

Hydraulic 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
To Outlet A			
Upstream U-Channel to CP22	0.05	0.08	0.63
CP22 to CP23	0.14	0.24	0.58
CP25 to CP24	0.16	0.24	0.67
Upstream U-Channel to CP25	0.08	0.24	0.33
Upstream U-Channel to CP18	0.05	0.24	0.21
Upstream U-Channel to CP18	0.06	0.24	0.25
CP20 to CP19	0.04	0.24	0.17
Upstream U-Channel to CP20	0.03	0.24	0.13
To Outlet B			
Upstream U-Channel to CP3	0.07	0.24	0.29
CP3 to CP1	0.11	0.24	0.46
CP1 to CP28	0.45	0.51	0.88
To Outlet C			
Upstream U-Channel to CP17	0.07	0.24	0.29
Upstream U-Channel to CP17	0.17	0.24	0.71
To Outlet D			
Upstream U-Channel to CP13	0.10	0.24	0.42
Upstream U-Channel to CP13	0.09	0.24	0.38
Upstream U-Channel to CP7	0.06	0.24	0.25
Upstream U-Channel to CP7	0.07	0.24	0.29
Upstream U-Channel to CP10	0.03	0.08	0.38

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 Outlet A			
CP18 to MH3	0.10	0.15	0.67
CP19 to MH3	0.04	0.15	0.27
MH3 to MH4	0.13	0.24	0.54
MH4 to MH5	0.13	0.27	0.48
MH5 to MH6	0.13	0.31	0.42
CP23 to MH6	0.14	0.30	0.47
CP24 to MH6	0.16	0.27	0.59
MH6 to Natural Stream	0.41	1.63	0.25
To Outlet C			
CP17 to MH7	0.24	0.37	0.65
MH7 to MH8	0.24	0.37	0.65
MH8 to Open Channel	0.24	0.33	0.73
To Outlet D			
CP13 to MH2	0.18	0.36	0.50
CP10 to MH2	0.03	0.11	0.27
MH2 to MH9	0.20	0.35	0.57
CP7 to MH9	0.13	0.35	0.37
MH9 to MH1	0.33	0.71	0.46
MH1 to Natural Stream	0.33	0.56	0.59

Changes in peak runoff and peak velocity at Outfalls

4.8 Below table shows the comparison of the peak runoff and peak velocity of the Outlet A, B, C and D before and after the development. Detailed calculation is attached in **Appendix B**.

	Before Development		After Development	
	Peak Runoff (m^3/s)	**Peak Velocity (m/s)**	**Peak Runoff (m^3/s)**	**Peak Velocity (m/s)**
Outlet A	0.70	1.545	0.68	1.545
Outlet B	0.48	1.588	0.45	1.588
Outlet C	0.99	1.889	0.98	1.889
Outlet D	0.51	2.162	0.60	2.162

Potential Drainage Impact to Existing Drainage System

4.9 The surface characteristics of the Site (i.e. Catchment Area Nos. A to D) under the existing conditions and the proposed works are summarized in Table 4-1.

Table 4-1 Existing and Proposed Catchment

Catchment	Existing Catchment (m^2)		Proposed Catchment (m^2)	
	unpaved	**paved**	**unpaved**	**paved**
A	36,027	5,227	31,307	6,107
B	12,325	7025	12,208	7025
C	50,423	5,110	48,500	5,330
D	32,941	1,173	38,542	1,393

4.10 The estimated runoff from the existing land use and the proposed land use is summarized in below Table 4-2.

Table 4-2 Estimated Runoff of the Existing Land Use and Proposed Land Use

Drainage System	Existing runoff (m^3/s)	Future runoff (m^3/s)
A	0.70	0.68
B	0.48	0.45
C	0.99	0.98
D	0.51	0.60

4.11 From the above results, there is no increase in surface runoff arising from the land use changes for the drainage systems A, B and C. As such, it is anticipated that there is no adverse drainage impact to the existing drainage after implementation of the land use changes.

4.12 For drainage system B at downstream, the existing 400mm wide U-channel will be reconstructed to 600mm wide U-channel. The existing 600mm wide U-channel has been checked and it shall provide sufficient capacity to cater for this additional flow upon completion of the proposed development.

4.13 For the drainage system D, there is slightly increase in surface runoff arising from the land use changes. The existing 750mm dia. pipe has been checked and it shall provide sufficient capacity to cater for this additional flow upon completion of the proposed development.

4.14 The downstream existing drainage systems are checked and they have adequate spare capacities to accommodate the runoff discharged from the development. Details of the calculation are enclosed in **Appendix B.**

Temporary Drainage during Construction

4.15 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

4.16 Proposed drainage systems are connecting to existing drainage systems as shown in **Drawing No. V1053/003A** to **006A** in **Appendix A**.

Potential Drainage Impacts to Other Land Users

4.17 All runoff in the Site will be collected and drain to existing drainage system, no drainage impact to other land users is anticipated.

5.0 Drainage Impact Mitigation Measures

5.1 As discussed in Para. 4.12, the existing 400mm wide U-channel will be reconstructed to 600mm wide U-channel for downstream drainage system B. No adverse drainage impact should be aroused after the mitigation measure.

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 Requirements of During Construction

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.

6.1 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

6.2 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	**Minium 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 After every rainstorm	Contractor Contractor
Inspect sedimentation basins and silt traps	Daily, Weekly, Before every rainstorm warning After every rainstorm	Contractor Contractor

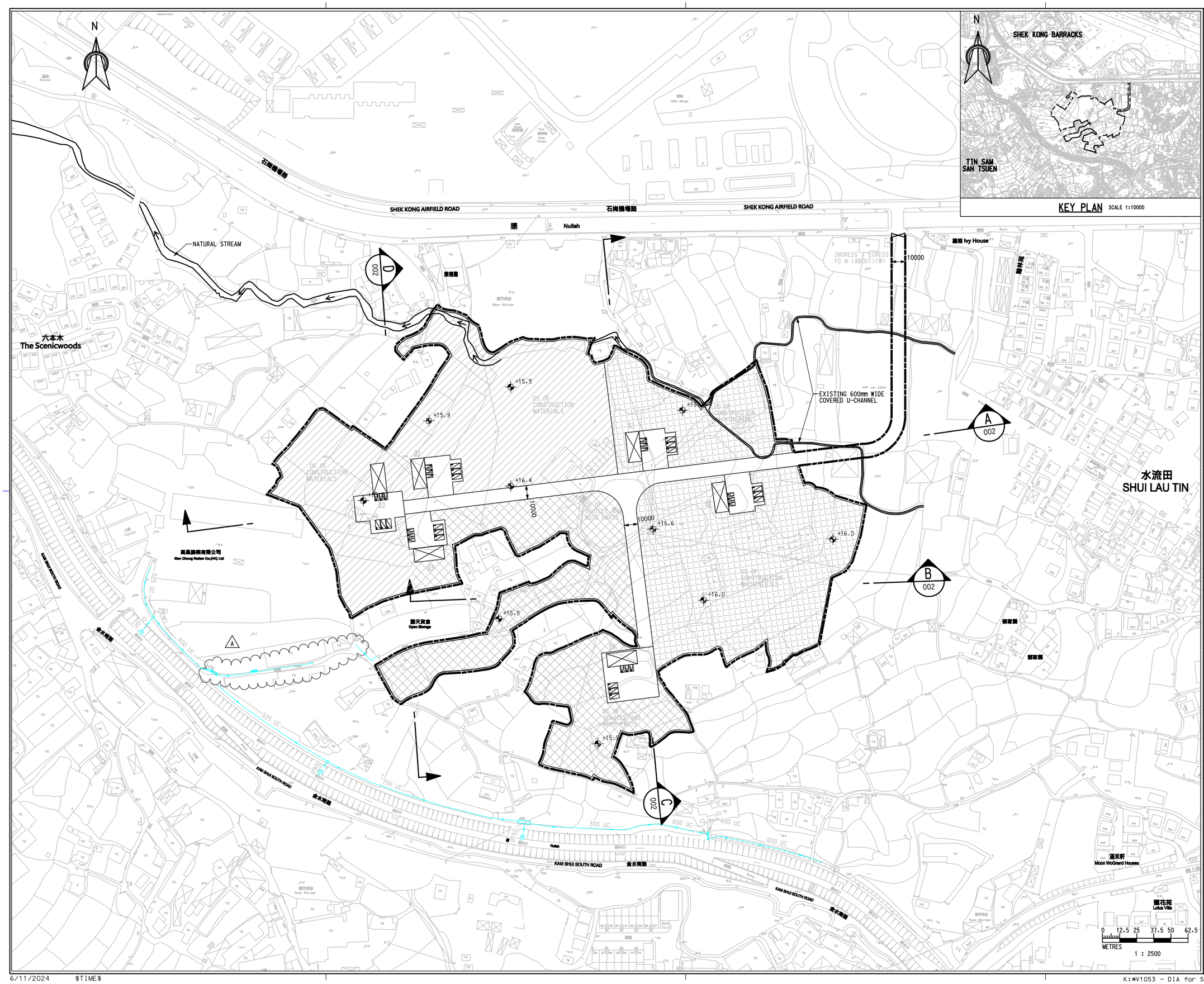
7.0 Conclusion

7.1 A Drainage Impact Assessment has been conducted for the proposed land use changes in Shek Kong. There is no increase in surface runoff for the catchment area nos. A, B and C.

