PLANNING LIMITED
規劃顧問有限公司

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Our Ref: S3171/GBASS_TBT/25/007Lg

11 February 2026

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

Dear Sir / Madam,

Proposed 'Government Use' (GBA Air Quality Laboratory and Meteorological Monitoring Supersite and Associated Filling of Land) in "Green Belt" Zone and Area shown as 'Road', Government Land in D.D.129, Deep Bay Road, Tsim Bei Tsui, Yuen Long, New Territories (Section 16 Planning Application No. A/YL-LFS/592) - Further Information No. 4 -

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We refer to the captioned S16 Application received by the Town Planning Board ("TPB") on 31 December 2025 and the departmental comments from Drainage Services Department (DSD) received on 5 February 2026.

To address the departmental comments, attached please find the response-to-comment table with the revised Drainage Proposal for consideration.

Should you have any queries in relation to the attached, please do not hesitate to contact the undersigned at [redacted].

Yours faithfully
For and on behalf of
KTA PLANNING LIMITED

Camille LAM

Encl.

cc. TMYLW DPO – Mr Wilfred Chu (by email)
the Applicant

KT/PL/CL/vy

Proposed 'Government Use' (GBA Air Quality Laboratory and Meteorological Monitoring Supersite) and Filling of Land in "Green Belt" Zone and Area shown as 'Road' on Deep Bay Road, Tsim Bei Tsui, New Territories
(S.16 Planning Application No. A/YL-LFS/592)
Comments Forwarded from Tuen Mun and Yuen Long West District Planning Office

Comments	Responses
Comments from Drainage Services Department (received on 5 February 2026) **Contact person: Mr. Terence TANG; Tel. No.: 3965 8927**	
I have the following comments on the submitted drainage proposal: (a) The applicant should address the comment at this planning stage. Consideration should be given to provide catchpit at the turning points of the u-channel.	Indicative catchpit is proposed at the turning points of the u-channel. The internal drainage layout and detail will be subjected to detail design stage.
(b) The applicant should address the comment at this planning stage. The cover and invert levels of the proposed u-channels and catchpits should be shown on the drainage plan.	The cover and invert levels of the proposed catchpits are indicated on the proposed stormwater drainage plan in Appendix G of the Drainage Proposal. The proposed u-channels will be proposed with a minimum 1:100 fall according to the adjacent catchpit level.
(c) All proposed fencing/ wall, size/ provision of existing and proposed drains should be shown on cross sections.	The design sections indicating proposed fence wall, proposed ramp, existing and proposed drains are included in Appendix G of the Drainage Proposal.
(d) The development should neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted. The proposed development will not be adversely affected the drainage in close proximity.
Despite of the above, I have no objection in principle to the proposed development from the public drainage point of view. For any change of existing ground level and associated works proposed by the applicant that could affect adjacent land and cause other impacts and/or other issues to public, please consider to require the applicant to submit technical assessment(s) in other aspect(s) and seek comment from relevant departments as necessary. Should the Town Planning Board consider that the application is acceptable from the planning point of view, conditions	Noted with thanks.

Comments	Responses
should be stipulated in the approval letter requiring the applicant (i) the submission of a drainage proposal and (ii) the implementation and maintenance of the drainage proposal for the development to the satisfaction of the Director of Drainage Services or of the Town Planning Board.	

Encl.: Revised Drainage Proposal

Compiled by: KTA

Date: 10 February 2026
File Ref.: 20260210_S3171_FI4_RtC

PROJECT NO. P2676

DRAINAGE PROPOSAL
FOR
PLANNING APPLICATION FOR
GREATER BAY AREA AIR QUALITY LABORATORY
AND METEOROLOGICAL MONITORING SUPERSITE
AT TSIM BEI TSUI

GREG WONG & ASSOCIATES LTD.

Prepared by:	Kelvin Au Yeung
Checked by:	Kevin Tang
Approved by:	Kevin Tang
Report No.:	2676G001
Revision:	2
Date:	Feb 2026

INDEX

Appendices

1. Introduction

Greg Wong & Associates was commissioned to carry out a drainage proposal for planning application for Greater Bay Area Air Quality Laboratory and Meteorological Monitoring Supersite at Tsim Bei Tsui.

The project is to construct a Guangdong-Hong Kong-Macao Greater Bay Area (GBA) Air Quality Laboratory and Meteorological Monitoring Supersite (the "Supersite") proposed by the Environmental Protection Department (EPD) jointly with the Hong Kong Observatory (HKO) to support and provide regional air pollution and meteorological monitoring and forecasting services.

The supersite is located at Deep Bay Road, Tsim Bei Tsui, facing Deep Bay at North. A. It is irregular in shape with an area of 3,080 square metres. The site is currently falls within "Green Belt" zone and an area shown as 'Road' under approved Lau Fau Shan and Tsim Bei Tsui OZP No. S/YL-LFS/11. The proposed development consists of two individual compartment units each a single storey has been proposed for the site. The location plan and master layout plan of the proposed development are enclosed in **Appendices A** and **B**. This Drainage Proposal is prepared for approval from authorities concerned.

2. Existing Drainage Condition

2.1 The Site

The total site covers approximately 3,080 square metre. The site falls within "Green Belt" zone and an area shown as 'Road'. The site is fully covered by trees and grass. The site is south to Deep Bay Road. The Tsim Bei Tsui Police Post is located at the north of the site. There is an existing channel along the south and west portion of site boundary and runs into Mangrove area at the southeast of the site. The drainage passing through Mangrove and runs into Deep Bay at the southeast of the site.

2.2 Existing Topography

The site is generally inclined and the site elevation is around +27.91mPD to +16.32mPD, with a slight gradient from west to east. The proposed development will involve excavation and backfilling, which will gently incline from west to east. According to site topographical survey carried out by Sam Mak & Associates Surveyors Limited on January 2024. The topographical survey plan is attached in **Appendix C**. The utilities information of DSD is investigated, no drain pipes and sewerage pipes are found in the vicinity of the site.

2.3 Catchment

The catchment and drainage system of the site was derived by map study and site reconnaissance. The catchment that shall affect the site shall include proposed site (A1), part of the register feature 2SW-D/C24 (A2) at the southwest of the site and part of the existing slope (A3, A4, A5, A6) at the southeast of the site. The estimated catchment area is around 18,365 square metre including the Site Area, feature 2SW-D/C24 and existing slope. The runoff from the catchment is currently discharged off site to Mangrove via the existing channel. The drainage catchment index plan is shown in **Appendix E**.

2.4 Drainage Routes

There are existing water channel along the southern and eastern boundary of the site, and the drainage routes leading to Mangrove are channelized and located outside the Site. Runoff from the site currently flows overland and enters the Mangrove through existing channel and catchpit. In the southern part of the site, there is existing u-channel with catchpit that collects surface runoff from register feature 2SW-D/C24 and discharges them into the Mangrove.

To the northern and western of the site, a series of wall and planter wall blocking the surface runoff from the Deep Bay Road and car park at west. In the southern part of the site, there is existing u-channel with catchpit that collects surface runoff from register feature 2SW-D/C24 and discharges them into the Mangrove. No additional runoff will be entered the existing site area. The catchment area A1, A2, A3, A4, A5 and A6 will eventually discharge to the along the existing slope through existing channel and enter the Mangrove. The Mangrove is connected to the Deep Bay through uncharted road through existing culvert. The remaining runoff from Deep Bay Road and car park are discharged along Deep Bay Road and no adverse effect will be induced to the existing development. The existing stormwater drainage plan is shown in **Appendix E**. The photographic record of the existing drainage is enclosed in **Appendix I**.

There are no flooding black spots in the vicinity of the site and the existing drainage facilities for our development are adequate for the existing runoff.

3. Proposed Drainage System

The level of the proposed development is backfilled and gently incline from west to east. Fence wall or ramp along the site boundary with will be proposed to prevent external stormwater runoff into the site area. The existing channel and catchpit outside site boundary will be retained. The stormwater in the site will be collected by site drainage system and discharged through existing catchpit to existing 300mm stepped channel to the Mangrove. The stormwater at the register feature 2SW-D/C24 along site southern boundary will be collected separately along existing 450 u-channel and discharged to the existing 470 u-channel to Mangrove. The landscape master plan is shown in **Appendix D**.

The proposed development will include internal drainage systems to collect all flows from the Site and convey them to the existing drainage discharge point. 300mm u-channels with a minimum 1 in 100 gradients and catchpit are proposed within and along site boundary and hydraulic design checked with the new development is attached in **Appendix H**. An indicative proposed drainage arrangement for the Site is shown in **Appendix G**. The internal drainage will be subjected to detail design stage.

The Rational Method has been adopted for the check of the existing drainage system as outlined in the Stormwater Drainage Manual (SDM)(5th edition). 1 in 50 years storm return period has been adopted for the assessment, i.e. a Village Drainage including Internal Drainage System under a Polder Scheme. The rainfall is increased by 16.0% and the sea level increased by 0.47m as suggested by the SDM Corrigendum No. 1/2024 to cater for the climate changes in the end of 21st Century. The Mean Higher High Water (MHHW) Levels is taken as 2.32mPD. The runoff coefficient C was assumed to be 0.3, 0.35 and 0.85 for flat vegetated area, steep vegetated area and paved area respectively. 10% reduction in flow area is assumed for the deposition of sediment in stormwater channels and pipes. According to SDM Corrigendum No. 1/2024, the suggested Design Extreme Sea Levels is 4.78mPD in 1 in 200 years storm return period for Tsim Bei Tsui area which is lower than the proposed site area, therefore no adverse effect is induced.

The catchment runoff has been calculated using the "Rational Method", as outlined in the DSD SDM:

$$Q = 0.278CiA$$

where,

Q = peak runoff in m^3/s

C = runoff coefficient (dimensionless)

i = rainfall intensity in mm/hr

A = catchment area in km^2

After development, the Site will be partly paved (buildings and roads, etc.) and proposed grasscrete partly, for which a runoff coefficient of 0.85 has been adopted. The site will be partly vegetated with a runoff coefficient of 0.3 has been adopted. The runoff from the Site is expected to increase to $0.153m^3/s$ after development. As the Site is immediately adjacent to the Mangrove and Deep Bay, such an increase is relatively insignificant in comparison with the channel capacity. The hydraulic design check of the existing and proposed channel with the new development and proposed drainage plan are attached in **Appendix H** and **Appendix G**.

4. Changes to Drainage Characteristics and Potential Drainage Impacts that Might Arise

The total peak runoff rate of the site is increased due to the change of paving condition of the development. The proposed development will include internal drainage systems to collect all flows from the Site and convey them to the existing catchpit in the crest of the existing slope to the existing drainage.

The runoff from register slope 2SW-D/C24 (A2) will follow the original drainage path along the site boundary to Mangrove. As the runoff from site will be collected by the proposed site drainage, this drainage path only collects water from 2SW-D/C24. No works will be proposed outside site boundary, thus the capacity of the drainage path remains unchanged. The calculation in **Appendix H** shows that the hydraulic design checking for the existing and proposed development.

Overall, the proposed site drainage system and existing drainage path are able to cater for the runoff from the proposed development and surrounding areas, so no adverse drainage impacts are expected.

5. Proposed Drainage Impact Mitigation Measures and Further Drainage Impact Implications

5.1 Temporary Works

With the implementation of good site practice and appropriate pollution control measures to minimize impacts during construction, adverse water quality impacts are not anticipated. The following drainage impact mitigation measures for construction stage are proposed:

(a) Temporary surface channels with silt trap and proper discharge connection to public drainage shall be provided to collect surface runoff throughout construction stage;
(b) Temporary pump with sedimentation tank and proper discharge connection to public drainage shall be provided in throughout construction stage;
(c) Ponding should be avoided by grading the ground surface;
(d) Bare ground surface shall be compacted by roller in order to avoid loose soil being washed off into drains;
(e) Bare soil slopes shall be protected by hydroseeding or tarpaulin sheets to prevent erosion of slope surface;
(f) Temporary sand traps/ desilting ponds should be provided at locations where surface water gathers;
(g) Wastewater generated from building construction activities and site facilities should not be discharged into the stormwater drainage system;

In addition, according to the ETWB TC (Works) No. 5/2005, to avoid direct or indirect impact to the natural stream, precautionary mitigation measures proposed in the following:

(a) The proposed works site inside or in the proximity of natural rivers and streams should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on the stream water qualities. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site.
(b) The natural bottom and existing flow in the river should be preserved as much as possible to avoid disturbance to the river habitats. If temporary access track on riverbed is unavoidable, this should be kept to the minimum width and length. Temporary river crossings should be supported on stilts above the riverbed.
(c) Stockpiling of construction materials, if necessary, should be properly covered and located away from any natural stream/river.
(d) Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby streams/rivers by rain.
(e) Construction effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order:
    i. Minimisation of wastewater generation;
    ii. Reuse and recycle;
    iii. Treatment.
(f) Proper locations for discharge outlets of wastewater treatment facilities well away from the natural streams/rivers should be identified.

(g) Removal of existing vegetation alongside the riverbanks should be avoided or minimised. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environment upon completion of works.
(h) Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the stream/river, but without unduly impeding the flow during heavy rain.
(i) Supervisory staff should be assigned to station on site to closely supervise and monitor the works.

The above requirements can be incorporated into drainage plans and implemented by the contractor under the supervision of the Authorized Person during construction. All these measures will safeguard proper functioning of the drainage system throughout the construction period.

5.2 Permanent Works

There will be no potential water quality impact from the proposed development during the operation phase. The best practices in ProPECC PN 5/93 “Drainage Plans subject to comments by the Environmental Protection Department” would be followed in operation phase as well. For the design of permanent works, the following measures are proposed:

(a) Drainage channels shall be provided for slope, if any, to prevent soil erosion through intercepting and conveying surface runoff to designated discharge points;
(b) Surface of exposed soil slope shall be hydroseeded or landscaped for protection against surface erosion, while surface of covered soil slope shall be shotcreted and

(c) Sufficient fall shall be provided to paved surfaces to prevent ponding.

The proposed permanent drainage system works entirely on gravity and requires minimal maintenance. Only regular CCTV inspection, desilting and repair of the pipework system (e.g. internal lining) will be required after the construction. Once expedient connection is found, the lot owner would rectify the expedient connection. Adequate maintenance of the proposed gravity drainage system will ensure the no adverse drainage impact will occur.

6. Proposed Monitoring Requirements

During construction, periodic site inspection by the Authorized Person or his representative shall be carried out to monitor that designed temporary drainage measures has been implemented by the contractor in accordance with the approved plans.

All the drainage facilities such as the existing open culvert, stepped channel, inlet, underground pipe, manholes, catchpits etc. within the subject site and the existing drainage facilities in the vicinity of the site should be inspected weekly and desilted regularly, particularly at the onset of and after each rainstorm to ensure these facilities are functioning properly at all times. Weekly inspection record of the drainage facilities would be submitted during construction. Any blockage on the drainage system found shall be cleared off immediately to remove flooding hazard.

All stormwater leaving the sites shall be collected by silt traps for sedimentation to occur before being discharged offsite. The silt traps shall be regularly cleared of sediments to

maintain its function. The discharge quality shall satisfy standards set by Environmental Protection Department. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. The existing channels around the site would intercept stormwater run-off around the site so that it will no wash across the site. No construction debris, silt and sediments or cementitious materials would be discharged to or deposited inside the public drains or sewers from the site.

Before construction work commencement, a pre-construction survey should be carried out to assess the baseline conditions of existing ground surface & drainage facilities that may be susceptible to damage or affected by the proposed works. The survey would identify, locate and verify conditions of the existing government sewers and stormwater drains to which our site drainage would be connected / discharged to. CCTV survey should be carried out to the existing nearby drains. The internal conditions of the existing nearby public drains should be monitored with CCTV surveys prior to commencement and upon completion of works. Extent of CCTV survey shall be agreed prior with DSD. Subsequent monitoring reports shall be submitted to DSD regularly.

7. Conclusion

7.1 The allowable capacity of the proposed drainage system meet current drainage design capacity requirement for a 1 in 50 year flood for the proposed development.

7.2 Fence wall or ramp along the site boundary will be proposed to prevent external stormwater runoff into the site area.

7.3 Surface storm water at the site will be collected by proposed internal drainage facilities 300mm u-channel with a minimum 1 in 100 gradients and catchpit, to be discharged to the existing catchpit in the slope crest. Surface storm water from nearby catchments is discharged through the existing channel to Mangrove. The allowable capacity of the downstream drainage system meet current drainage design capacity requirement for a 1 in 50 year flood for the proposed development hence the proposed development will not affect the drainage system of the region.

7.4 To ensure existing drainage capacity will not be adversely affected in the construction stage, drainage impact mitigation measures proposed in Section 5 should be implemented and monitored closely throughout the construction period.