7.2 The downstream existing drainage systems are checked for the updated runoff from the catchment and they have adequate spare capacities to accommodate the runoff discharged from the development.

Appendix A

Drawings



KEY PLAN SCALE 1:10000

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
- OPENSTORAGE OF CONSTRUCTION MATERIALS
- OPENSTORAGE CONSTRUCTION MACHINERIES
- OPENSTORAGE OF VEHICLE AND AUTO PARTS
- PARKING SPACE (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS
- EXISTING U-CHANNEL
- EXISTING PIPE
- EXISTING MANHOLE
- +16.6 PROPOSED GROUND SURFACE LEVEL

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

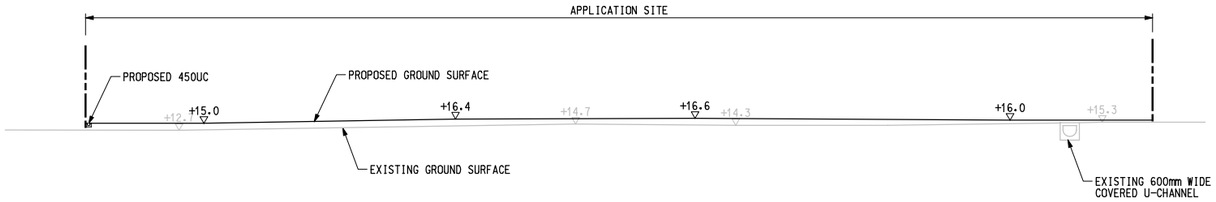
Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

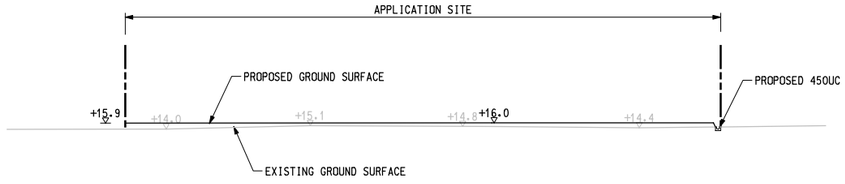
Title

LAYOUT PLAN

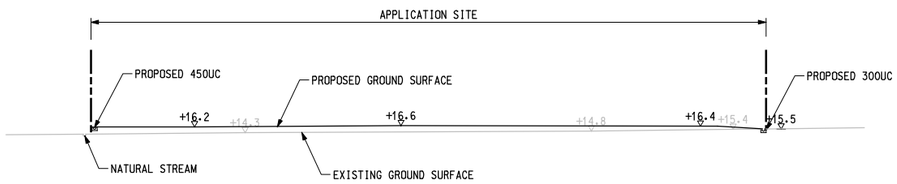
Drawing No.	Stage	Rev.
V1053/001	P	A



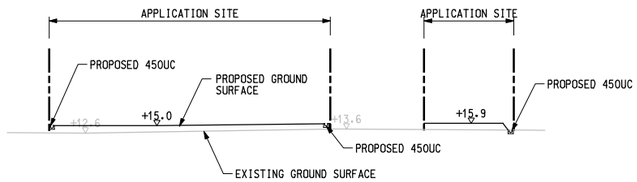
SECTION A
SCALE 1:2000 001



SECTION B
SCALE 1:2000 001



SECTION C
SCALE 1:2000 001



SECTION D
SCALE 1:2000 001

0 10 20 30 40 50
METRES
1 : 2000

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

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS. CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

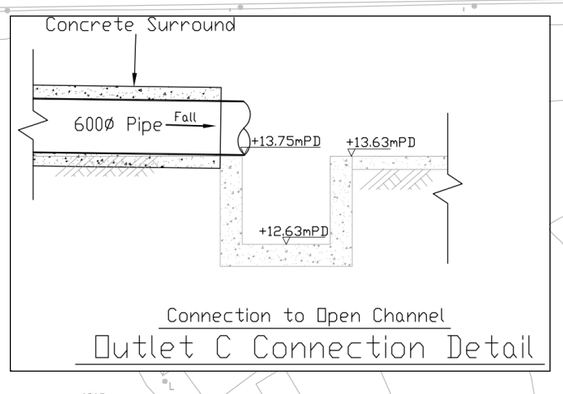
SECTIONS

Drawing No.	Stage	Rev.
V1053/002	P	-

石崗機場路

SHEK KONG AIRFIELD ROAD

Nullah



MATCH LINE
SEE DRAWING NO. V1053/004

CP25
CL:15.82
A1:14.59 450UC
X1:14.59 450UC

450 UC 1:250

CP27
CL:16.20
A1:14.90 450UC
X1:14.90 450UC

CP26
CL:15.82
A1:14.70 450UC
X1:14.70 450UC

450 UC 1:250

OUTLET C (IL:13.75)
CONNECTION TO OPEN
CHANNEL

+16.2

600 DIA.

MH8
CL:16.20
A1:13.95 600PIPE
X1:13.95 600PIPE

10000

600 DIA.

MH7
CL:16.20
A1:14.20 525PIPE
X1:14.20 600PIPE

525 DIA.

450 UC 1:300

+16.6

+16.0

EXISTING 600mm WIDE
COVERED U-CHANNEL

EXISTING 600mm WIDE
COVERED U-CHANNEL

10000

10000

INGRESS / EGRESS
10 m (ABOUT)(W)

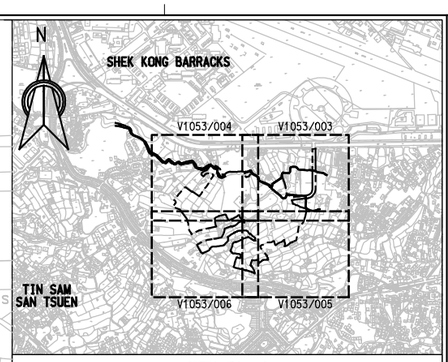
泥路 Track

道路

輸林苑

WIP Jan 2024

MATCH LINE
SEE DRAWING NO. V1053/005



KEY PLAN SCALE 1:10000

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 (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS
- PROPOSED U-CHANNEL
- PROPOSED PIPE
- PROPOSED CATCHPIT
- PROPOSED MANHOLE
- EXISTING U-CHANNEL
- EXISTING PIPE
- EXISTING MANHOLE
- +16.6 PROPOSED GROUND SURFACE LEVEL

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

DRAINAGE LAYOUT PLAN

(SHEET 1 OF 4)

Drawing No.	Stage	Rev.
V1053/003	P	A

0 5 10 15 20 25
METRES
1 : 1000

8/11/2024 $TIME$

K:*V1053 - DIA for Shek Kong Development*Ustation*V1053-003A.dgn

SHEK KONG AIRFIELD ROAD

渠 Nullah

棠禧園

露天貨倉
Open Storage

NATURAL STREAM

MATCH LINE
SEE DRAWING NO. V1053/003

CP23
CL:15.59
A1:14.80 450UC
X1:14.40 450PIPE

OUTLET A (IL:13.20)
CONNECTION TO NATURAL STREAM

450 DIA. 600 DIA.

450 UC 1:250

CP24
CL:15.59
A1:14.29 450UC
X1:14.20 450PIPE

MH6
CL:15.59
A1:14.00 525PIPE
A2:14.15 450PIPE
A3:14.00 450PIPE
X1:13.70 600PIPE

CP22
CL:15.80
A1:15.14 450UC
X1:15.14 450UC

300 UC 1:250

450 UC 1:250

525 DIA.

MH5
CL:15.90
A1:14.40 525PIPE
X1:14.40 525PIPE

525 DIA.

MH4
CL:15.82
A1:14.70 525PIPE
X1:14.70 525PIPE

450 UC 1:300

525 DIA.

MH3
CL:16.40
A1:15.10 450PIPE
A2:15.15 450PIPE
X1:15.00 525PIPE

450 DIA.

CP19
CL:16.40
A1:15.32 450UC
X1:15.25 450PIPE

450 UC 1:250

CP20
CL:16.40
A1:15.59 450UC
X1:15.59 450UC

450 UC 1:250

CP22
CL:16.40
A1:15.59 450UC
X1:15.59 450UC

450 UC 1:250

Concrete Surround

600Ø Pipe Fall

+13.20mPD

+13.16mPD

+11.20mPD

Connection to Natural Stream

Outlet A Connection Detail

MATCH LINE
SEE DRAWING NO. V1053/006

萬昌籐業有限公司

0 5 10 15 20 25
METRES
1 : 1000

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 (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS
- PROPOSED U-CHANNEL
- PROPOSED PIPE
- PROPOSED CATCHPIT
- PROPOSED MANHOLE
- EXISTING U-CHANNEL
- EXISTING PIPE
- EXISTING MANHOLE
- +16.6 PROPOSED GROUND SURFACE LEVEL

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale in A3: AS SHOWN	Date: AUG 2024
Designed: EM	Drawn: KAM / Checked: BLE
Design Team Leader: SC	Date: AUG 2024
Approved: KTC	Date: AUG 2024

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

DRAINAGE LAYOUT PLAN

(SHEET 2 OF 4)

Drawing No.	Stage	Rev.
V1053/004	P	A

MH7
CL:16.20
A1:14.20 525PIPE
X1:14.20 600PIPE

525 DIA.

450 UC 1:300

CP17
CL:16.00
A1:14.68 450UC
A2:14.67 450UC
X1:14.60 525 PIPE

450 UC 1:300

CP16
CL:16.00
A1:14.82 450UC
X1:14.82 450UC

450 UC 1:300

CP14
CL:16.00
A1:14.84 450UC
X1:14.84 450UC

450 UC 1:250

450 UC 1:250

CP15
CL:16.00
A1:14.90 450UC
X1:14.90 450UC

450 UC 1:250

450 UC 1:250

CP13
CL:16.00
A1:14.74 450UC
A2:14.64 450UC
X1:14.55 450PIPE

450 UC 1:250

450 UC 1:250

CP4
CL:14.80
A1:14.54 450UC
X1:14.54 450UC

450 UC 1:250

MH2
CL:15.50
A1:14.00 450PIPE
A2:14.15 300PIPE
X1:13.90 525PIPE

450 DIA.

300 DIA.

CP11
CL:15.50
A1:14.57 450UC
X1:14.57 450UC

300 UC 1:250

300 UC 1:250

MH9
CL:15.50
A1:13.40 525PIPE
A2:13.90 450PIPE
X1:13.30 600PIPE

525 DIA.

450 UC 1:250

CP10
CL:15.50
A1:14.67 450UC
X1:14.67 450PIPE

300 UC 1:250

CP12
CL:15.50
A1:14.67 450UC
X1:14.67 450UC

CP9
CL:15.50
A1:14.77 450UC
X1:14.77 450UC

450 UC 1:250

450 UC 1:250

450 UC 1:250

600 DIA.

450 DIA.

CP7
CL:15.50
A1:14.20 450UC
A2:14.35 450UC
X1:14.00 450PIPE

CP8
CL:15.10
A1:14.49 450UC
X1:14.49 450UC

MH1
CL:15.50
A1:12.85 600PIPE
X1:12.60 600PIPE

MATCH LINE
SEE DRAWING NO. V1053/006

MATCH LINE
SEE DRAWING NO. V1053/003

B6

蔡家園

KAM SHUI SOUTH ROAD 金水南路

KAM SHUI SOUTH ROAD

Track

Road

Ramp

排水口

300 UC

600 UC

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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LEGEND :

- APPLICATION SITE
- STRUCTURE
- PARKING SPACE (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS
- PROPOSED U-CHANNEL
- PROPOSED PIPE
- PROPOSED CATCHPIT
- PROPOSED MANHOLE
- EXISTING U-CHANNEL
- EXISTING PIPE
- EXISTING MANHOLE
- +16.6 PROPOSED GROUND SURFACE LEVEL

0 5 10 15 20 25
METRES
1 : 1000

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

DRAINAGE LAYOUT PLAN

(SHEET 3 OF 4)

Drawing No.	Stage	Rev.
V1053/005	P	A

MATCH LINE
SEE DRAWING NO. V1053/004

萬昌籐業有限公司
Man Chong Rattan Co.(HK) Ltd

露天貨倉
Open Storage

KAM SHUI SOUTH ROAD
金水南路

MH3
CL:16.40
A1:15.10 450PIPE
A2:15.15 450PIPE
X1:15.00 525PIPE

CP18
CL:16.20
A1:15.41 450UC
A2:15.41 450UC
X1:15.35 450PIPE

CP19
CL:16.40
A1:15.32 450UC
X1:15.25 450PIPE

CP22
CL:16.40
A1:15.59 450UC
X1:15.59 450UC

CP1
CL:14.20
A1:13.41 450UC
X1:13.40 600UC

CP2
CL:14.30
A1:13.53 450UC
X1:13.53 450UC

CP3
CL:14.50
A1:13.96 450UC
X1:13.96 450UC

CP5
CL:14.80
A1:14.44 450UC
X1:14.44 450UC

CP6
CL:14.80
A1:14.31 450UC
X1:14.31 450UC

CP28
CL:13.77
A1:13.06 600UC
X1:13.05 600UC

OUTLET B (IL: 13.05)
CONNECTION TO EXISTING
600U - CHANNEL

OUTLET D (IL:12.10)
CONNECTION TO
NATURAL STREAM

CL:14.09
IL:11.10

NATURAL STREAM

450 DIA.
600 DIA.

450 UC 1:300
450 UC 1:250
600 UC 1:300
300 UC 1:250
525 UC
750 UC
600 UC
EXISTING 400U-CHANNEL TO BE UPGRADED TO 600U-CHANNEL
400UC

MATCH LINE
SEE DRAWING NO. V1053/005

Existing 600 U-Channel
Existing 400U-Channel to be Upgraded to 600U-Channel
Fall
+13.05mPD
+13.06mPD
Proposed Catchpit

Connection to 600U-Channel
Outlet B Connection Detail

+13.37mPD
600Ø Pipe
Fall
+12.10mPD
+11.70mPD

Connection to Natural Stream
Outlet D Connection Detail

0 5 10 15 20 25
METRES
1 : 1000

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 (PRIVATE CAR)
- L/UL SPACE (LIGHT GOODS VEHICLE)
- INGRESS/EGRESS
- PROPOSED U-CHANNEL
- PROPOSED PIPE
- PROPOSED CATCHPIT
- PROPOSED MANHOLE
- EXISTING U-CHANNEL
- EXISTING PIPE
- EXISTING MANHOLE
- +16.6 PROPOSED GROUND SURFACE LEVEL