Appendix A

Site Location Plan


SITE LOCATION PLAN
后海灣
SITE
尖鼻咀地震站

Appendix B

Master Layout Plan

NORTH

2SW-D/F7

TURN AROUND / DROP OFF AREA
BLOCK B ENTRANCE
SITE MAIN ENTRANCE
BLOCK A ENTRANCE

INFLUENCE ZONE

2SW-D/F6

EXTG
CAR
PARK

DEEP BAY ROAD / EVA

TSIM BEI TSUI
POLICE POST

2SW-D/F28

BLK A

BLK B

RC PLINTH
(375m²)

2SW-D/C24

ELE. CUT OUT
EMERGENCY GENERATOR ROOM
FS PUMP ROOM

F.S. WATER TANK
245m³ VOLUME
= 16m (L) x 6m x (W) x 2.6 m (H)

2SW-D/F3

INFLUENCE ZONE

LEGEND :
- PROPOSED SITE BOUNDARY
- SLOPE INFLUENCE ZONE
- SLOPE FEATURE
- H-POLE WITH 11kV SWITCHGEAR
- EXISTING ROAD

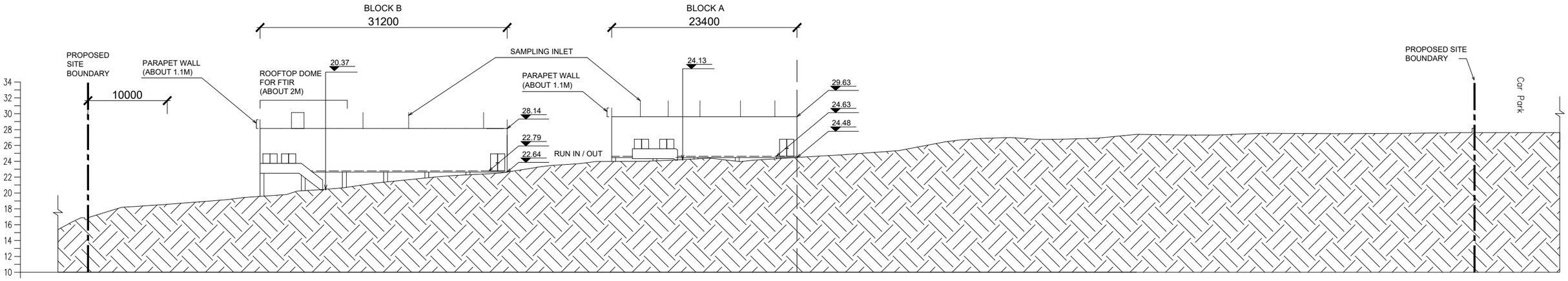
Proposed 'Government Use'
(GBA Air Quality Laboratory and Meteorological Monitoring Supersite)
on Deep Bay Road, Tsim Bei Tsui, New Territories

MASTER LAYOUT PLAN

1:500 (A3)

1

02 - 10 - 2025



REMARK : FOR INDICATION ONLY

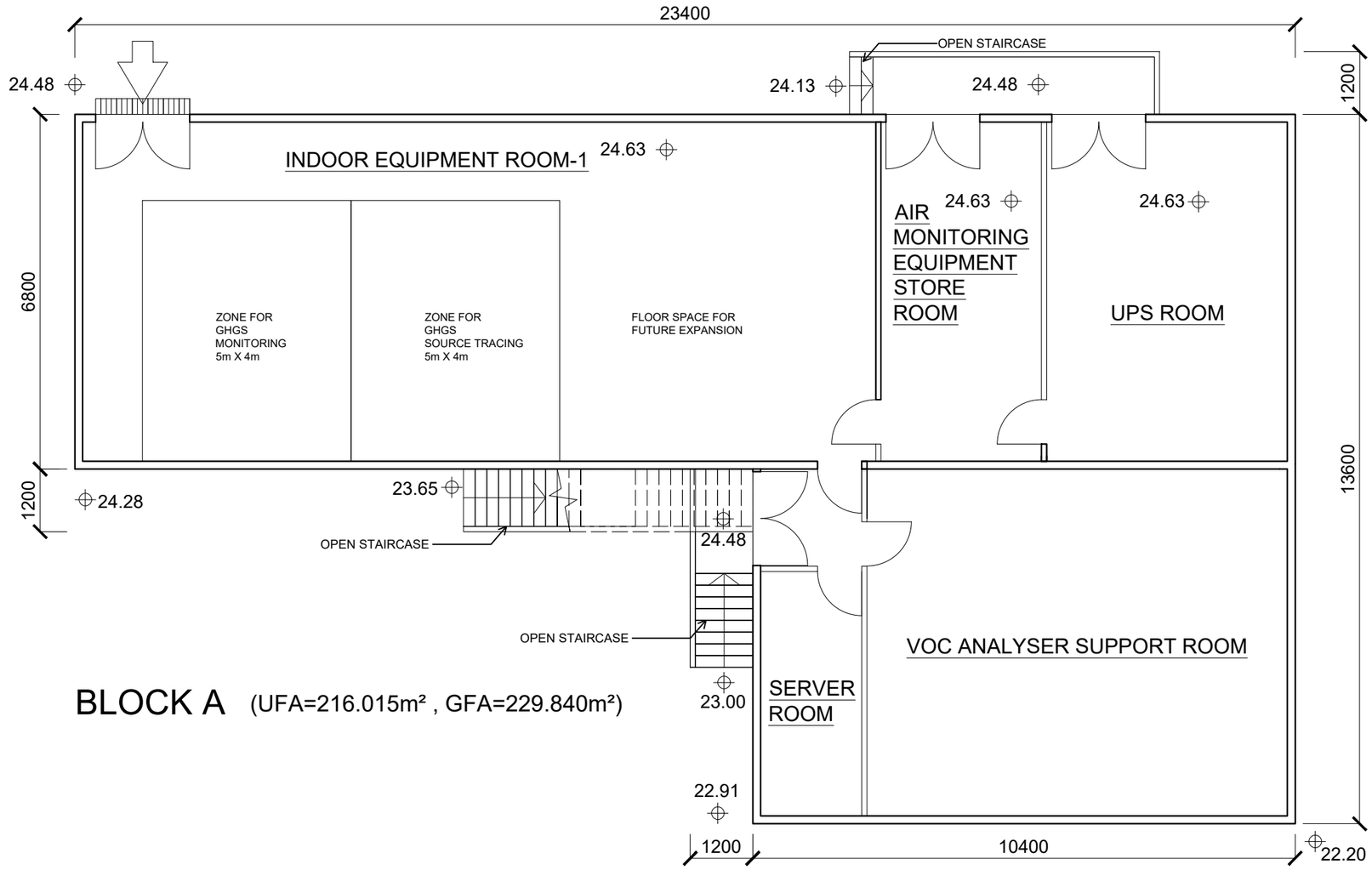
Proposed 'Government Use'
(GBA Air Quality Laboratory and Meteorological Monitoring Supersite)
on Deep Bay Road, Tsim Bei Tsui, New Territories

SCHEMATIC ELEVATION

1:500 (A3)

2

15 - 10 - 2025



BLOCK A (UFA=216.015m² , GFA=229.840m²)

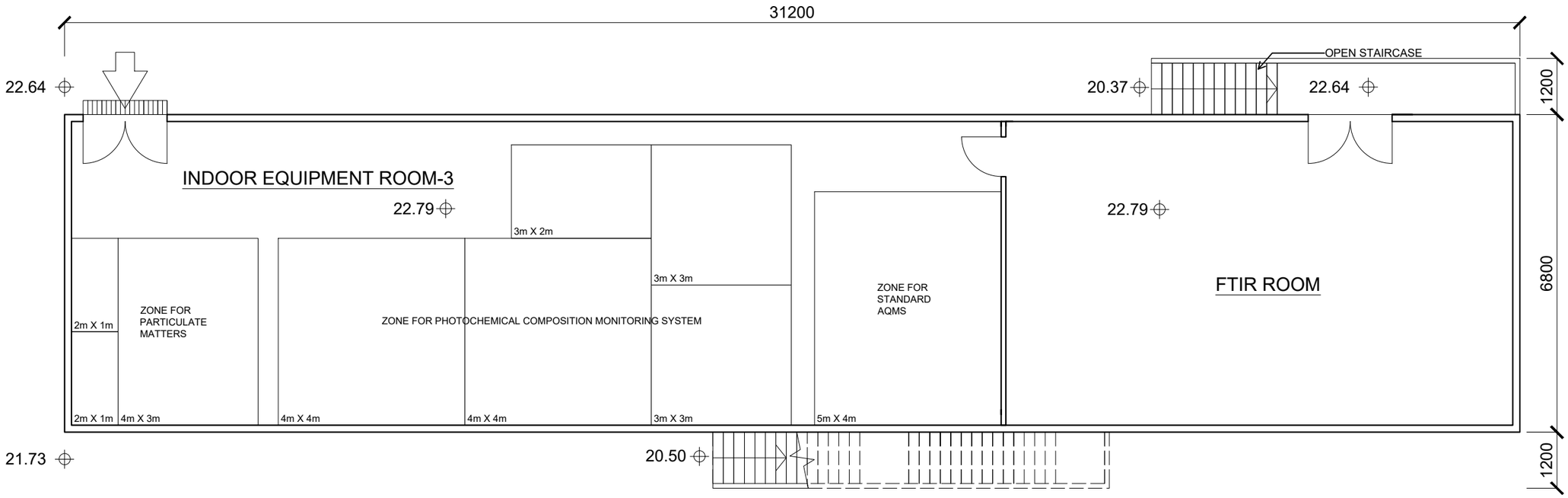
Proposed 'Government Use'
(GBA Air Quality Laboratory and Meteorological Monitoring Supersite)
on Deep Bay Road, Tsim Bei Tsui, New Territories

BLOCK LAYOUT PLAN (BLOCK A)

1:100 (A3)

3a

17 - 09 - 2025



BLOCK B (UFA=199.550m² , GFA=212.160m²)

Proposed 'Government Use'
(GBA Air Quality Laboratory and Meteorological Monitoring Supersite)
on Deep Bay Road, Tsim Bei Tsui, New Territories

BLOCK LAYOUT PLAN (BLOCK B)
1:100 (A3)

3b
17 - 09 - 2025

Appendix C
Topographical Survey

尖鼻咀
TSIM BEI

TS

停車場
Car Park

尖鼻咀警崗
Tsim Bei Tsui Police Post

DEEP WATER BAY ROAD

CUL

838540N
838520N
838500N
838480N
838460N
838440N
838420N

819365E
819465E
819565E
819665E
819765E
819865E
819965E
820065E
820165E
820265E
820365E
820465E
820565E
820665E
820765E
820865E
820965E
821065E
821165E
821265E
821365E
821465E
821565E

LEGEND:

- ARTIFICIAL SLOPE
- CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF CHANNEL)
- STEP CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF STEP CHANNEL)
- BOUNDARY LINE & BOUNDARY POINT
- GATE
- PERMANENT BUILDING AND CANOPY
- TREE WITH TREE NO.
- INCLINED WALL
- GRAVE
- CONTOURS
- TS TEMPORARY STRUCTURE
- PB PILLAR BOX
- HR HAND RAILING
- HD HOARDING
- KL KERB LINE (BOTTOM)
- ST SLOPE TOP
- SB SLOPE BOTTOM
- FX FENCE
- BARRIERS
- BN BENCH
- ELECTIC POLE
- SB SIGN BOARD
- SP SIGN POLE
- LP LAMP POST
- TP TELEPHONE POLE
- TL TRAFFIC LIGHT
- FH FIRE HYDRANT
- PM PARKING METER
- BOLLARD AT ROAD
- GULLY
- GRATING
- VALVE FIRE
- VALVE GAS
- VW VALVE WATER WORKS
- MH MANHOLE
- ATC MANHOLE, ATC
- CATV MANHOLE, CABLE TV
- E&M MANHOLE, ELECTRIC & MECHANICAL SERVICES DEPARTMENT
- HKTC MANHOLE, PCCW-HKT TELEPHONE LIMITED
- DSD MANHOLE, DRAINAGE SERVICES DEPARTMENT
- PL MANHOLE, PUBLIC LIGHTING
- HCL MANHOLE, HUTCHISON COMMUNICATION LIMITED
- HGC MANHOLE, HUTCHISON GLOBAL CROSSING LIMITED BROADBAND
- CATCH PIT
- MF MANHOLE, FOUL WATER/SEWER
- MS MANHOLE, STORM WATER
- PCW MANHOLE, PACIFIC CENTURY CABLE & WIRELESS
- NWT MANHOLE, NEW WORLD TELEPHONE
- CLP MANHOLE, CLP POWER
- WHT MANHOLE, WHAFT T & T
- T&T MANHOLE, TOWNGAS TELECOM
- PROPOSED SITE BOUNDARY
- RX — TRAFFIC BARRIER

* Lamp Pole number is referred to GeoInfo Map system (for client's reference only)

ABBREVIATION:

BD	BOULDER
BE	BERM
BS	BOUNDARY STONE
CA	CANOPY
CUL	CULVERT
CO	COLUMN
CONC	CONCRETE
DB	DISTRIBUTION BOX
END	END OF OBJECT
FB	FLOWER BED
FP	FOOTPATH
IL	INVERT LEVEL
NU	NULLAH
OH	OVERHANG
PF	PLATFORM
PO	POST
PZ	PIEZOMETER TUBE
RP	RAMP
RU	RUIN
SS	SHRINE
TS	TEMPORARY STRUCTURE
VB	VEHICLE BARRIERS
WE	WELL
WIP	WORK IN PROGRESS
WT	WATER TANK

NOTE
ALL SPOT LEVEL POSITIONS ARE THE DECIMAL POINT OR A CROSS

SCALE 1 : 200 (A0 SIZE)

metres 0 4 8 12 16 20 metres

HONG KONG METRIC GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS IN METRES

DATE OF SURVEY: JANUARY 2024

REVISION	DATE	DESCRIPTION
INITIAL	24/02/2024	---

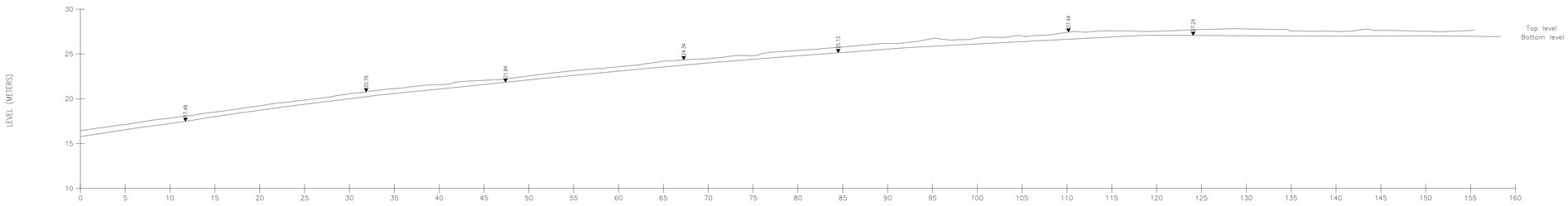
ARCHITECTURAL SERVICES DEPARTMENT

Topographical Survey
Guangdong–Hong Kong–Macao Greater Bay Area (GBA)
Air Quality Laboratory and Meteorological Monitoring Supersite

SAM MAK & ASSOCIATES SURVEYORS (HK) LTD.
CONSULTANTS IN LAND, ENGINEERING, MARINE & AERIAL SURVEYS
ROOM 901, MARINA HOUSE, NO.68 HING MAN STREET, SHAUKEIWAN, HONG KONG.
TEL : 28951918 FAX : 28901759 E-mail: hkoffice@sammak.com

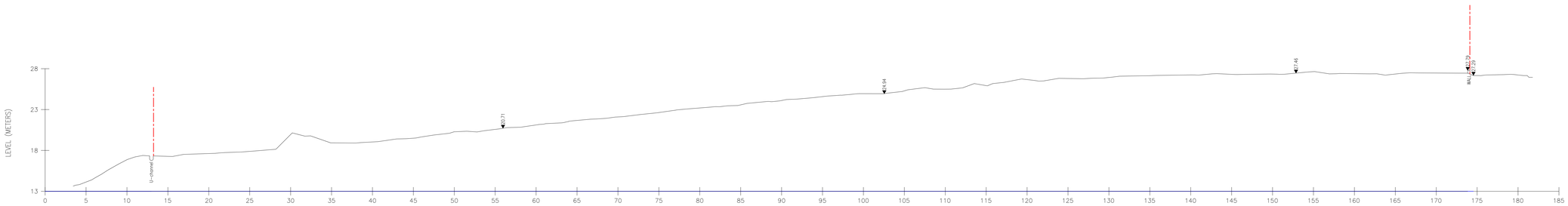
PRELIMINARY
(24/02/2024)
JESSICA PUI YEE LEUNG MHKIS RPS(LS)
REGISTERED PROFESSIONAL SURVEYOR