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

Client
EXCEL LINK DEVELOPMENT LIMITED

Consultants
MANNINGS (Asia) Consultants Limited

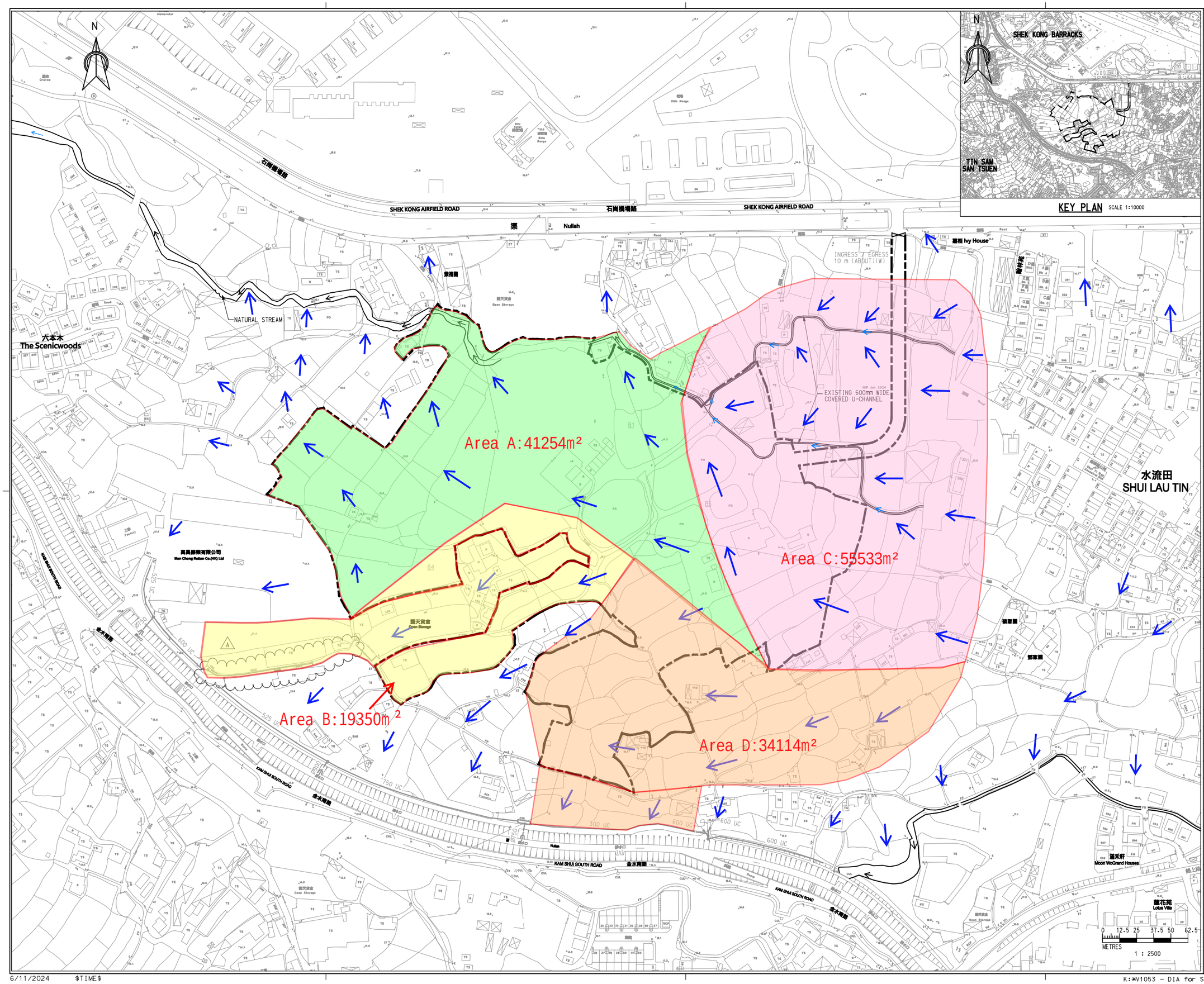
Scale in A3: AS SHOWN		Date: AUG 2024
Designed: EM	Drawn: KAM	Checked: BLE
Design Team Leader: SC		Date: AUG 2024
Approved: KTC		Date: AUG 2024

Project
PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS. CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title
DRAINAGE LAYOUT PLAN

(SHEET 4 OF 4)

Drawing No.	Stage	Rev.
V1053/006	P	A



KEY PLAN SCALE 1:10000

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
- CATCHMENT AREA A
- CATCHMENT AREA B
- CATCHMENT AREA C
- CATCHMENT AREA D
- SITE CATCHMENT AREA
- RUNOFF DIRECTION

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

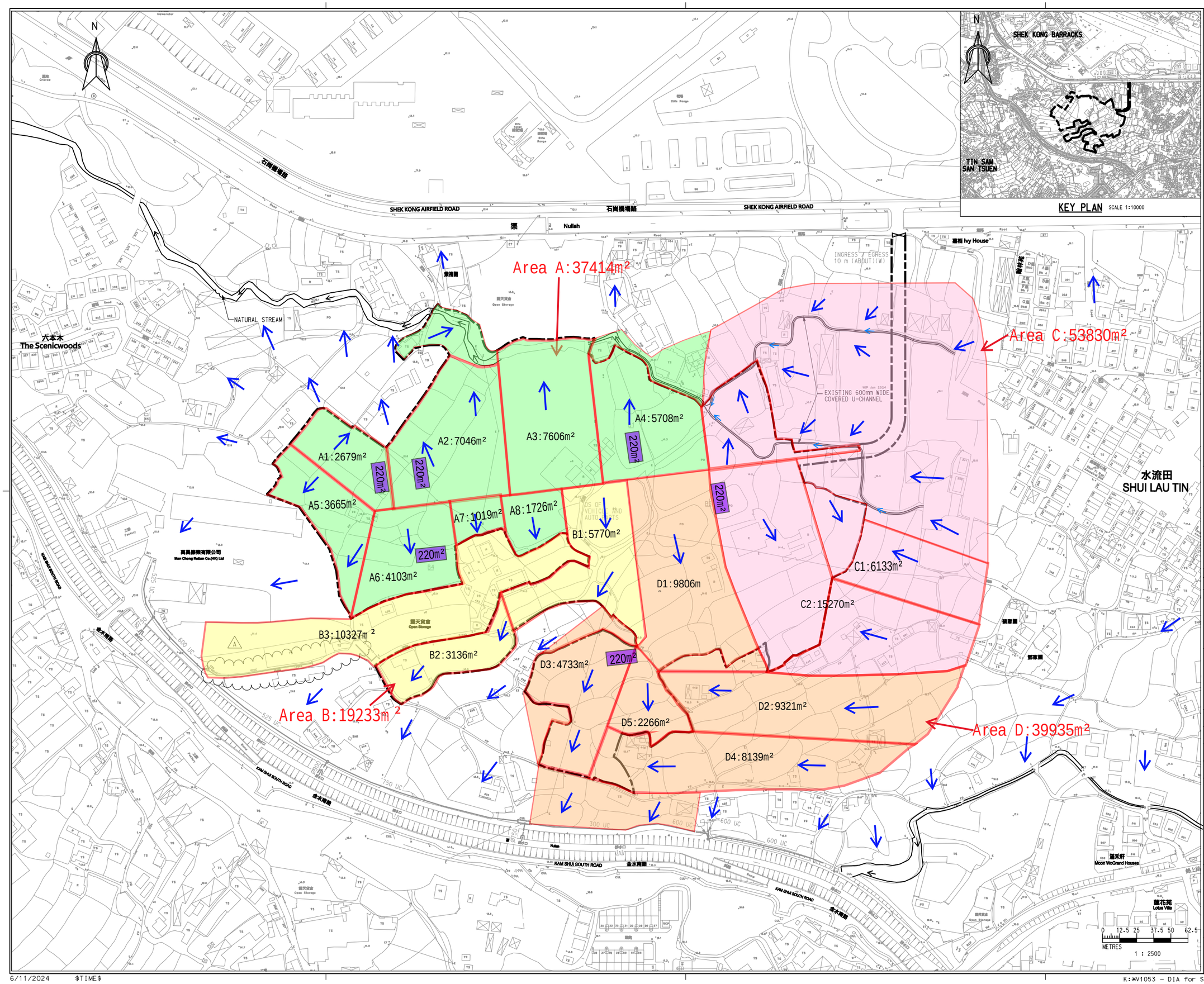
Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS. CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

CATCHMENT PLAN - BEFORE DEVELOPMENT

Drawing No.	Stage	Rev.
V1053/009	P	A



KEY PLAN SCALE 1:10000

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
- CATCHMENT AREA A
- CATCHMENT AREA B
- CATCHMENT AREA C
- CATCHMENT AREA D
- PAVED AREA
- SITE CATCHMENT AREA
- RUNOFF DIRECTION

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

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale in A3	Date
AS SHOWN	AUG 2024

Designed	Drawn	Checked
EM	KAM	BLE

Design Team Leader SC	Date AUG 2024
Approved KTC	Date AUG 2024

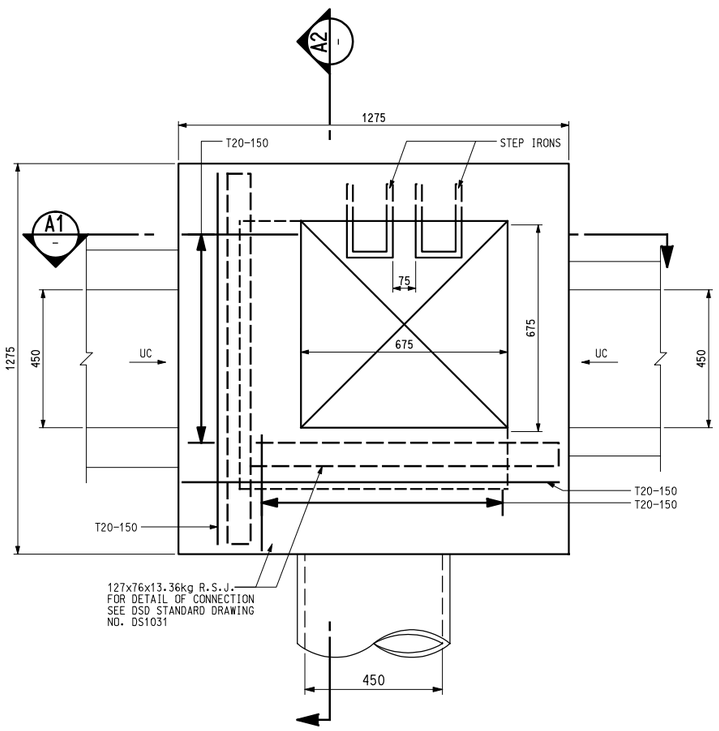
Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS. CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

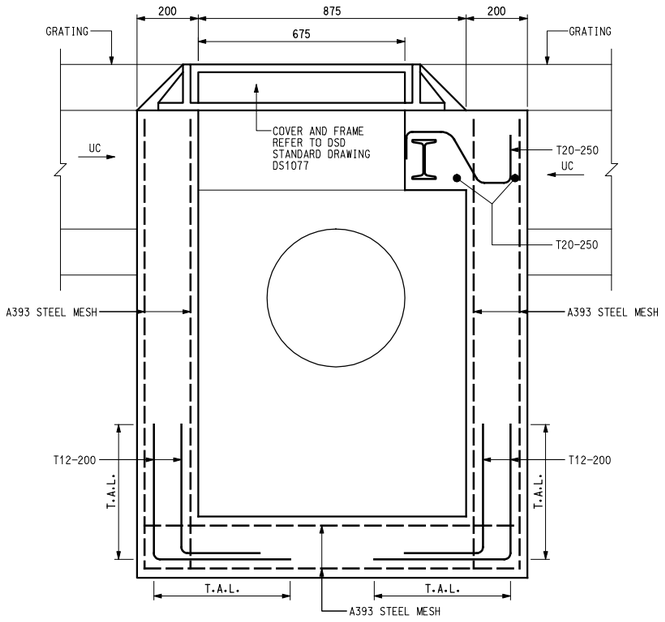
CATCHMENT PLAN - AFTER DEVELOPMENT

Drawing No.	Stage	Rev.
V1053/010	P	A

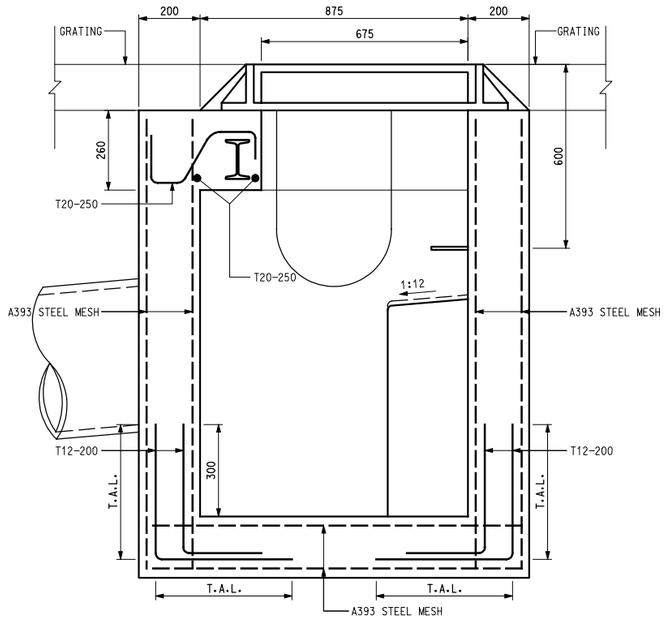


TYPICAL DETAILS OF CATCHPIT TYPE A

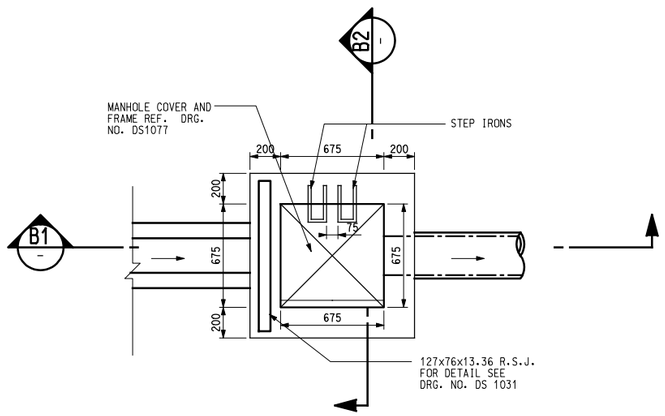
SCALE 1:20



SECTION A1
SCALE 1:20

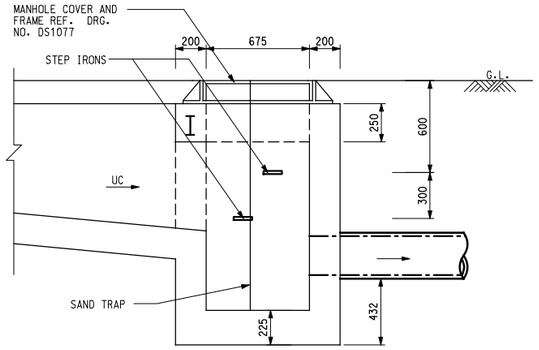


SECTION A2
SCALE 1:20

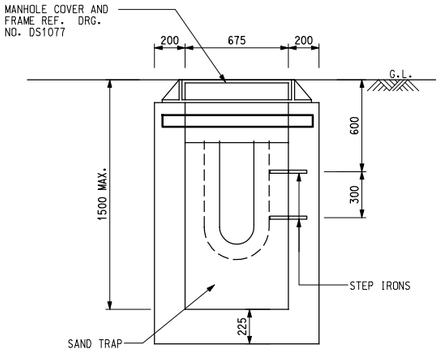


TYPICAL DETAILS OF CATCHPIT TYPE B

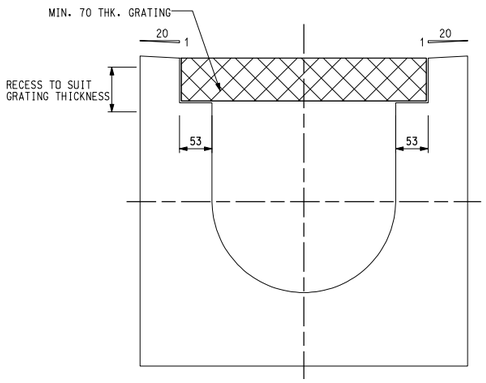
SCALE 1:40



SECTION B1
SCALE 1:40

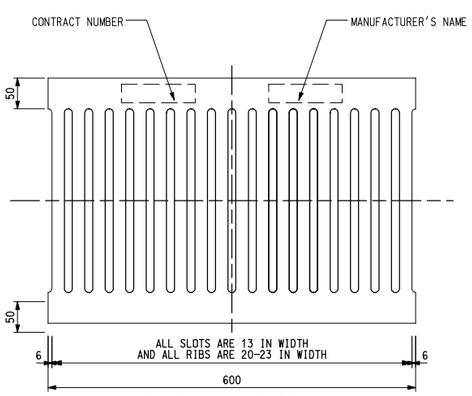


SECTION B2
SCALE 1:40



TYPICAL CROSS SECTION OF CHANNEL

SCALE 1:10



TYPICAL GRATING

SCALE 1:10

0 50 100 150 200 250
MILLIMETRES
1 : 10

0 100 200 300 400 500
MILLIMETRES
1 : 20

0 200 400 600 800 1000
MILLIMETRES
1 : 40

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN mPD METRE ABOVE HONG KONG PRINCIPAL DATUM.
3. LETTERING FOR CONTRACT NO. AND MANUFACTURER'S NAME SHALL BE RAISED 2mm ABOVE NORMAL SURFACE.

Rev.	Description of Revision	Date	Ckd.

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS. CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

TYPICAL DETAILS OF DRAINAGE

Drawing No.	Stage	Rev.
V1053/007	P	-

Appendix B

Design Calculations

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 m3/s
I = rainfall intensity in mm/hr
A = catchment area in km2
The parameters and assumptions refer to section 3.