PLAN NO. 9594/01(SHEET 1 OF 3)



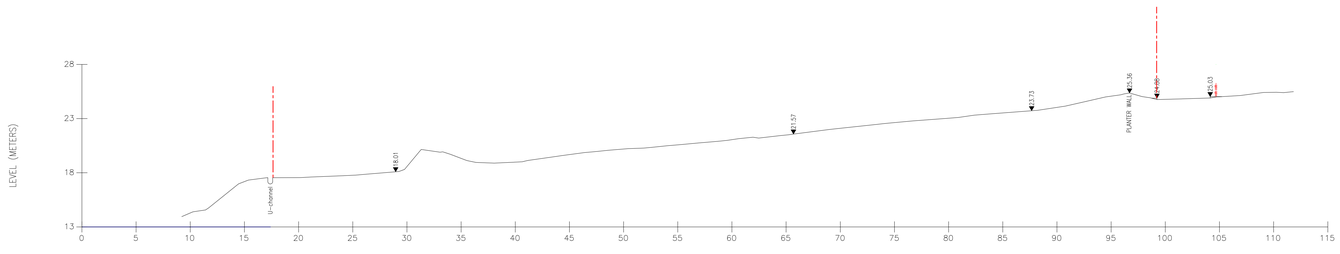
CHAINAGE (METERS)

SECTION A–A



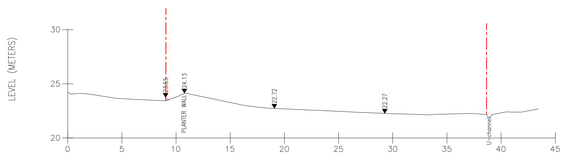
CHAINAGE (METERS)

SECTION B–B



CHAINAGE (METERS)

SECTION C–C



CHAINAGE (METERS)

SECTION D–D

LEGEND:

- ARTIFICIAL SLOPE
- CHANNEL WITH FLOW DIRECTION (UB) : WIDE OF CHANNEL
- STEP CHANNEL WITH FLOW DIRECTION (UB) : WIDE OF STEP CHANNEL
- BOUNDARY LINE & BOUNDARY POINT
- GATE
- PERMANENT BUILDING AND CANOPY
- TREE WITH TREE NO.
- INCLINED WALL (TOP) (BOTTOM)
- GRAVE
- CONTOURS
- TS TEMPORARY STRUCTURE
- PB PILLAR BOX
- HR HAND RAILING
- HD HOARDING
- KL KERB LINE (BOTTOM)
- ST SLOPE TOP
- SB SLOPE BOTTOM
- FX FENCE
- BARRIERS
- BN BENCH
- ELECTIC POLE
- SB SIGN BOARD
- SP SIGN POLE
- LP LAMP POST
- TP TELEPHONE POLE
- TL TRAFFIC LIGHT
- FH FIRE HYDRANT
- P.M PARKING METER
- BOLLARD AT ROAD
- GULLY
- GRATING
- VALVE FIRE
- VALVE GAS
- VALVE WATER WORKS
- MH MANHOLE
- ATC MANHOLE, ATC
- CATV MANHOLE, CABLE TV
- E&M MANHOLE, ELECTRIC & MECHANICAL SERVICES DEPARTMENT
- HKT MANHOLE, PCCW–HKT TELEPHONE LIMITED
- DSD MANHOLE, DRAINAGE SERVICES DEPARTMENT
- PL MANHOLE, PUBLIC LIGHTING
- HCL MANHOLE, HUTCHISON COMMUNICATION LIMITED
- HGC MANHOLE, HUTCHISON GLOBAL CROSSING LIMITED BROADBAND
- CATCH PIT
- MF MANHOLE, FOUL WATER/SEWER
- MS MANHOLE, STORM WATER
- PCW MANHOLE, PACIFIC CENTURY CABLE & WIRELESS
- NWT MANHOLE, NEW WORLD TELEPHONE
- CLP MANHOLE, CLP POWER
- WHT MANHOLE, WHAFT T & T
- T&T MANHOLE, TOWNGAS TELECOM
- PROPOSED SITE BOUNDARY
- — RX — TRAFFIC BARRIER

• Lamp Pole number is referred to GeoInfo Map system (for client's reference only)

ABBREVIATION:

BO	BOULDER
BS	BUSH
BRS	BOUNDARY STONE
CA	CANOPY
CUL	CULVERT
CO	COLUMN
CONC	CONCRETE
EB	ELECTRIC BOX
END	END OF OBJECT
FB	FLOWER BED
FP	FOOTPATH
IL	INVERT LEVEL
NU	NULLAH
OH	OVERHANG
PL	PLATFORM
PO	POND
PZ	PIEZOMETER TUBE
RT	RETAIN
RU	RUIN
SS	SHRINE
TS	TEMPORARY STRUCTURE
VB	VEHICLE BARRIERS
WE	WELL
WIP	WORK IN PROGRESS
WT	WATER TANK

SCALE 1 : 200 (A0 SIZE)

metres 0 4 8 12 16 20 metres

HONG KONG METRIC GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS IN METRES

NOTE
ALL SPOT LEVEL POSITIONS ARE THE DECIMAL POINT OR A CROSS

DATE OF SURVEY: JANUARY 2024

REVISION	DATE	DESCRIPTION
INITIAL	24/02/2024	---

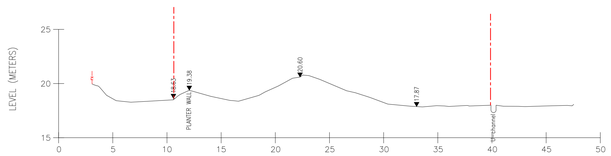
ARCHITECTURAL SERVICES DEPARTMENT

Topographical Survey
Guangdong–Hong Kong–Macao Greater Bay Area (GBA)
Air Quality Laboratory and Meteorological Monitoring Supersite

SAM MAK & ASSOCIATES SURVEYORS (HK) LTD.
CONSULTANTS IN LAND, ENGINEERING, MARINE & AERIAL SURVEYS
ROOM 901, MARINA HOUSE, NO.68 HING MAN STREET, SHAUKEIWAN, HONG KONG.
TEL : 28951918 FAX : 28901759 E-mail: hkoffice@sammak.com

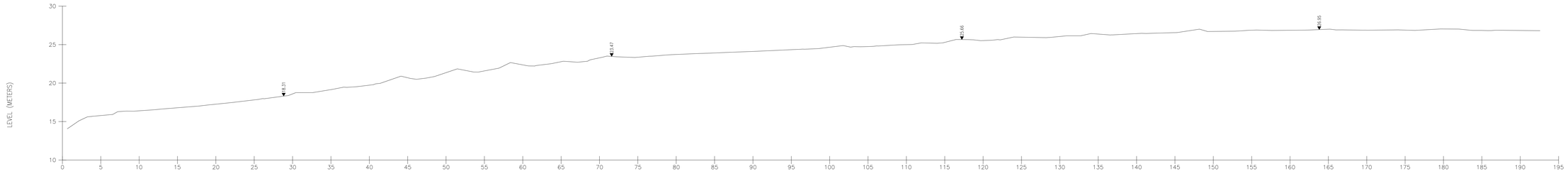
PLAN NO. 9594/01 (SHEET 2 OF 3)

PRELIMINARY
(24/02/2024)
JESSICA PUI YEE LEUNG MHKIS RPS(LS)
REGISTERED PROFESSIONAL SURVEYOR



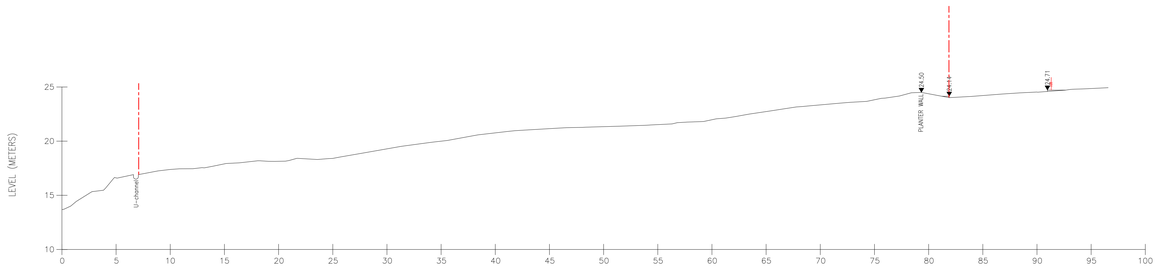
CHAINAGE (METERS)

SECTION E-E



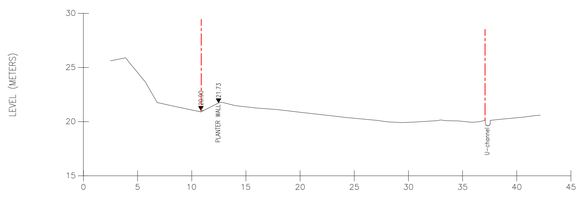
CHAINAGE (METERS)

SECTION F-F



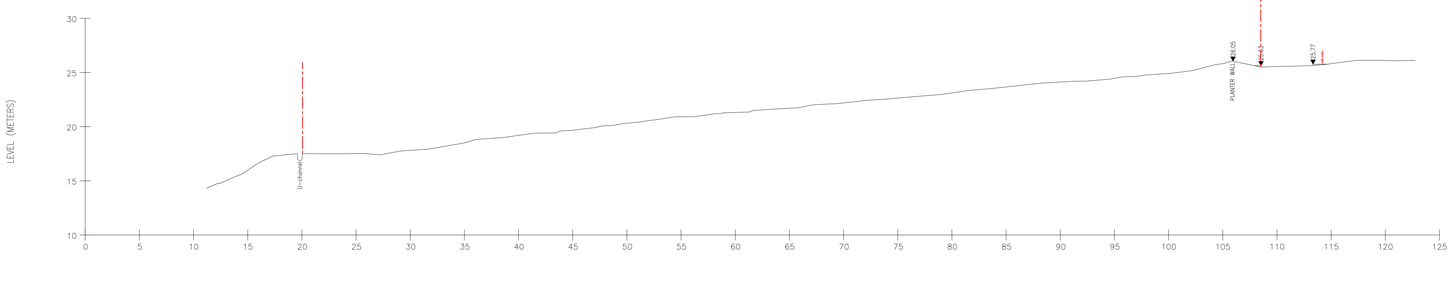
CHAINAGE (METERS)

SECTION G-G



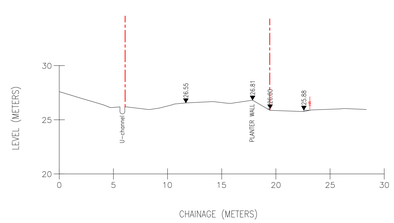
CHAINAGE (METERS)

SECTION H-H



CHAINAGE (METERS)

SECTION I-I



CHAINAGE (METERS)

SECTION J-J

LEGEND:

- ARTIFICIAL SLOPE
- CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF CHANNEL)
- STEP CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF STEP CHANNEL)
- BOUNDARY LINE & BOUNDARY POINT
- GATE
- PERMANENT BUILDING AND CANOPY
- TREE WITH TREE NO.
- INCLINED WALL (TOP) (BOTTOM)
- GRAVE
- CONTOURS
- TS TEMPORARY STRUCTURE
- PB PILLAR BOX
- HR HAND RAILING
- HD HOARDING
- KL KERB LINE (BOTTOM)
- ST SLOPE TOP
- SB SLOPE BOTTOM
- FX FENCE
- BARRIERS
- BR BENCH
- E ELECTIC POLE
- SB SIGN BOARD
- SP SIGN POLE
- LP LAMP POST
- TP TELEPHONE POLE
- TL TRAFFIC LIGHT
- FH FIRE HYDRANT
- PM PARKING METER
- BOLLARD AT ROAD
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- T&T MANHOLE, TOWNGAS TELECOM
- PROPOSED SITE BOUNDARY
- RX TRAFFIC BARRIER

* Lamp Pole number is referred to GeoInfo Map system (for client's reference only)

ABBREVIATION:

BD	BOULDER
BE	BERM
BS	BOUNDARY STONE
CA	CANOPY
CUL	CULVERT
CO	COLUMN
CONC	CONCRETE
EB	ELECTRIC BOX
END	END OF OBJECT
FB	FLOWER BED
FP	FOOTPATH
IL	INVERT LEVEL
NU	NULLAH
OH	OVERHANG
PF	PLATFORM
PO	POST
PZ	PIEZOMETER TUBE
RP	RAMP
RU	RUIN
SS	SHRINE
TS	TEMPORARY STRUCTURE
VB	VEHICLE BARRIERS
WE	WEIR
WIP	WORK IN PROGRESS
WT	WATER TANK

SCALE 1 : 200 (A0 SIZE)

metres 0 4 8 12 16 20 metres

HONG KONG METRIC GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS IN METRES

NOTE
ALL SPOT LEVEL POSITIONS ARE THE DECIMAL POINT OR A CROSS

DATE OF SURVEY: JANUARY 2024

REVISION	DATE	DESCRIPTION
INITIAL	24/02/2024	---

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PRELIMINARY
(24/02/2024)

JESSICA PUI YEE LEUNG MHKIS RPS(LS)
REGISTERED PROFESSIONAL SURVEYOR

PLAN NO. 9594/01 (SHEET 3 OF 3)

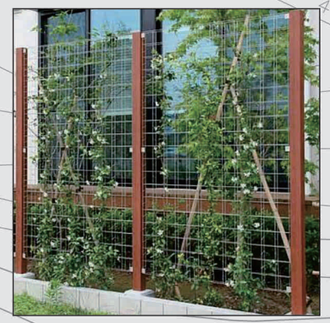
Appendix D

Landscape Master Plan

Roadside Trees

Woodland Tree Mix

Shrubs and Groundcover



Climbing Plants on Boundary Fence

Grasscrete Paver

KEY:

1. Carparks
2. Concrete Plinth for Instrument
3. F.S. Water Tank
4. F.S. Pump Room
5. Emergency Generator Room
6. Electricity Pole
7. Ele. Cut Out

LEGEND:

- APPLICATION SITE BOUNDARY
- PROPOSED STANDARD TREES
- PROPOSED SHRUBS AND GROUNDCOVER
- PROPOSED WOODLAND MIX
- PROPOSED GRASSCRETE PAVER
- PROPOSED CLIMBING PLANT
- CONCRETE PAVING
- METAL FENCE (2.5M HIGH)
- +14.75 PROPOSED LEVEL
- SITE ENTRANCE
- BUILDING ENTRANCE

Grasscrete Pavers is proposed around the indoor and outdoor equipment to prevent obstruction of light and potential VOC emissions but enhance the local greenery with Site.

Standard Trees and Climbing plants on metal fence to improve the Visual Appeal of the Roadside Environment

An earth tone paint color is applied on the Concrete Plinths for outdoor equipment to blend harmoniously with the surrounding hillside environment.