The rainfall intensity is extracted from the Section 4.3.2 of SDM which is to estimate the Intensity-Duration –Frequency (IDF) Relationship.
Use of Storm Constants for 10 years Return Periods of HKO Headquarters
$i = a / (t_d+b)^c$
i =extreme mean intensity in mm/hr
t_d =duration in minutes (td<240), and
a, b, c = storm constants given (note:a=485.0, b=3.11, c=0.397)

Before Development

Runoff Estimation at Cacthment A

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = (h_1-h_2)/L x 100	to (min) = 0.14465L/($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
41254	188	14.55	9.98	2.43	7.87	456	1.545	4.92	12.79	0.25	36027	161.75	0.40	0.45	0.70
										0.95	5227		0.22	0.25	

Runoff Estimation at Cacthment B

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = (h_1-h_2)/L x 100	to (min) = 0.14465L/($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
19350	200	15.1	14.1	0.50	12.38	80	1.588	0.84	13.22	0.25	12325	160.01	0.14	0.15	0.48
										0.95	7025		0.30	0.33	

Runoff Estimation at Cacthment C

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = (h_1-h_2)/L x 100	to (min) = 0.14465L/($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
55533	126	14.55	12.87	1.33	5.77	289	1.889	2.55	8.32	0.25	50423	184.36	0.65	0.72	0.99
										0.95	5110		0.25	0.28	

Runoff Estimation at Cacthment D

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = (h_1-h_2)/L x 100	to (min) = 0.14465L/($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
34114	172	16.3	15.1	0.70	9.42	70	2.620	0.52	9.94	0.25	32941	174.93	0.40	0.44	0.51
										0.95	1173		0.05	0.06	

Rational method is used for calculation of the peak runoff. The formula is extracted from Section 7.5.2 (a) of SDM.
Qp = 0.278 C i A
Where Qp = peak runoff in m3/s
I = rainfall intensity in mm/hr
A = catchment area in km2
The parameters and assumptions refer to section 3.

The rainfall intensity is extracted from the Section 4.3.2 of SDM which is to estimate the Intensity-Duration –Frequency (IDF) Relationship.
Use of Storm Constants for 10 years Return Periods of HKO Headquarters

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

i =extreme mean intensity in mm/hr

t_d =duration in minutes (td<240), and

a, b, c = storm constants given (note:a=485.0, b=3.11, c=0.397)

After Development

Runoff Estimation at Cacthment A

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L$ x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
37414	188	14.55	9.98	2.43	7.94	456	1.545	4.9	12.86	0.25	31307	161.44	0.35	0.39	0.68
										0.95	5227		0.22	0.25	
										1.00	880		0.04	0.04	

Runoff Estimation at Cacthment B

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L$ x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
19233	200	15.1	14.1	0.50	14.84	80	1.588	0.8	15.68	0.25	12208	151.35	0.13	0.14	0.45
										0.95	7025		0.28	0.31	

Runoff Estimation at Cacthment C

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L$ x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
53830	126	14.55	12.87	1.33	5.79	289	1.889	2.6	8.34	0.25	48500	184.25	0.62	0.69	0.98
										0.95	5110		0.25	0.28	
										1.00	220		0.01	0.01	

Runoff Estimation at Cacthment D

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L$ x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
39935	172	16.3	15.1	0.70	9.27	70	2.620	0.5	9.79	0.25	38542	175.72	0.47	0.52	0.60
										0.95	1173		0.05	0.06	
										1.00	220		0.01	0.01	

Mannings (Asia) Consultants Ltd.		Job No.		Sheet No.		Rev.
Calculation Sheet		Member / Location				
Job Tilte:	Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, 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 10 year design return period is taken.

The rainfall intensity is extracted from the Section 4.3.2 of SDM which is to estimate the Intensity-Duration –Frequency (IDF) Relationship.
Use of Storm Constants for 10 years Return Periods of HKO Headquarters

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

i =extreme mean intensity in mm/hr

t_d =duration in minutes (td<240), and

a, b, c = storm constants given (note:a=485.0, b=3.11, c=0.397)

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

Qp = 0.278 C i A

Where Qp = peak runoff in m^3/s

I = rainfall intensity in mm/hr

A = catchment area in km^2

Runoff Estimation

Location	**Natural Catch. (m^2)**	**Longest flow path (m)**	**Gradient (m per 100m)**	**to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)**	**t_f = L/v (min)**	**tc = to + t_f (min)**	**Runoff coeff.**	**Total Catch. Area (m^2)**	**10 year Intensity (mm/hr)**	**10 year design runoff = 0.278CiA (m^3/s)**	**11.1%×10 year design runoff = 0.278CiA (m^3/s)**	**Total Flow(m^3/s)**
A1	2679	30	0.007	5.37	0.90	6.27	0.25	2679	199.44	0.04	0.04	0.05
	220						1.00	220		0.01	0.01	
A2	9725	98	0.010	14.16	1.02	15.18	0.25	9725	153.00	0.10	0.11	0.14
	440						1.00	440		0.02	0.02	
A3	13314	93	0.010	15.73	0.81	16.55	0.25	13314	148.67	0.14	0.15	0.16
	220						1.00	220		0.01	0.01	
A4	5708	94	0.006	15.73	0.34	16.08	0.25	5708	150.11	0.06	0.07	0.08
	220						1.00	220		0.01	0.01	
A5	3665	37	0.005	6.69	0.70	7.39	0.25	3665	190.68	0.05	0.05	0.05
A6	4103	72	0.003	14.71	0.06	14.77	0.25	4103	154.36	0.04	0.05	0.06
	220						1.00	220		0.01	0.01	
A7	2745	30	0.030	7.16	0.70	7.86	0.25	2745	187.40	0.04	0.04	0.04
A8	1726	41	0.024	5.92	1.25	7.16	0.25	1726	192.37	0.02	0.03	0.03
B1	5770	80	0.011	11.94	1.11	13.05	0.25	5770	160.70	0.06	0.07	0.07
B2	8906	158	0.004	13.05	1.79	14.84	0.25	8906	154.12	0.10	0.11	0.11
B3	12208	200	0.005	14.84	0.81	15.65	0.25	12208	151.45	0.13	0.14	0.45
	7025						0.95	7025		0.28	0.31	
C1	6133	105	0.009	16.45	0.10	16.55	0.25	6133	148.66	0.06	0.07	0.07
C2	15270	134	0.010	18.69	0.98	19.67	0.25	15270	140.21	0.15	0.17	0.17
	220						1.00	220		0.01	0.01	
D1	9806	138	0.007	21.79	0.74	22.52	0.25	9806	133.80	0.09	0.10	0.10
D2	9321	190	0.008	29.02	0.06	29.08	0.25	9321	122.23	0.08	0.09	0.09
D3	4733	100	0.007	16.74	0.19	16.93	0.25	4733	147.53	0.05	0.05	0.06
	220						1.00	220		0.01	0.01	
D4	8139	193	0.005	32.50	0.74	33.24	0.25	8139	116.47	0.07	0.07	0.07
D5	2266	61	0.007	11.14	0.10	11.24	0.25	2266	168.46	0.03	0.03	0.03
Check Existing 600U-Channel (Outlet B)												
Proposed Catchment Area B	12208	200	0.005	15.65	0.87	16.52	0.25	12208	148.75	0.13	0.14	0.45
	7025						0.95	7025		0.28	0.31	

Stormwater Drainage Design

Manhole		Catchment Area		Catchment Served	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)	10 year Intensity (mm/hr)	Runoff Coeff.	10 year Runoff (m^3/s)	11.1%×10 year Runoff (m^3/s)	Total Flow (m^3/s)	Capacity (m^3/s)	Adjusted Capacity > Total Flow ?	Cover Level		Invert Level		utilization
From	To	Increment (m^2)	Accu. (m^2)				(%)	1 in													From (mPD)	To (mPD)	From (mPD)	To (mPD)	-
CP18	MH3	0	7768	A5 and A6	58	450	0.4	232.0	3.0	1.015	0.95	15.73	15.73	151.21	0.25	0.08	0.09	0.10	0.15	Yes	16.20	16.40	15.35	15.10	0.70
		0	220												1.00	0.01	0.01								
CP19	MH3	0	2745	A7 and A8	43	450	0.5	215.0	3.0	1.054	0.68	8.54	8.54	182.98	0.25	0.03	0.04	0.04	0.15	Yes	16.40	16.40	15.25	15.05	0.26
MH3	MH4	2745	10513	A5、A6 、A7 and A8	58	525	0.5	193.3	3.0	1.231	0.79	16.51	16.51	148.77	0.25	0.11	0.12	0.13	0.24	Yes	16.40	16.00	15.00	14.70	0.55
		0	220												1.00	0.01	0.01								
MH4	MH5	0	10513	A5、A6 、A7 and A8	45	525	0.7	150.0	3.0	1.398	0.54	17.05	17.05	147.19	0.25	0.11	0.12	0.13	0.27	Yes	16.00	15.90	14.70	14.40	0.48
		0	220												1.00	0.01	0.01								
MH5	MH6	0	10513	A5、A6 、A7 and A8	47	525	0.9	117.5	3.0	1.580	0.50	17.54	17.54	145.78	0.25	0.11	0.12	0.13	0.31	Yes	15.90	15.59	14.40	14.00	0.42
		0	220												1.00	0.01	0.01								
CP23	MH6	0	9725	A1 and A2	14	450	1.8	56.0	3.0	2.068	0.11	15.29	15.29	152.63	0.25	0.10	0.11	0.14	0.30	Yes	15.59	15.90	14.40	14.15	0.46
		0	440												1.00	0.02	0.02								
CP24	MH6	0	13314	A3 and A4	13	450	1.5	65.0	3.0	1.919	0.11	16.19	16.19	149.76	0.25	0.14	0.15	0.16	0.27	Yes	15.59	15.90	14.20	14.00	0.60
		0	220												1.00	0.01	0.01								
MH6	Natural Stream	23039	33552	A1、A2、A3、A4、A5、A6 、A7 and A8	5	600	10.0	10.0	3.0	6.072	0.82	18.37	18.37	143.53	0.25	0.33	0.37	0.41	1.63	Yes	15.90	15.80	13.70	13.20	0.25
		660	880												1.00	0.04	0.04								
CP17	MH7	0	21403	C1 and C2	49	600	0.6	163.3	3.0	1.462	0.56	19.67	19.67	140.21	0.25	0.21	0.23	0.24	0.37	Yes	16.00	16.20	14.65	14.35	0.65
		0	220												1.00	0.01	0.01								
MH7	MH8	0	21403	C1 and C2	58	600	0.6	165.7	3.0	1.451	0.67	20.34	20.34	138.62	0.25	0.21	0.23	0.24	0.37	Yes	16.20	16.20	14.35	14.00	0.65
		0	220												1.00	0.01	0.01								
MH8	Open Channel	0	21403	C1 and C2	52	600	0.5	208.0	3.0	1.295	0.67	21.01	21.01	137.08	0.25	0.20	0.23	0.24	0.33	Yes	16.20	16.20	14.00	13.75	0.72
		0	220												1.00	0.01	0.01								
CP13	MH2	0	19127	D1 and D2	47	525	1.2	85.5	3.0	1.853	0.42	29.50	29.50	121.60	0.25	0.16	0.18	0.18	0.36	Yes	16.00	15.50	14.55	14.00	0.50
CP10	MH2	0	2266	D5	5	300	2.0	50.0	3.0	1.670	0.05	11.29	11.29	168.22	0.25	0.03	0.03	0.03	0.11	Yes	15.50	15.50	14.25	14.15	
MH2	MH9	2266	21393	D1、D2 and D5	46	525	1.1	92.0	3.0	1.785	0.43	30.06	30.06	120.78	0.25	0.18	0.20	0.20	0.35	Yes	15.50	15.50	13.90	13.40	0.57
CP7	MH9	0	12872	D3 and D4	4	450	2.5	40.0	3.0	2.447	0.03	30.09	30.09	120.74	0.25	0.11	0.12	0.13	0.35	Yes	15.50	15.50	14.00	13.90	0.37
		0	220												1.00	0.01	0.01								
MH9	MH1	12872	34265	D1、D2、D3、D4 and D5	20	600	2.3	44.4	3.0	2.805	0.12	30.21	30.21	120.57	0.25	0.29	0.32	0.33	0.71	Yes	15.50	15.90	13.30	12.85	0.46
		0	220												1.00	0.01	0.01								
MH1	Natural Stream	0	34265	D1、D2、D3、D4 and D5	36	600	1.4	72.0	3.0	2.203	0.27	30.48	30.48	120.18	0.25	0.29	0.32	0.33	0.56	Yes	15.50	13.87	12.60	12.10	0.58
		0	220												1.00	0.01	0.01								
Check Existing Pipe																									
Proposed Catchment Area D		4277	38542	D	10	750	1.0	100.0	3.0	2.162	0.08	9.35	9.35	178.18	0.25	0.48	0.53	0.60	0.86	Yes	14.09	12.17	11.10	11.00	0.70
		0	1173												0.95	0.06	0.06								
		0	220												1.00	0.01	0.01								

Mean Velocity is calculated by Colebrook- White equation

Where:
$\overline{V}$ =Mean Velocity (m/s)
R =Hydraulic Diameter (m)
Ks =Surface Roughness (m)
V =Kinematic viscosity (kg/ms)
Sf =Slope of Hydraulic Gradient
g =Gravity (m/s2)

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

The Roughness Coefficient Ks is assumed to be 3 for concrete.
Peak Runoff is estimated using rational method according to SDM.

The rainfall intensity is extracted from the Section 4.3.2 of SDM which is to estimate the Intensity-Duration –Frequency (IDF) Relationship.
Use of Storm Constants for 10 years Return Periods of HKO Headquarters
$i = a / (t_d+b)^c$

i =extreme mean intensity in mm/hr
t_d =duration in minutes (td<240), and

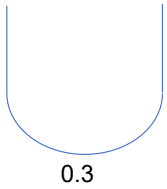
a, b, c = storm constants given (note:a=485.0, b=3.11, c=0.397)

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No.	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories	Drg. Ref.		
	Made By	Date	

Checking of Capacity (300UC)

Input Data

Width of UC	=	0.3	m
Height of UC	=	0.3	m
Design Runoff	=	0.05 ($Q_{discharge}$)	m^3/s



Flow capacity, Q

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

where A = cross sectional area of flow (m^2) = 0.080343 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) = 0.77 m

r = 0.10 *m*

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

Q = 0.08 m^3/s **> Design runoff, OK!**

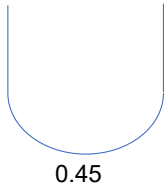
V = Q/A = 1.00 m/s

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No.	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories	Drg. Ref.		
	Made By	Date	

Checking of Capacity (450UC)

Input Data

Width of UC	=	0.45	m
Height of UC	=	0.45	m
Design Runoff	=	0.17	m^3/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 (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!**

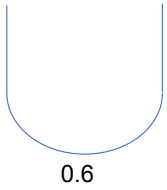
V = Q/A = 1.31 m/s

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No.	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories	Drg. Ref.		
	Made By	Date	

Checking of Capacity (600UC)

Input Data

Width of UC	=	0.6	m
Height of UC	=	0.6	m
Design Runoff	=	0.45	m^3/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 (m^2) = 0.321372 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) = 1.54 m

r = 0.21 *m*

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

Q = 0.51 m^3/s **> Design runoff, OK!**

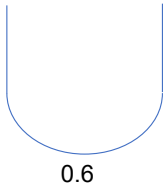
V = Q/A = 1.59 m/s

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No.	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining Government Land, Shek Kong, Yuen Long, New Territories	Drg. Ref.		
	Made By	Date	

Checking of Capacity of Existing 600U-Channel of Outlet B

Input Data

Width of UC	=	0.6	m
Height of UC	=	0.6	m
Design Runoff	=	0.45	m^3/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 (m^2) = 0.321372 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) = 1.54 m

r = 0.21 *m*

Slope

s = 0.004 m/m

Manning coefficient of roughness

n = 0.014

Therefore,

Q = 0.51 m^3/s **> Design runoff, OK!**

V = Q/A = 1.59 m/s

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 m3/s

I = rainfall intensity in mm/hr

A = catchment area in km2

The parameters and assumptions refer to section 3.