Woodland Tree Mix, Shrubs and Groundcover to provide a Seamless Transition between the Development and the adjacent Natural Environment

DEEP BAY ROAD / EVA

TSIM BEI TSUI POLICE POST

BLK A +29.63

BLK B +28.14

C1 C2

RC PLINTH (375m²)

+22.60 +20.87 +19.50

28.1 A

WT

28 40

0 10 20 30 40M

PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

LANDSCAPE MASTER PLAN

PROJECT No. C2520

DRAWING No. LMP01

SCALE : 1:500

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LMP01

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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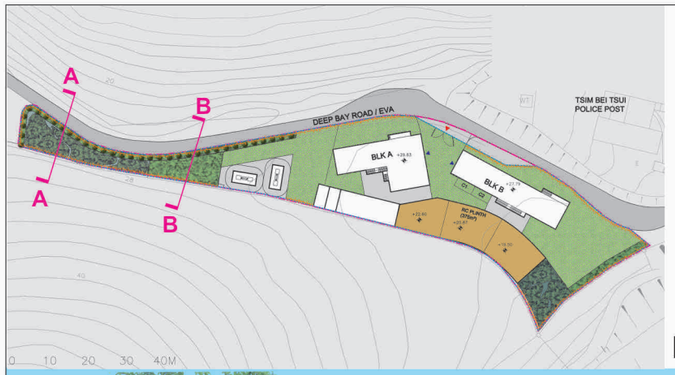
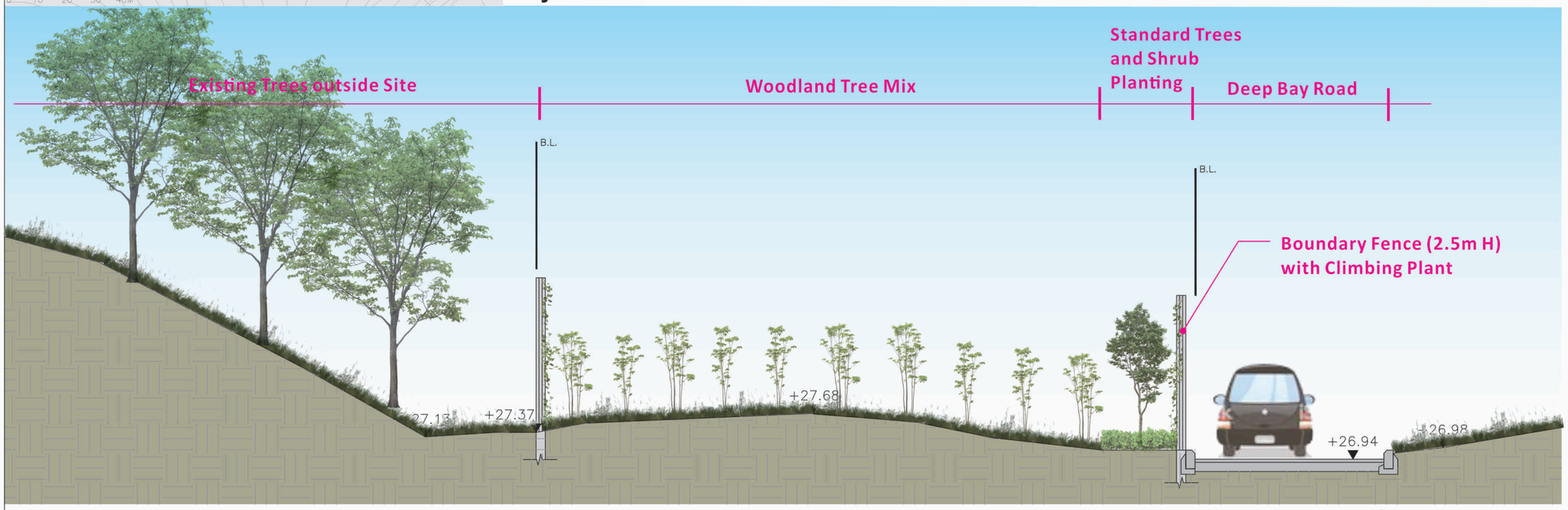
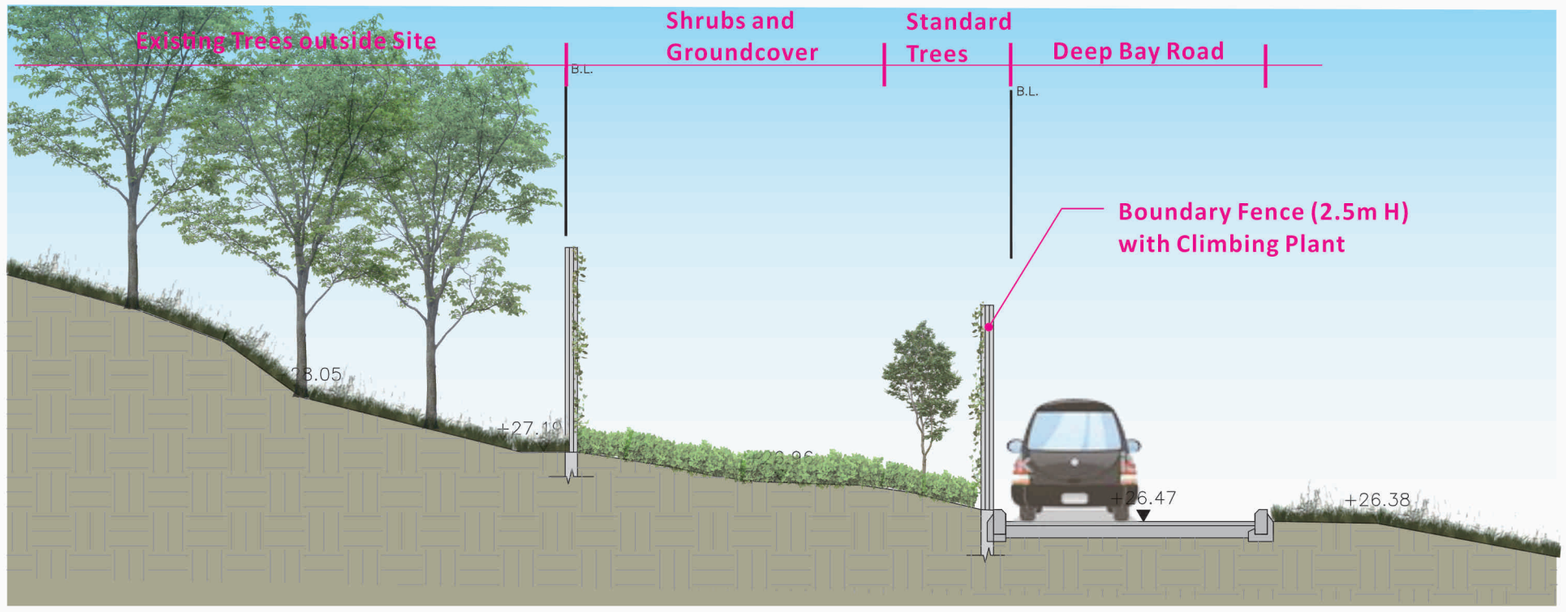


Key Plan



A SECTION
SCALE 1:75



B SECTION
SCALE 1:75

PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

LANDSCAPE SECTION

PROJECT No. C2520

DRAWING No. LD101

SCALE : 1:75

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD101

REV	DESCRIPTION	DATE

DESIGN BY : TEL

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信邦商業大廈17樓A室
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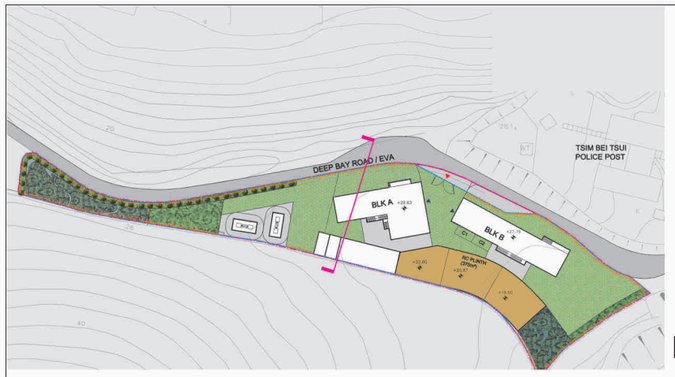
傳真: 2868 2203



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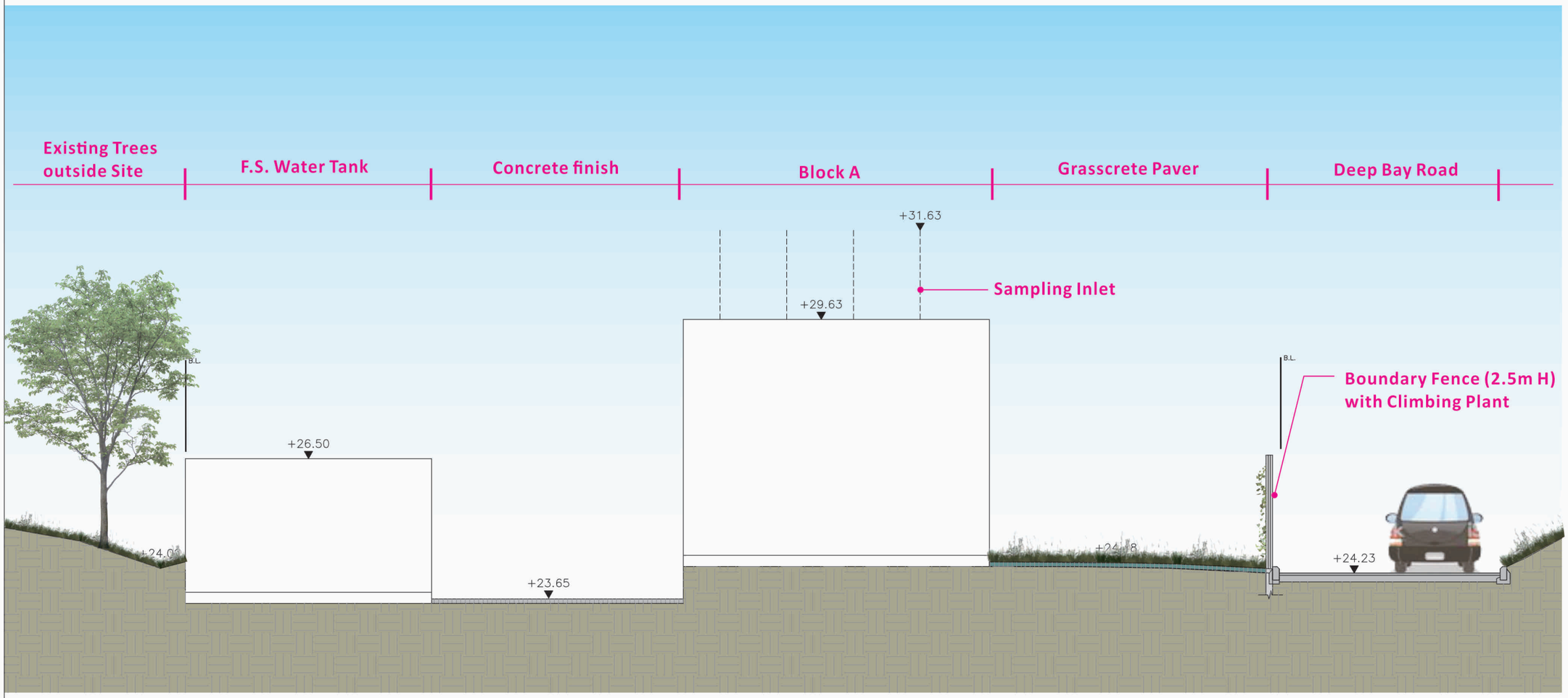

PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

LANDSCAPE SECTION

PROJECT No. C2520

DRAWING No. LD102

SCALE : 1:100

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD102

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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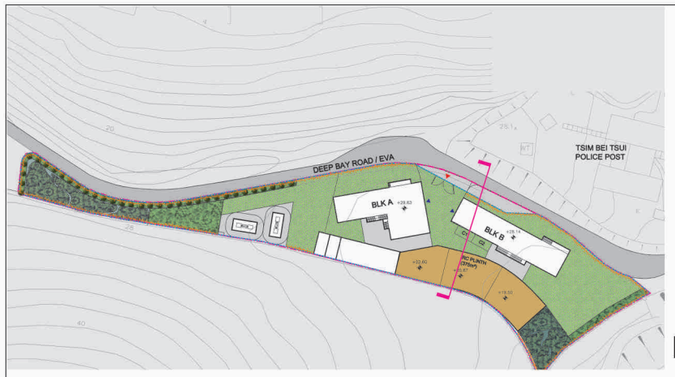
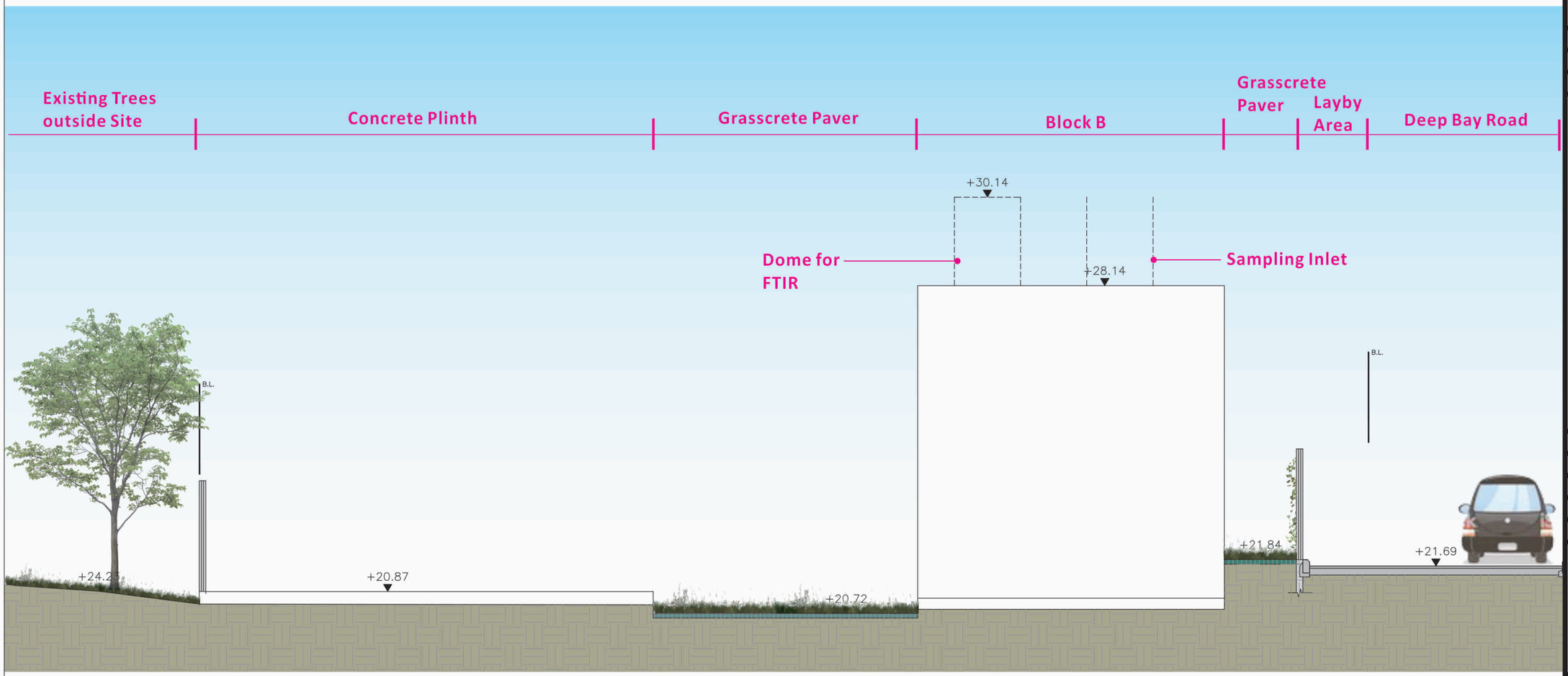


Key Plan



PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

LANDSCAPE SECTION

PROJECT No. C2520

DRAWING No. LD103

SCALE : 1:100

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD103

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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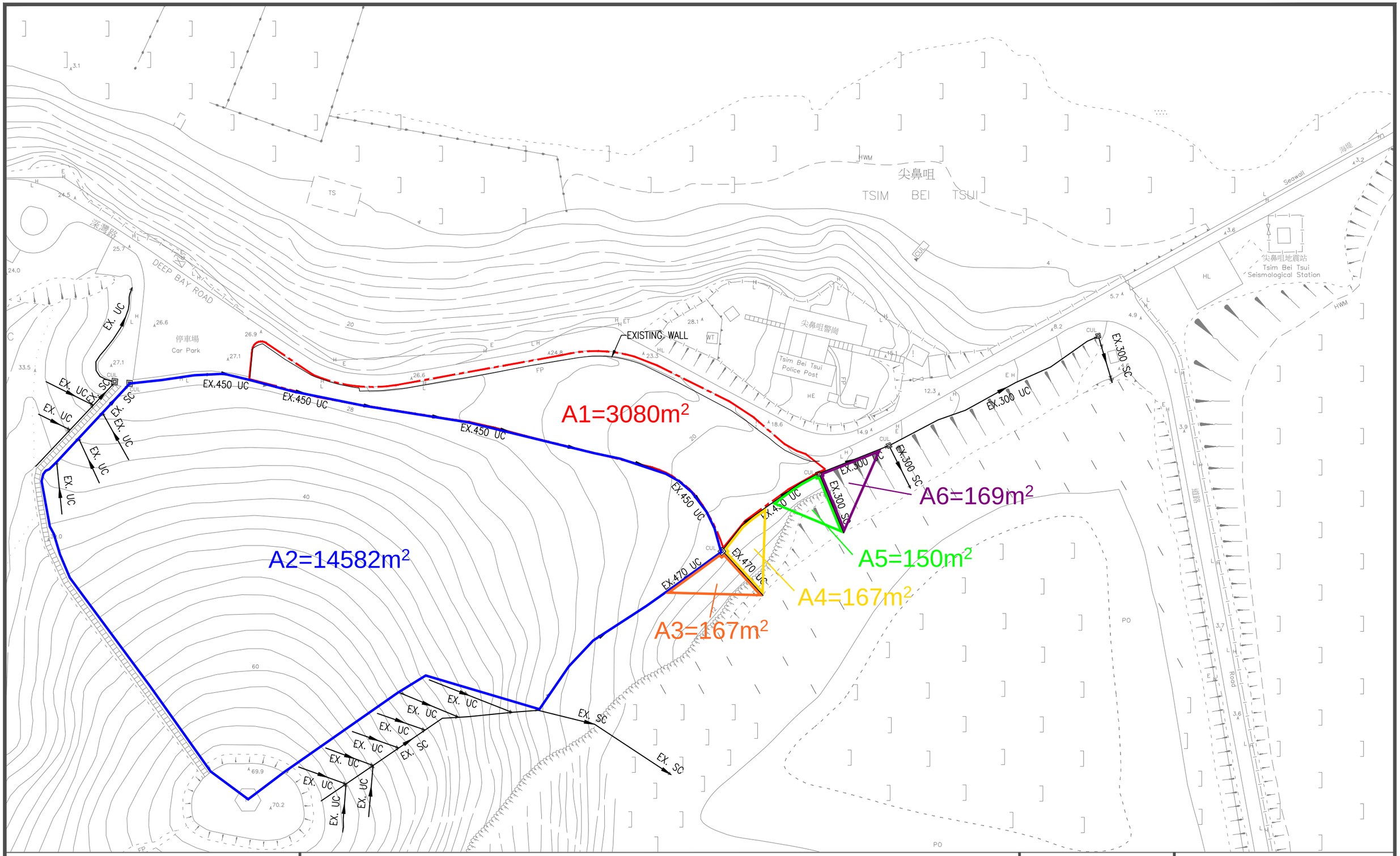
香港灣仔譚臣道5-11號
信邦商業大廈17樓A室
電話: 2868 0980
傳真: 2868 2203