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

Use of Storm Constants for 10 years Return Periods of HKO Headquarters

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

i =extreme mean intensity in mm/hr

t_d =duration in minutes (td<240), and

a, b, c = storm constants given (note:a=485.0, b=3.11, c=0.397)

Runoff Estimation at Downstream Natural Stream of Outlet A Before Development

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L \times 100$	to (min) = $0.14465L/(H^{0.2}A^{0.1})$	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
96787	188	14.55	9.98	2.43	7.22	509	1.545	5	12.7	0.25	86450	162.04	0.97	1.08	1.57
										0.95	10337		0.44	0.49	

Runoff Estimation at Downstream Open Channel of Outlet C Before Development

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L \times 100$	to (min) = $0.14465L/(H^{0.2}A^{0.1})$	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
55533	126	14.55	12.87	1.33	5.77	340	1.889	3	8.8	0.25	50423	181.56	0.64	0.71	0.98
										0.95	5110		0.25	0.27	

Runoff Estimation at Downstream Natural Stream of Outlet A After Development

Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L \times 100$	to (min) = $0.14465L/(H^{0.2}A^{0.1})$	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
91244	188	14.55	9.98	2.43	7.27	509	1.545	5	12.8	0.25	79807	161.86	0.90	1.00	1.54
										0.95	10337		0.44	0.49	
										1.00	1100		0.05	0.05	

Runoff Estimation at Downstream Open Channel of Outlet C After Development

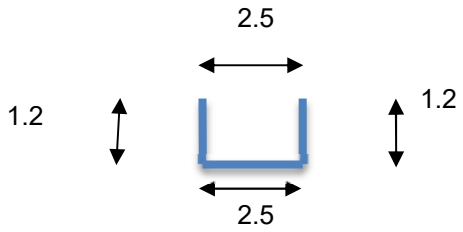
Natural Catch. (m^2)	Longest flow path (m)	Highest (mPD)	Lowest (mPD)	Gradient (per 100m) = $(h_1-h_2)/L \times 100$	to (min) = $0.14465L/(H^{0.2}A^{0.1})$	Length of Nullah L (m)	flow vel. (m^3/s)	t_f = L/v (min)	tc = to + t_f (min)	Runoff coeff.	Total Catch. Area (m^2)	10 year Intensity (mm/hr)	10 year design runoff = 0.278CiA	11.1%×10 year design runoff = 0.278CiA	10 year Total runoff (m^3/s)
53830	126	14.55	12.87	1.33	5.79	340	1.889	3	8.8	0.25	48500	181.45	0.61	0.68	0.96
										0.95	5110		0.24	0.27	
										1.00	220		0.01	0.01	

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining	Drg. Ref.		
	Made By	Date	

Checking of Capacity of Natural Stream of Outlet A

Input Data

Ditch width (Bottom)	=	2.5	m
Ditch width (top)	=	2.5	m
Ditch height (Right)	=	1.2	m
Ditch height (Left)	=	1.2	m
Max. Design flow	=	1.54	m^3/s



Flow capacity, Q

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

where A = cross sectional area of flow (m^2) = 3 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) = 4.90 m

r = 0.61 *m*

Slope

s = 0.01 m/m

Manning coefficient of roughness

n = 0.033

Therefore,

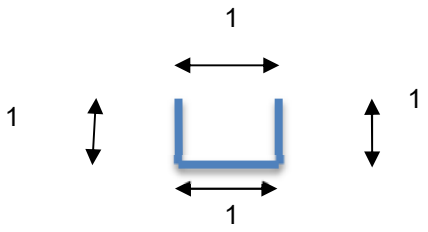
Q = 4.6349 m^3/s > Design flow, OK!

V = 1.545 m/s

Mannings (Asia) Consultants Ltd.	Job No.	Sheet No	Rev.
Calculation Sheet	Member / Location		
Job Tilte: Proposed Temporary Open Storage of Construction Materials, Construction Machineries, Auto Parts and Vehicles with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Various Lots in D.D. 106 and Adjoining	Drg. Ref.		
	Made By	Date	

Checking of Capacity of Open Channel of Outlet C

Input Data



Ditch width (Bottom)	=	1	m
Ditch width (top)	=	1	m
Ditch height (Right)	=	1	m
Ditch height (Left)	=	1	m
Max. Design flow	=	0.96	m^3/s

Flow capacity, Q

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

where A = cross sectional area of flow (m^2) = 1 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) = 3.00 m

r = 0.33 *m*

Slope

s = 0.01 m/m

Manning coefficient of roughness

n = 0.018

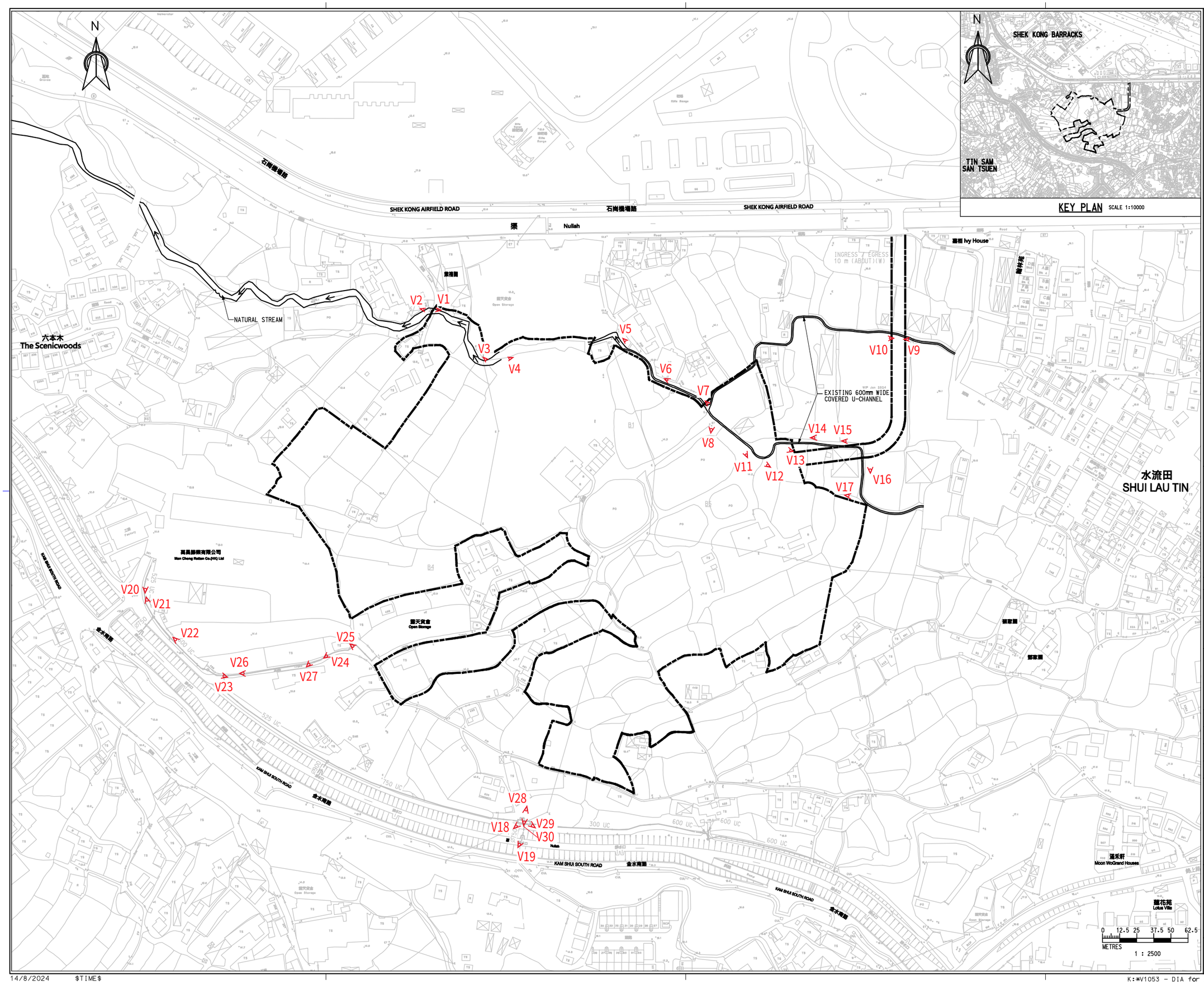
Therefore,

Q = 1.8886 m^3/s > Design flow, OK!

V = 1.8886 m/s

Appendix C

Site Photos



KEY PLAN SCALE 1:10000

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

Rev.	Description of Revision	Date	Ckd.

Client

EXCEL LINK DEVELOPMENT LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

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

Project

PROPOSED TEMPORARY OPEN STORAGE OF CONSTRUCTION MATERIALS, CONSTRUCTION MACHINERIES AUTO PARTS AND VEHICLES WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LANDAND POND

Title

SITE PHOTO PLAN

Drawing No.	Stage	Rev.
V1053/008	P	-

Photo V1

Photo V2

Photo V3

Photo V4

Photo V5

Photo V6

Photo V7

Photo V8

Photo V9

Photo V10

Photo V11

Photo V12

Photo V13

Photo V14

Photo V15

Photo V16

Photo V17

Photo V18

Photo V19

Photo V20

Photo V21

Photo V22

Photo V23

Photo V24

Photo V25

Photo V26

Photo V27

Photo V28

Photo V29

Photo V30