Appendix E

Drainage Catchment Index Plan



Greg Wong & Associates Ltd.
Consulting Engineers & Project Managers
黃澤恩顧問工程師事務所

PLANNING APPLICATION FOR GREATER BAY AREA AIR QUALITY LABORATORY AND METEOROLOGICAL MONITORING SUPERSITE AT TSIM BEI TSUI

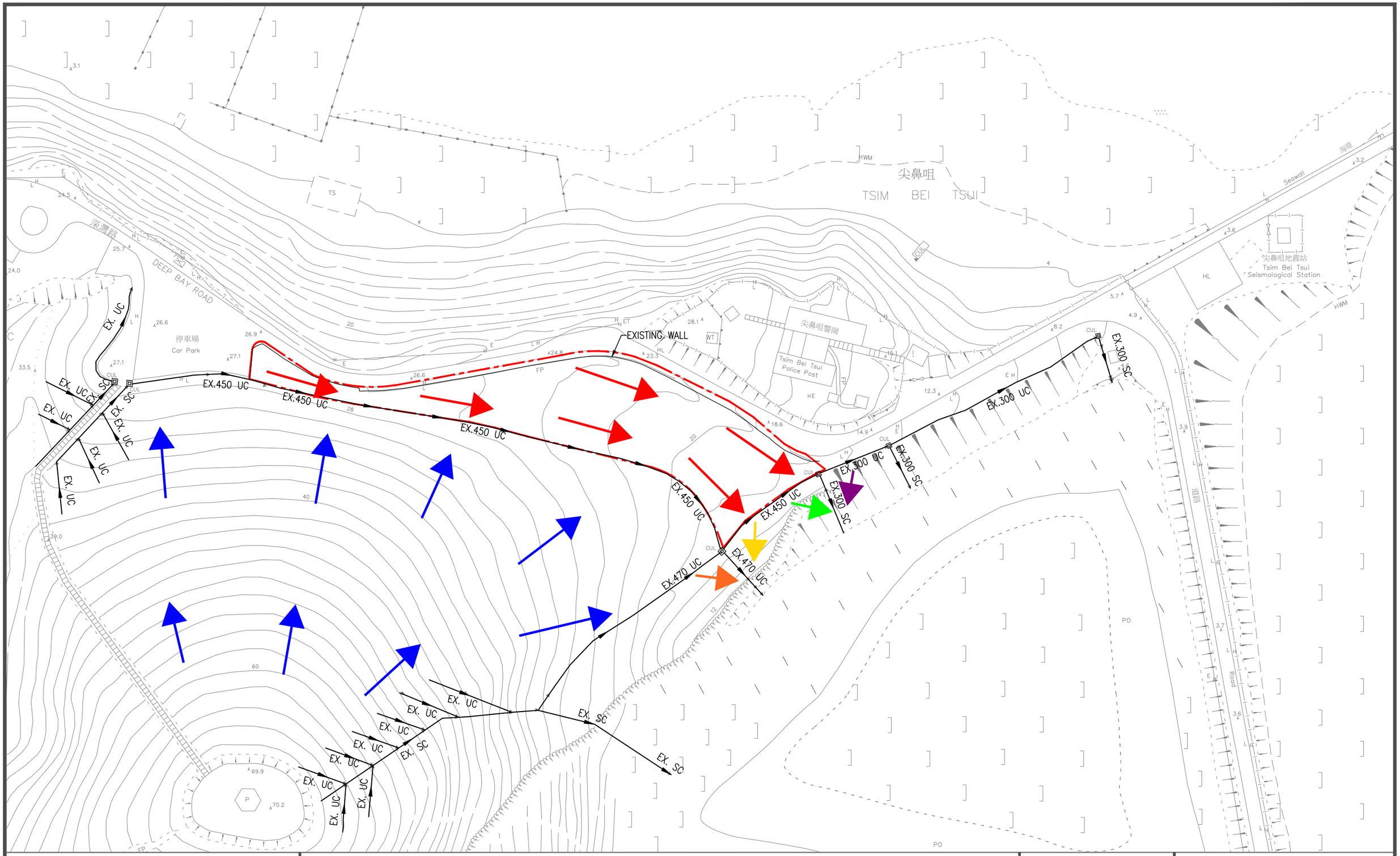
DRAINAGE CATCHMENTS INDEX PLAN

LEGEND:
- MANGROVE
- EX. 450 UC — EXISTING 450mm U-CHANNEL
- EX. 300 SC — EXISTING 300mm STEPPED CHANNEL
- PLANTATION
- SITE BOUNDARY
- EXISTING CATCHPIT

DESIGNED BY	K.A.Y.
CHECKED BY	K.T.
DRAWING NO	DRAWING 1
JOB NO	P2676
DRAWN BY	J.C.
SCALE	1:1000
DATE	18-09-2025
REV	–

Appendix F

Existing Stormwater Drainage Plan



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PLANNING APPLICATION FOR GREATER BAY AREA AIR QUALITY LABORATORY AND METEOROLOGICAL MONITORING SUPERSITE AT TSIM BEI TSUI

EXISTING STORMWATER DRAINAGE PLAN

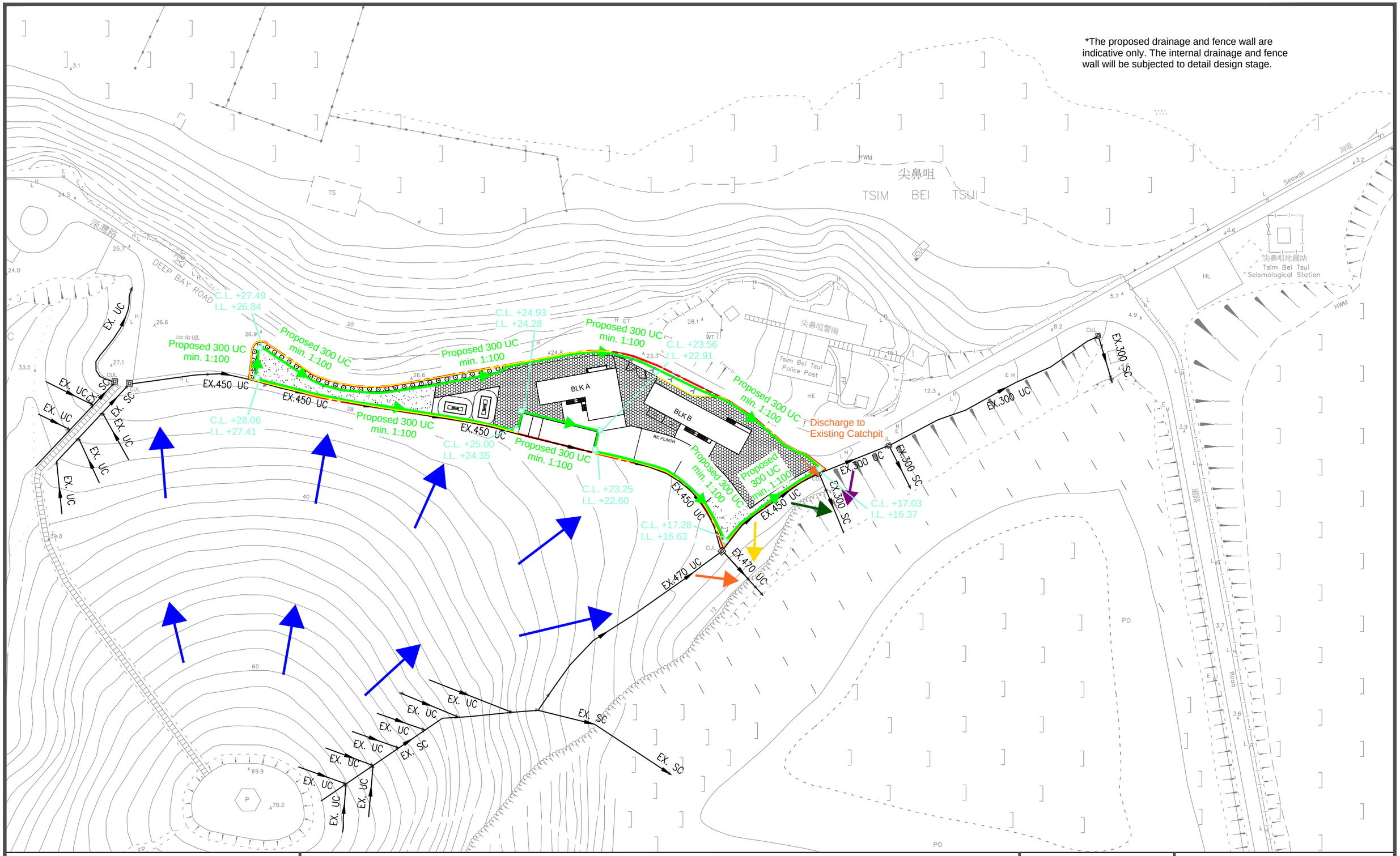
LEGEND:
- MANGROVE
- EX. 450 UC — EXISTING 450mm U-CHANNEL
- EX. 300 SC — EXISTING 300mm STEPPED CHANNEL
- EXISTING DRAINAGE ROUTES
- PLANTATION
- SITE BOUNDARY
- EXISTING CATCHPIT

DESIGNED BY	K.A.Y.
CHECKED BY	K.T.
DRAWING NO	DRAWING 2
JOB NO	P2676
DRAWN BY	J.C.
SCALE	1:1000
DATE	18-09-2025
REV	–

Appendix G

Proposed Stormwater Drainage Plan

*The proposed drainage and fence wall are indicative only. The internal drainage and fence wall will be subjected to detail design stage.



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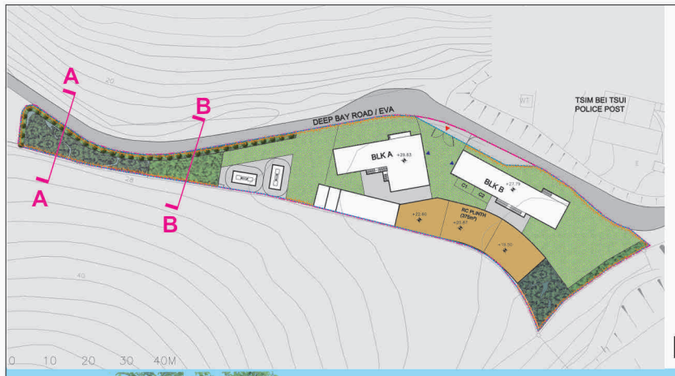
Consulting Engineers & Project Managers
黃澤恩顧問工程師事務所

PLANNING APPLICATION FOR GREATER BAY AREA AIR QUALITY LABORATORY AND METEOROLOGICAL MONITORING SUPERSITE AT TSIM BEI TSUI

PROPOSED STORMWATER DRAINAGE PLAN

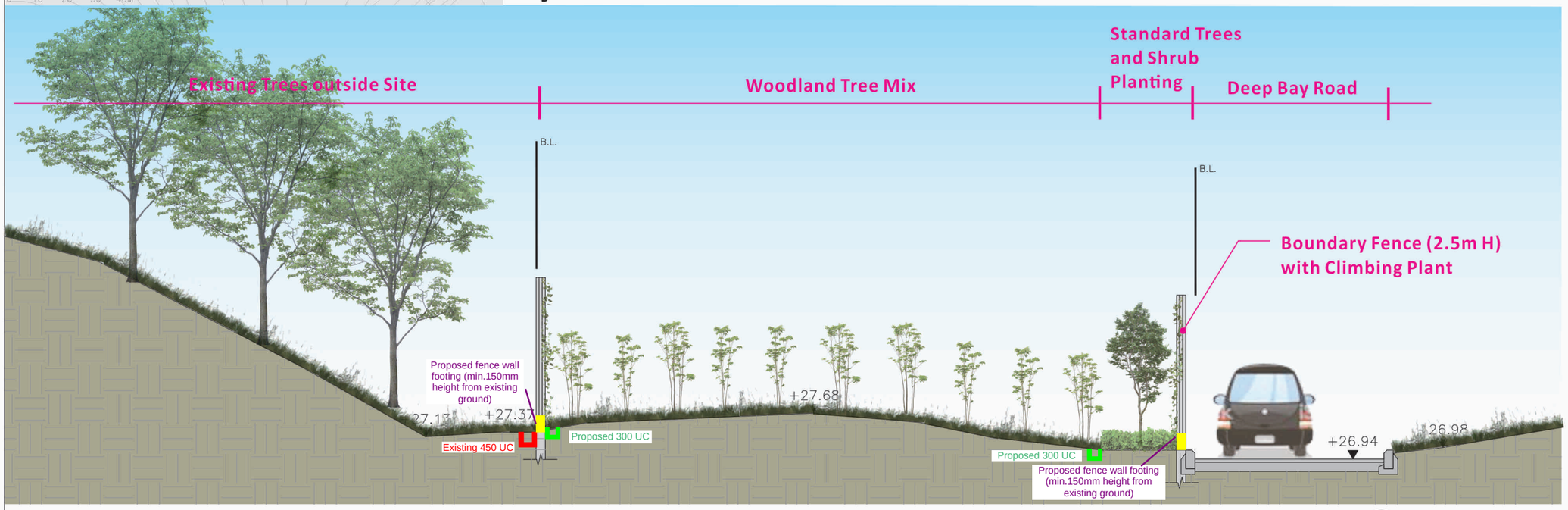
LEGEND:
- PROPOSED RAMPING DOWN
- PROPOSED CATCHPIT
- MANGROVE
- EX. 450 UC — EXISTING 450mm U-CHANNEL
- EX. 300 SC — EXISTING 300mm STEPPED CHANNEL
- PROPOSED FENCE WALL
- PROPOSED DRAINAGE ROUTES
- PLANTATION
- SITE BOUNDARY
- EXISTING CATCHPIT

DESIGNED BY	K.A.Y.	JOB NO	P2676
CHECKED BY	K.T.	DRAWN BY	J.C.
DRAWING NO	DRAWING 3	SCALE	1:1000
		DATE	18-09-2025
		REV	–

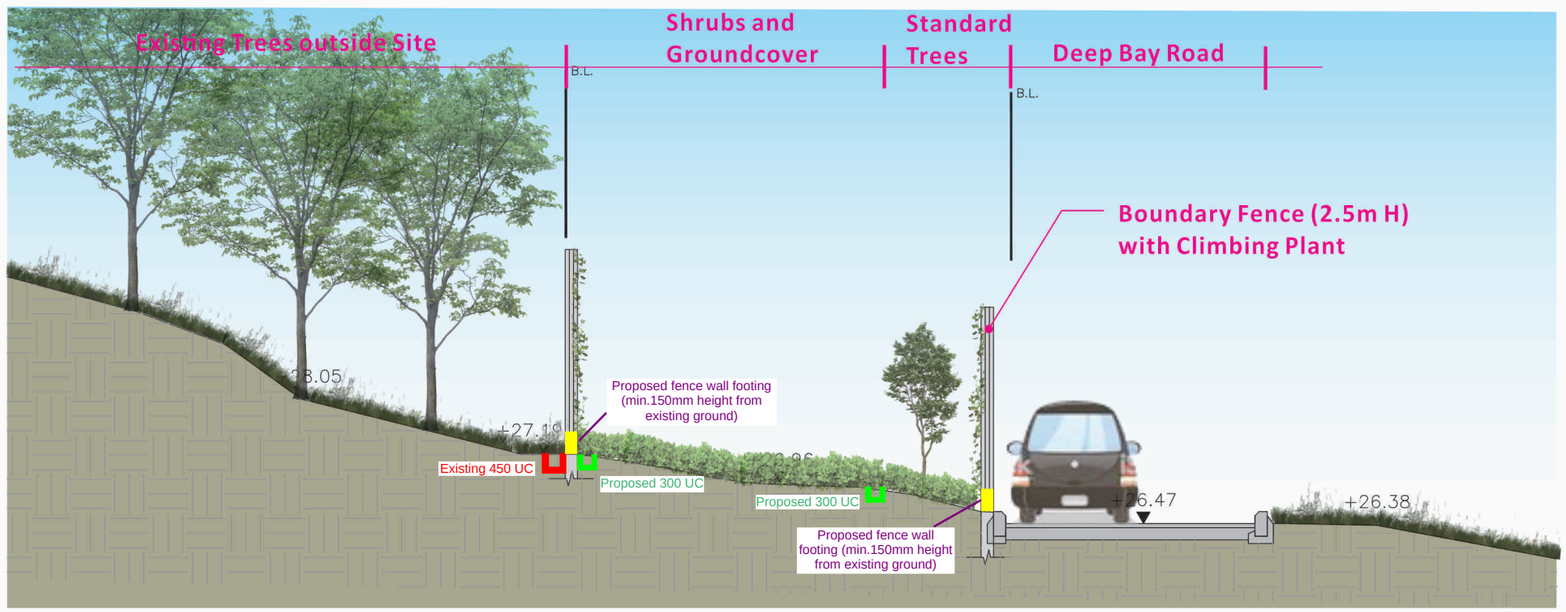


Key Plan

*The proposed drainage and fence wall are indicative only. The internal drainage and fence wall will be subjected to detail design stage.



A SECTION
SCALE 1:75



B SECTION
SCALE 1:75

PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

PROPOSED STORMWATER SECTION

PROJECT No. C2520

DRAWING No. LD101

SCALE : 1:75

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD101

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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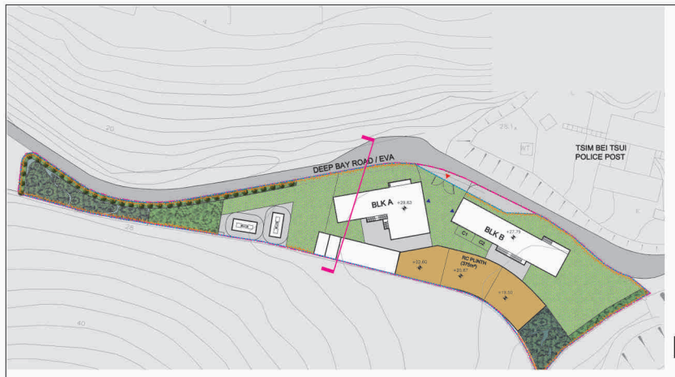
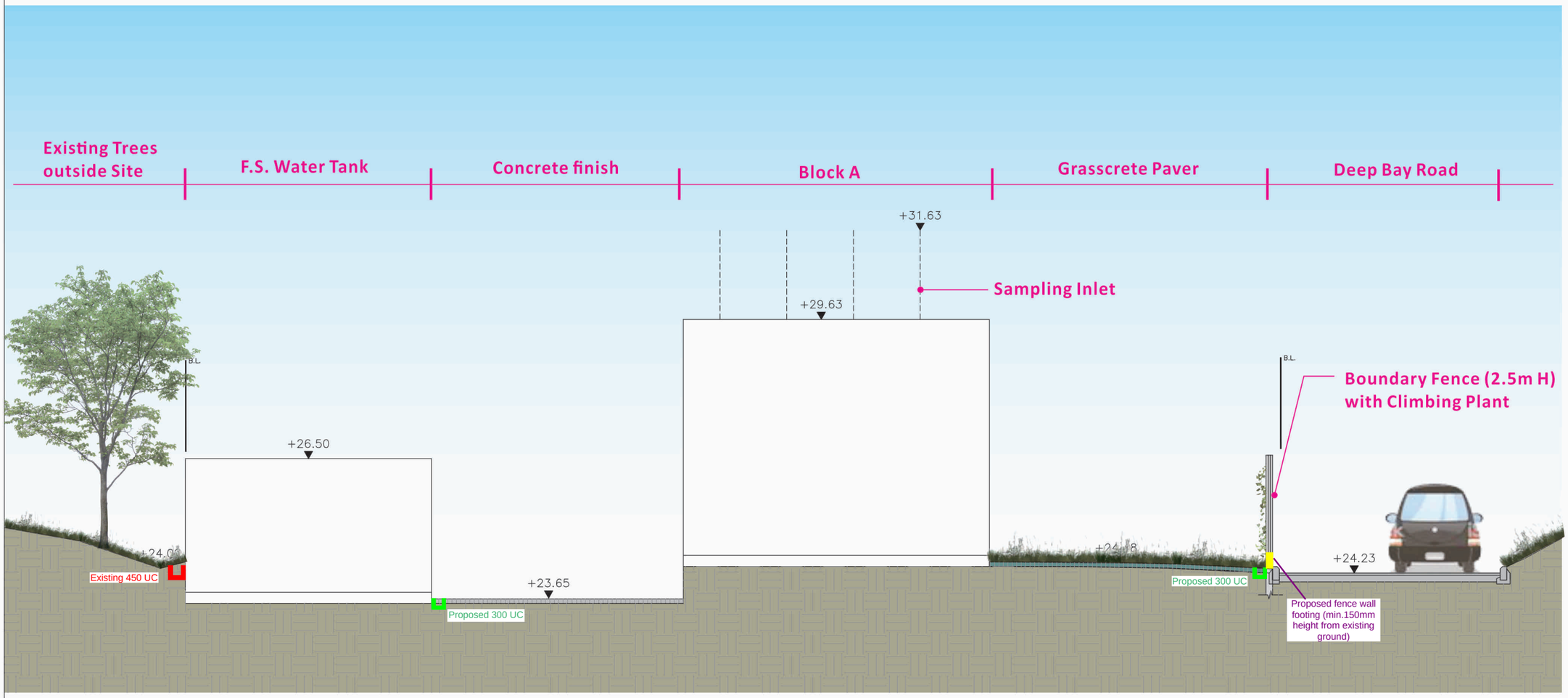


Key Plan

*The proposed drainage and fence wall are indicative only. The internal drainage and fence wall will be subjected to detail design stage.



PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

PROPOSED STORMWATER SECTION

PROJECT No. C2520

DRAWING No. LD102

SCALE : 1:100

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD102

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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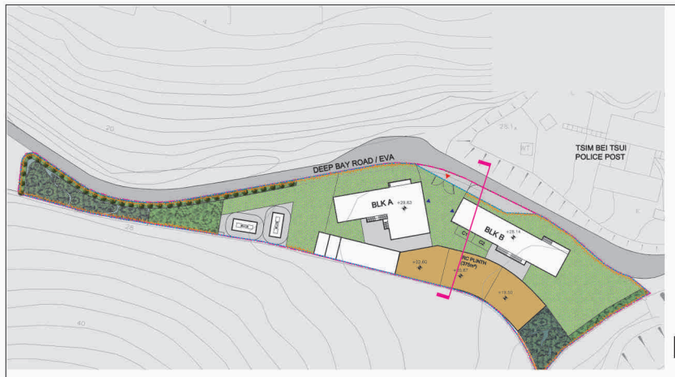
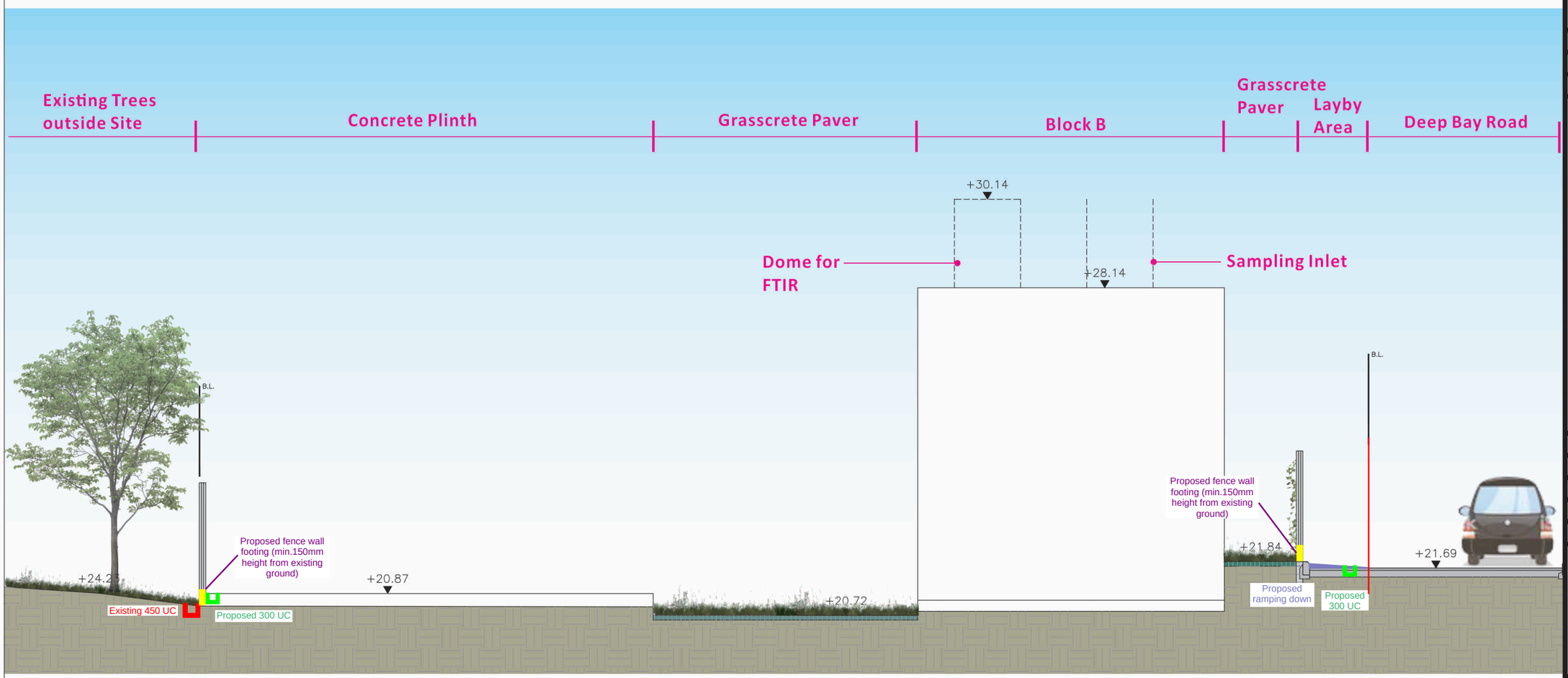


Key Plan

*The proposed drainage and fence wall are indicative only. The internal drainage and fence wall will be subjected to detail design stage.



PROJECT :

PROPOSED 'GOVERNMENT USE' (GBA AIR QUALITY LABORATORY AND METEORLOGICAL MONITORING SUPERSITE) ON DEEP BAY ROAD, TSIM BEI TSUI, N.T.

DRAWING TITLE :

PROPOSED STORMWATER SECTION

PROJECT No. C2520

DRAWING No. LD103

SCALE : 1:100

DATE OF ISSUE : AUG 2025

CAD FILENAME : C2520-LD103

REV	DESCRIPTION	DATE

DESIGN BY : TEL

DRAWN BY : CAD

CHECKED BY : TEL

APPROVED BY : TEL

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Appendix H

Hydraulic Design Check for Proposed Drainage System

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A1 (Existing)

Total catchment area, A1 (paved) = 0 m^2
Total catchment area, A1 (vegetated) = 3080 m^2

Use Rational Method from Geo-Manual

Q = kiA/3600 where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.30 (flat,vegetated)

Longest distance from summit to outlet (Ld) = 167.90 m

Average fall, H = 8.09 m per 100m

From Bransby-Williams Equation (Geo-Manual)

T_c = $0.14465 \times L_d / (H^{0.2} \times A^{0.1})$
= 7.16 min > 1.0 min
= 7.16 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 208 mm/hr x 1.16 = 241.28 mm/hr
Q = kiA/60
= 3716 lit/min
= 0.062 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction
For existing 450 UC with 1 in 100 gradient
Maximum capacity = 24000 x 0.9
= 21600 lit/min > 3716 o.k.
The corresponding velocity = 1.57 m/s < 4 o.k.

Existing Intensity A1

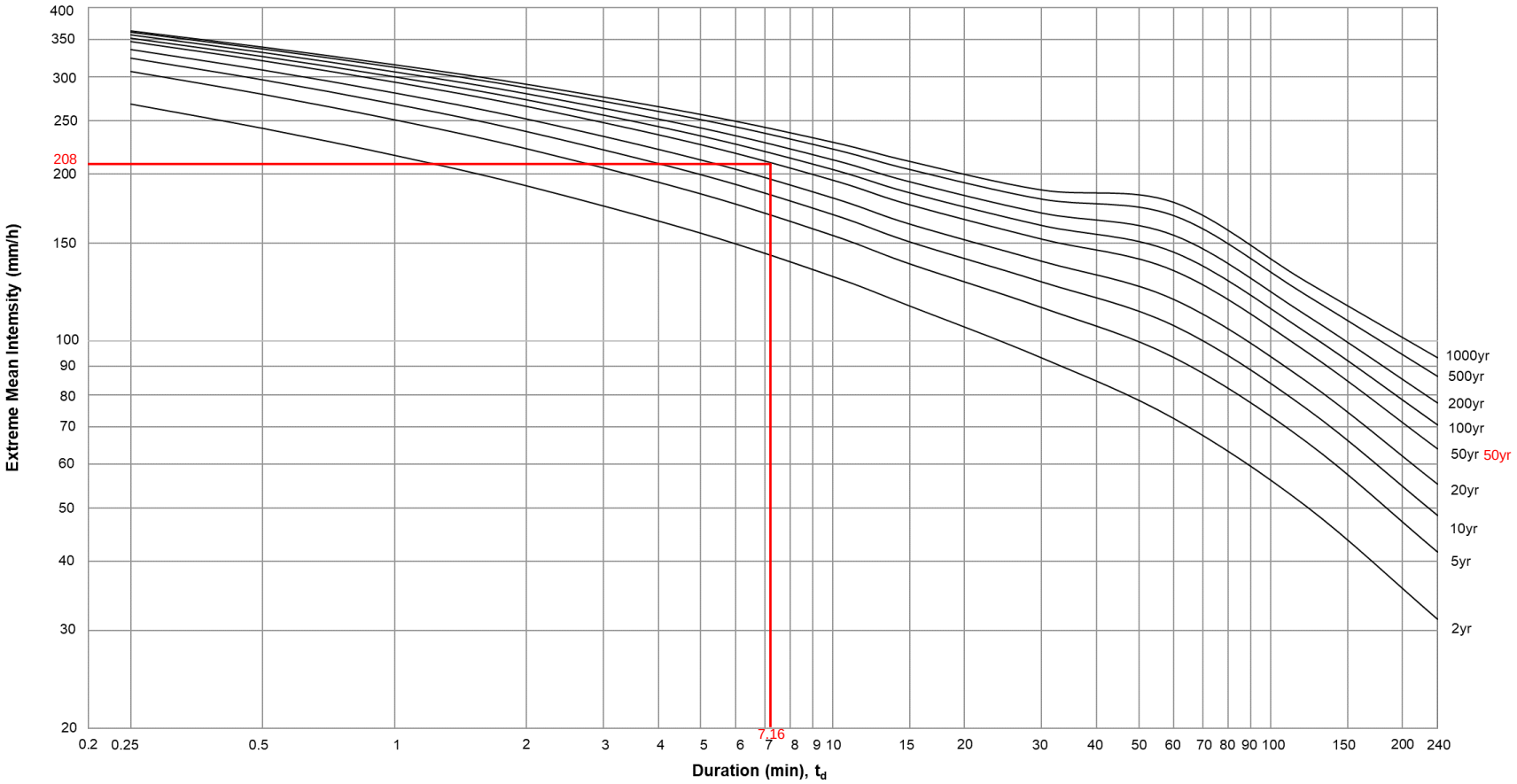


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Existing Catchment A1

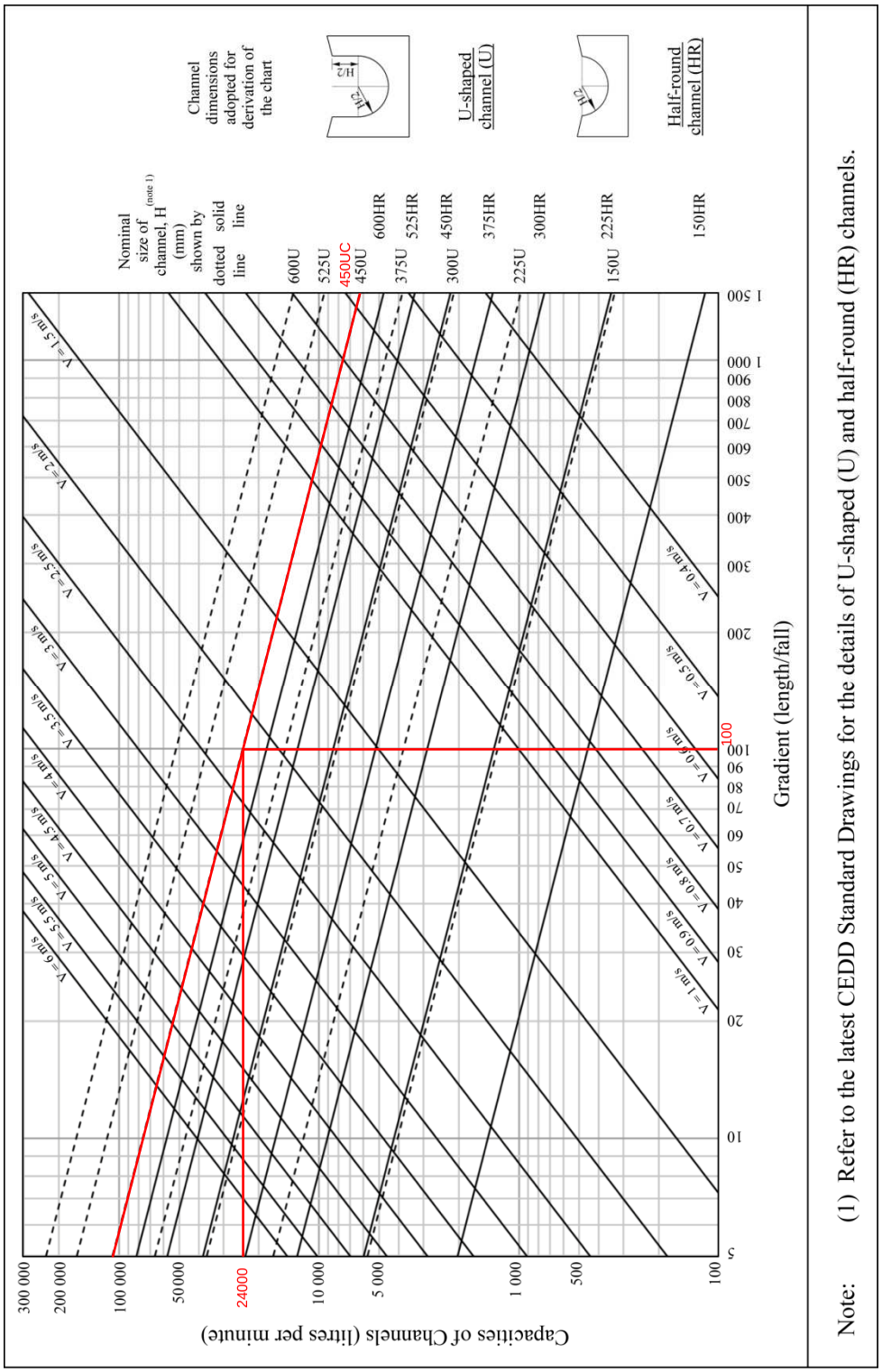


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A1,A5,A6 (Existing)

Total catchment area, A1,A5,A6 (paved) = 0 m^2
Total catchment area, A1,A5,A6 (vegetated) = 3399 m^2

Use Rational Method from Geo-Manual

$Q = kiA/3600$ where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.35 (steep,vegetated)

Longest distance from summit to outlet (Ld) = 185.70 m

Average fall, H = 7.32 m per 100m

From Bransby-Williams Equation (Geo-Manual)

$T_c = 0.14465 \times L_d / (H^{0.2} \times A^{0.1})$
= 8.00 min > 1.0 min
= 8.00 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 205 mm/hr x 1.16 = 237.80 mm/hr
Q = kiA/60
= 4715 lit/min
= 0.079 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction
For existing 300 SC with 1 in 5 gradient
Maximum capacity = 37000 x 0.9
= 33300 lit/min > 4715 o.k.
The corresponding velocity = 4.53 m/s > 4 o.k.

Existing Intensity A1,A5,A6

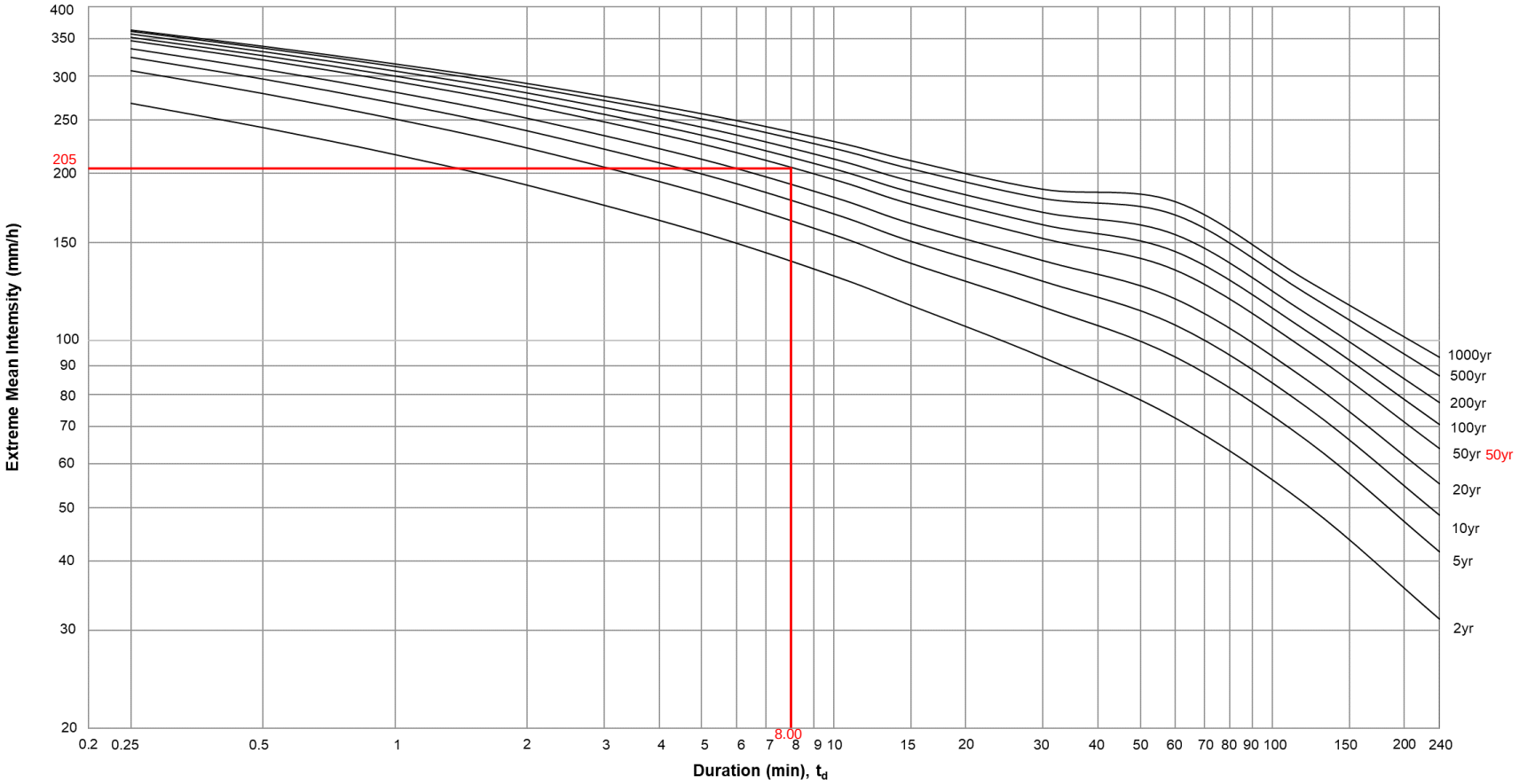


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Existing Catchment A1,A5,A6

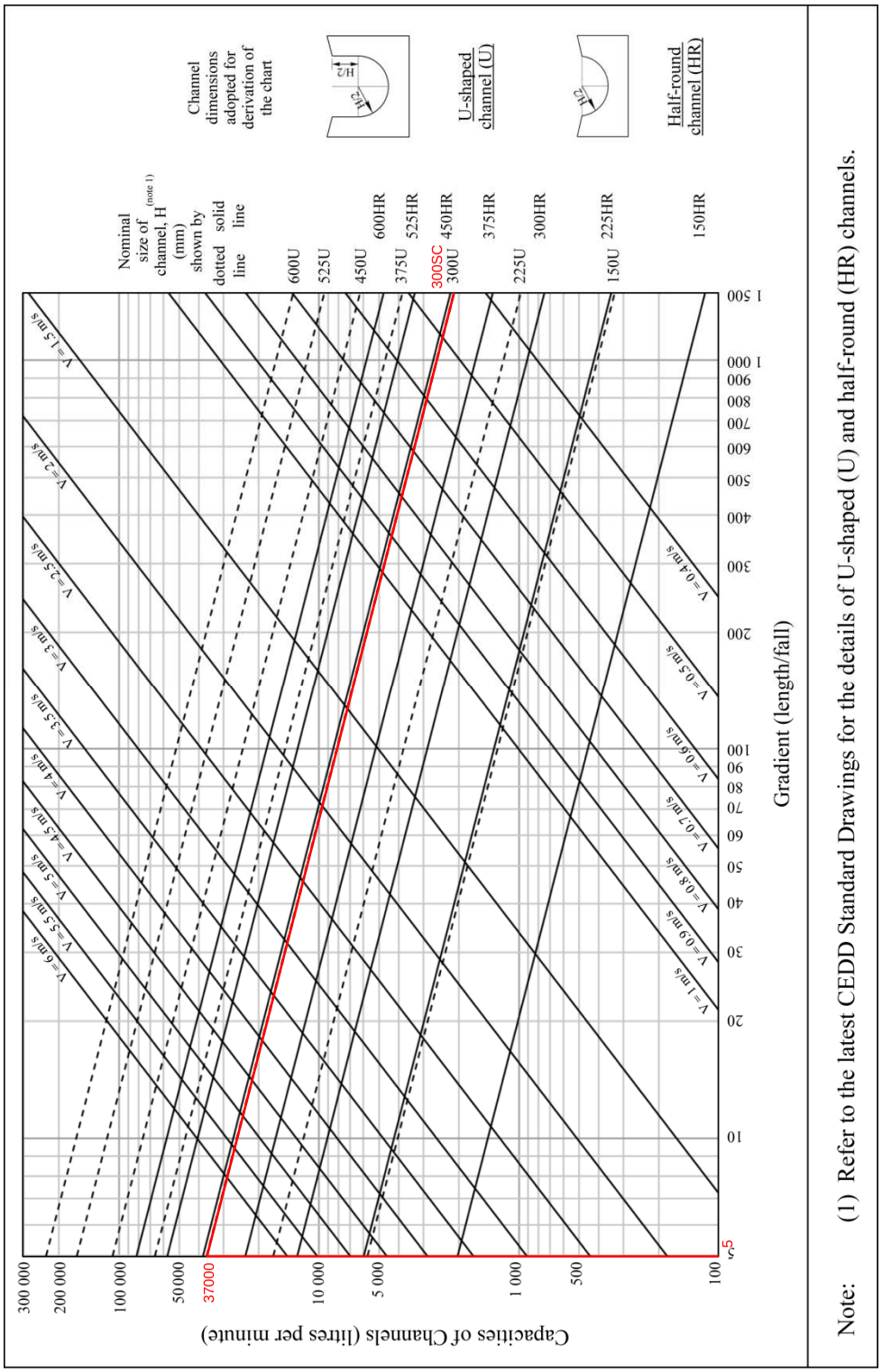


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A1 (Proposed)

Total catchment area,	A1 (paved)	=	1377	m^2
Total catchment area,	A1 (vegetated)	=	600	m^2
Total catchment area,	A1 (grasscrete)	=	1103	m^2

Use Rational Method from Geo-Manual

$Q = kiA/3600$ where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.30 (flat,vegetated)

Longest distance from summit to outlet (Ld) = 167.90 m

Average fall, H = 8.09 m per 100m

From Bransby-Williams Equation (Geo-Manual)

$T_c = 0.14465 \times L_d / (H^{0.2} \times A^{0.1})$
= 7.16 min > 1.0 min
= 7.16 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 208 mm/hr x 1.16 = 241.28 mm/hr
Q = kiA/60
= 9201 lit/min
= 0.153 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction
For proposed 300 UC with 1 in 50 gradient

Maximum capacity	=	12000	x	0.9		
	=	10800	lit/min	>	9201	o.k.
The corresponding velocity	=	2.53	m/s	<	4	o.k.

Proposed Intensity A1

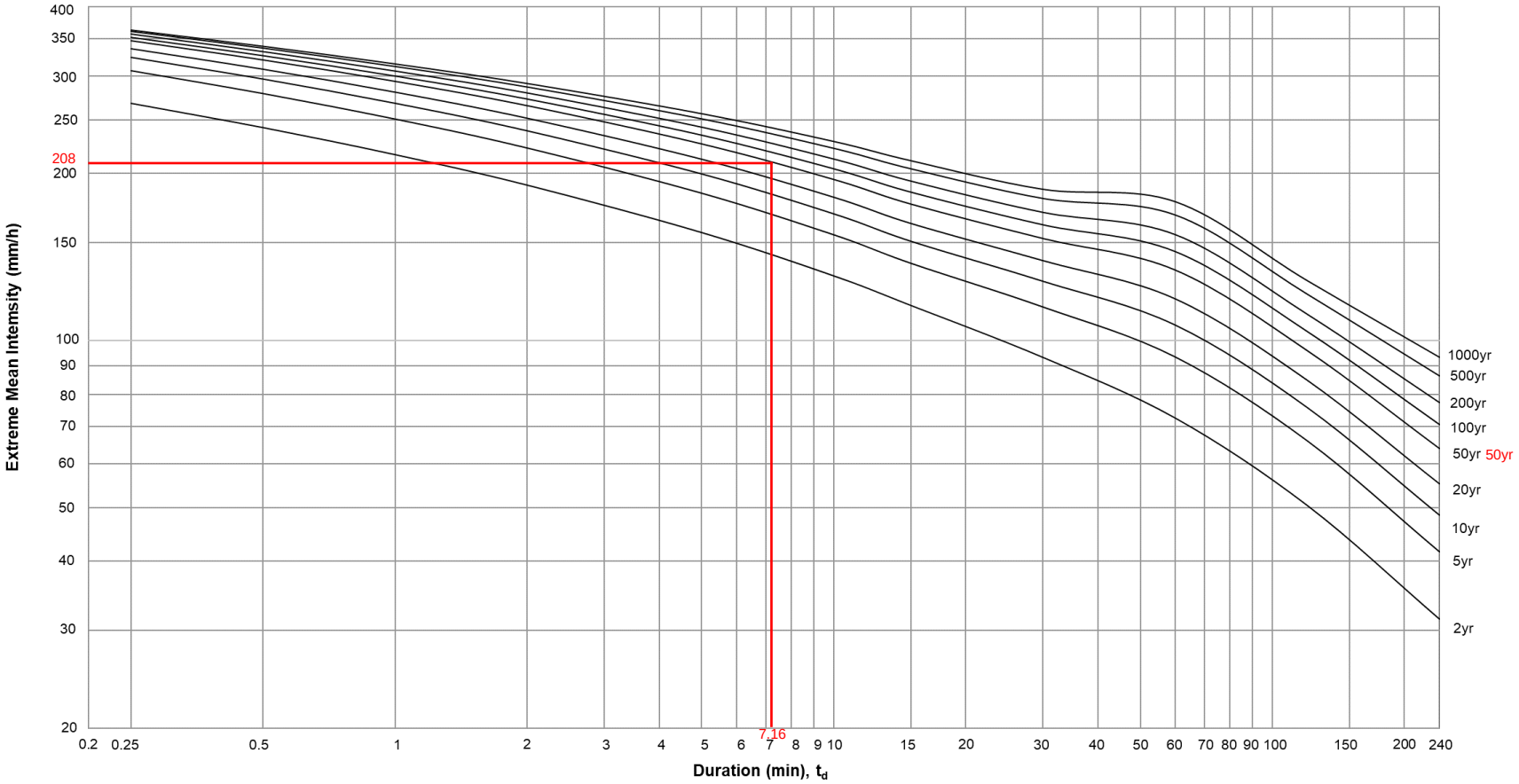


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Proposed Catchment A1

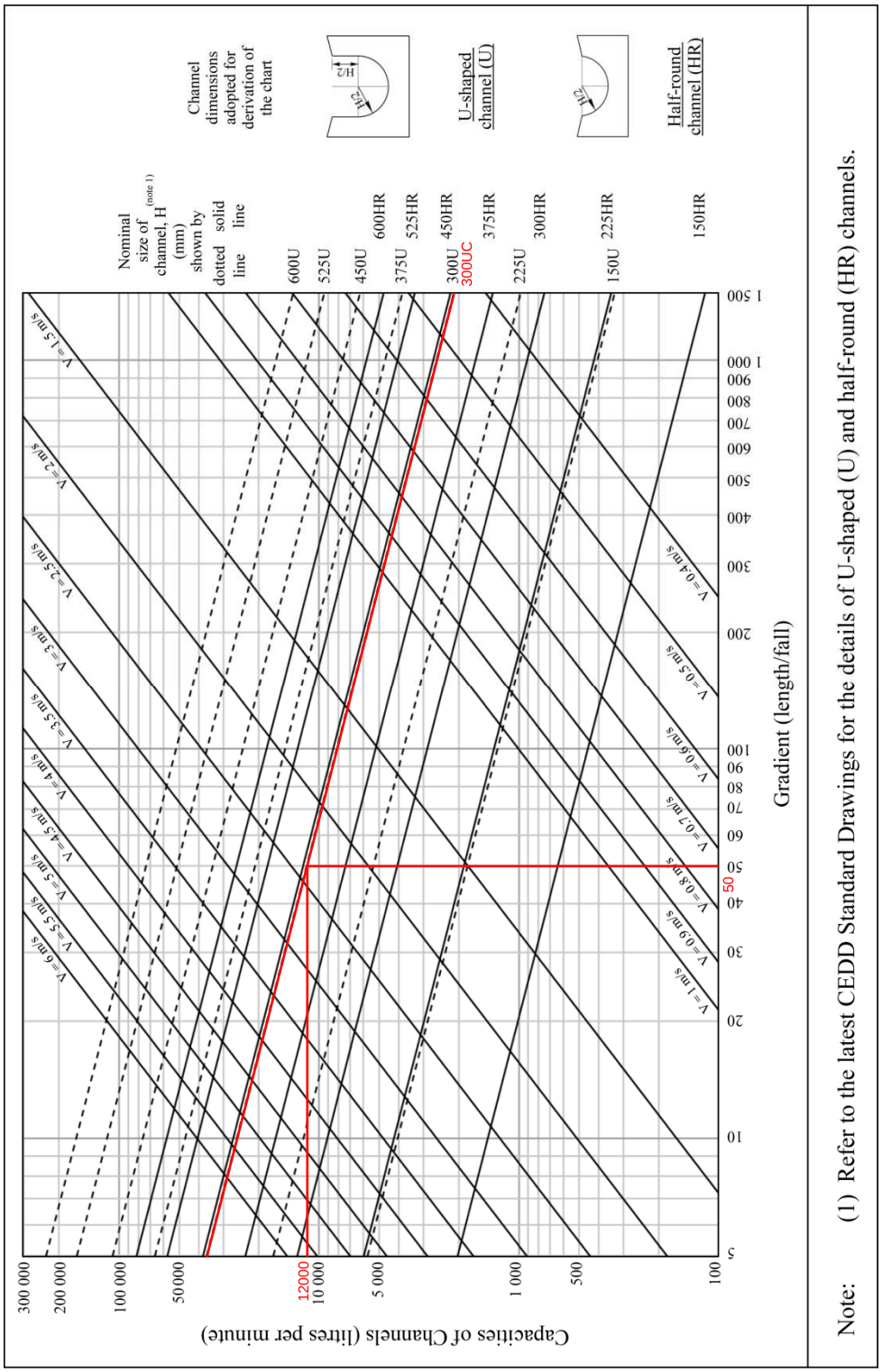


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A1,A5,A6 (Proposed)

Total catchment area,	A1 (paved)	=	1377	m^2
Total catchment area,	A1,A5,A6 (vegetated)	=	919	m^2
Total catchment area,	A1 (grasscrete)	=	1103	m^2

Use Rational Method from Geo-Manual

$Q = kiA/3600$ where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.35 (steep,vegetated)

Longest distance from summit to outlet (Ld) = 185.70 m

Average fall, H = 7.32 m per 100m

From Bransby-Williams Equation (Geo-Manual)

$T_c = 0.14465 \times L_d / (H^{0.2} \times A^{0.1})$

= 8.00 min > 1.0 min

= 8.00 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 205 mm/hr x 1.16 = 237.80 mm/hr

Q = kiA/60

= 9630 lit/min

= 0.160 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction

For existing 300 SC with 1 in 5 gradient

Maximum capacity = 37000 x 0.9

= 33300 lit/min > 9630 o.k.

The corresponding velocity = 4.80 m/s > 4 o.k.

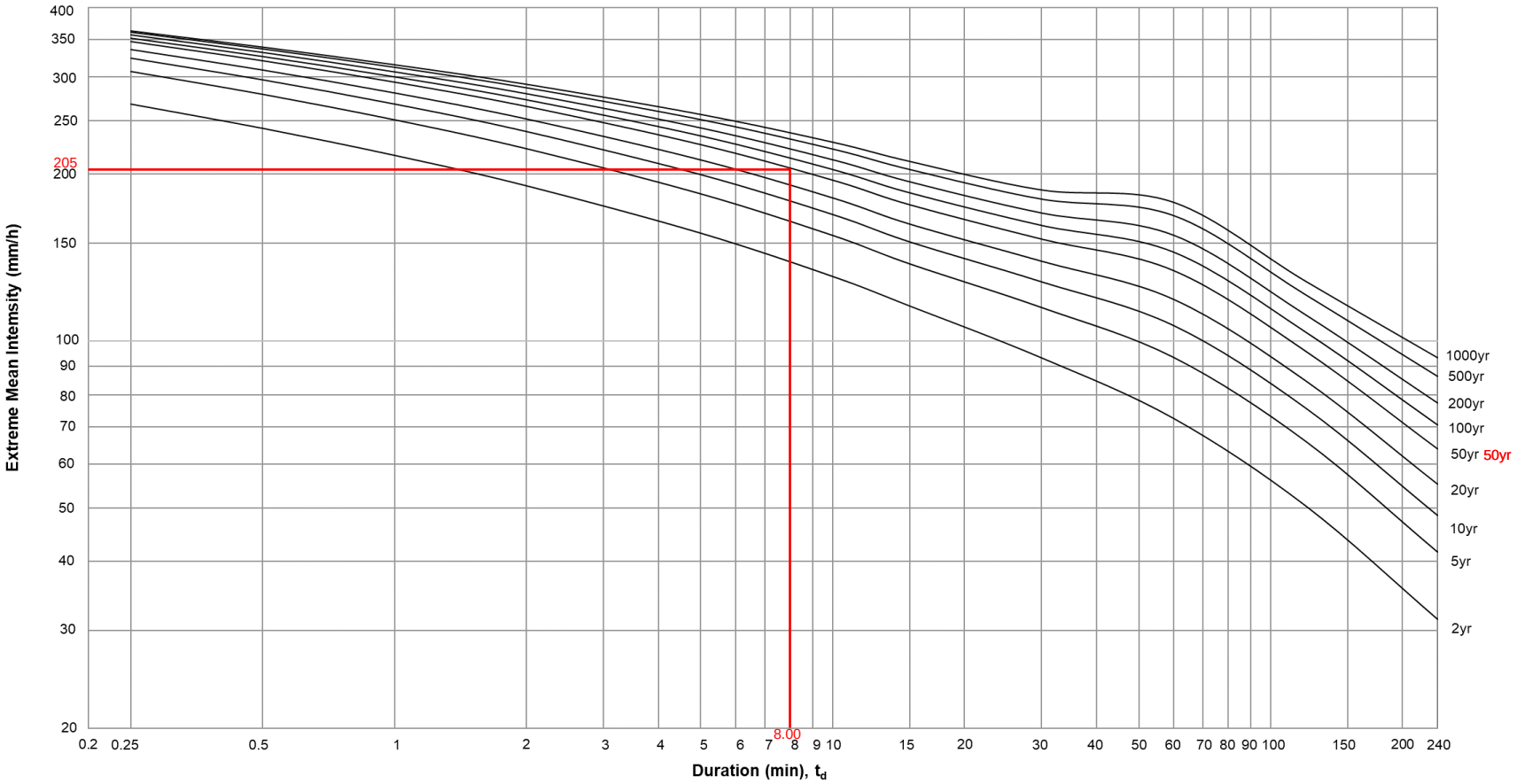


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Proposed Catchment A1,A5,A6

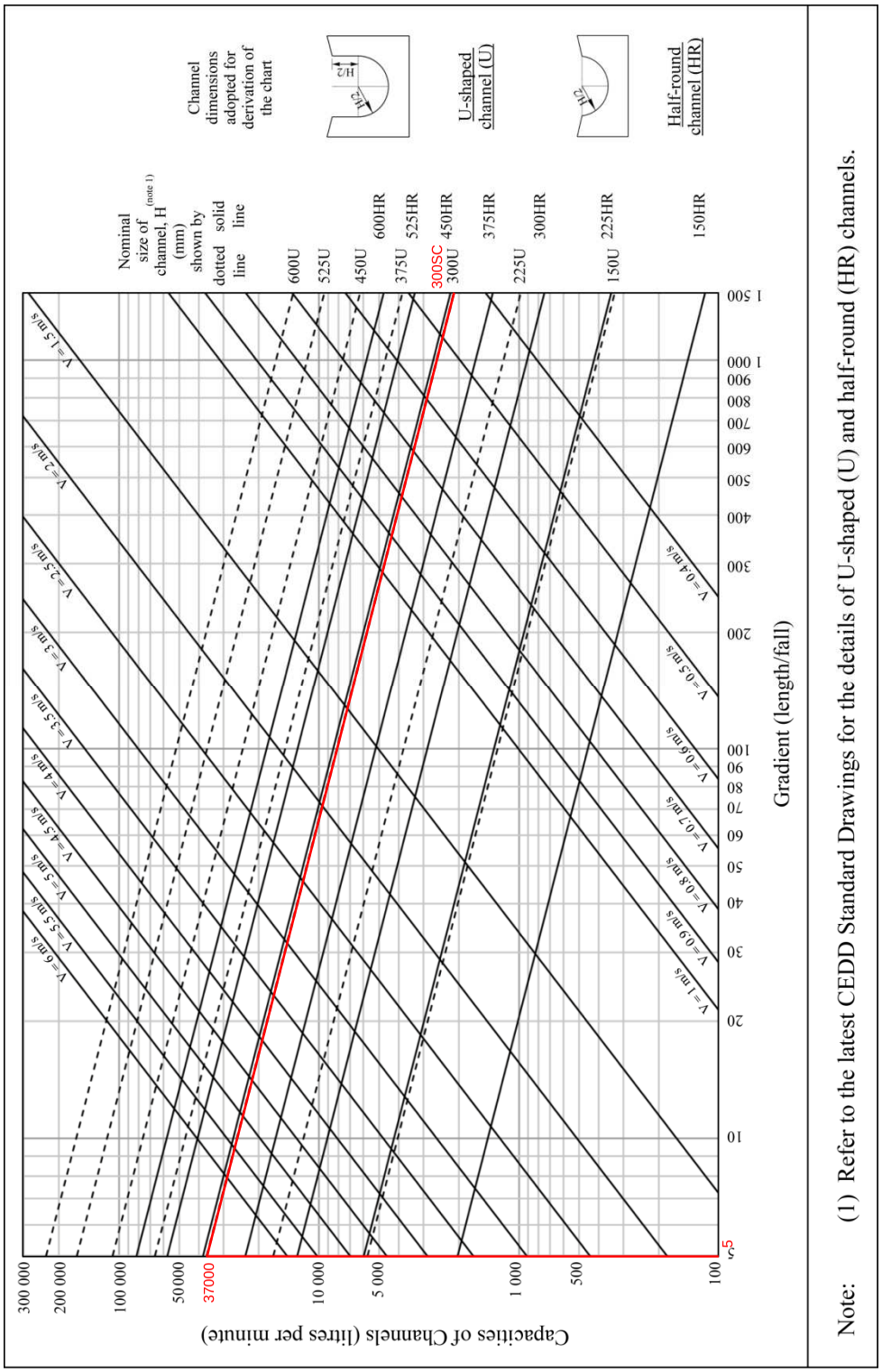


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A2 (Existing)

Total catchment area, A2 (paved) = 0 m^2
Total catchment area, A2 (vegetated) = 14582 m^2

Use Rational Method from Geo-Manual

$Q = kiA/3600$ where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.35 (steep,vegetated)

Longest distance from summit to outlet (Ld) = 328.80 m

Average fall, H = 16.46 m per 100m

From Bransby-Williams Equation (Geo-Manual)

$T_c = 0.14465 \times L_d / (H^{0.2} \times A^{0.1})$
= 10.41 min > 1.0 min
= 10.41 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 190 mm/hr x 1.16 = 220.40 mm/hr
Q = kiA/60
= 18748 lit/min
= 0.312 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction
For existing 450 UC with 1 in 30 gradient
Maximum capacity = 44000 x 0.9
= 39600 lit/min > 18748 o.k.
The corresponding velocity = 3.65 m/s < 4 o.k.

Existing Intensity A2

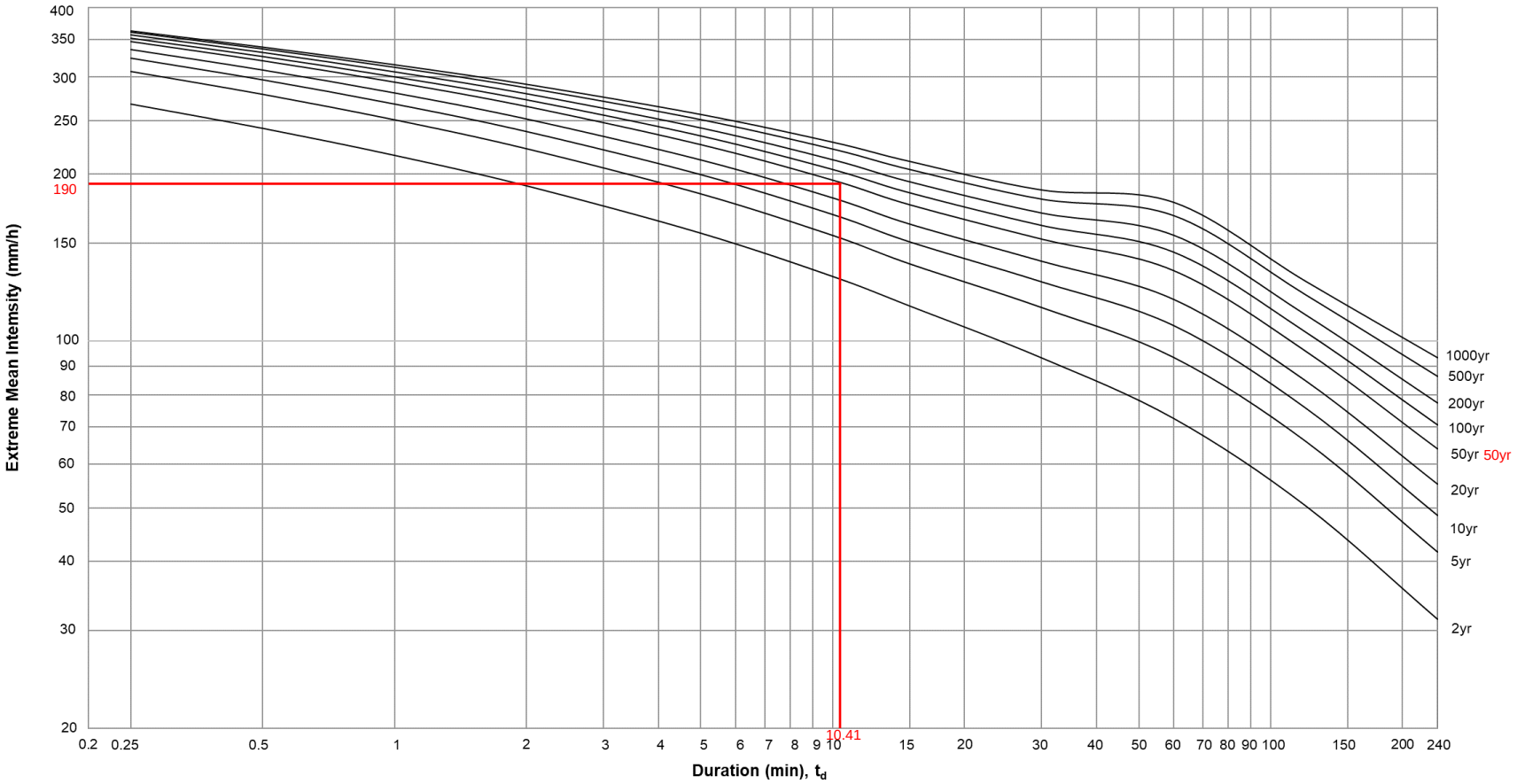


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Existing Catchment A2

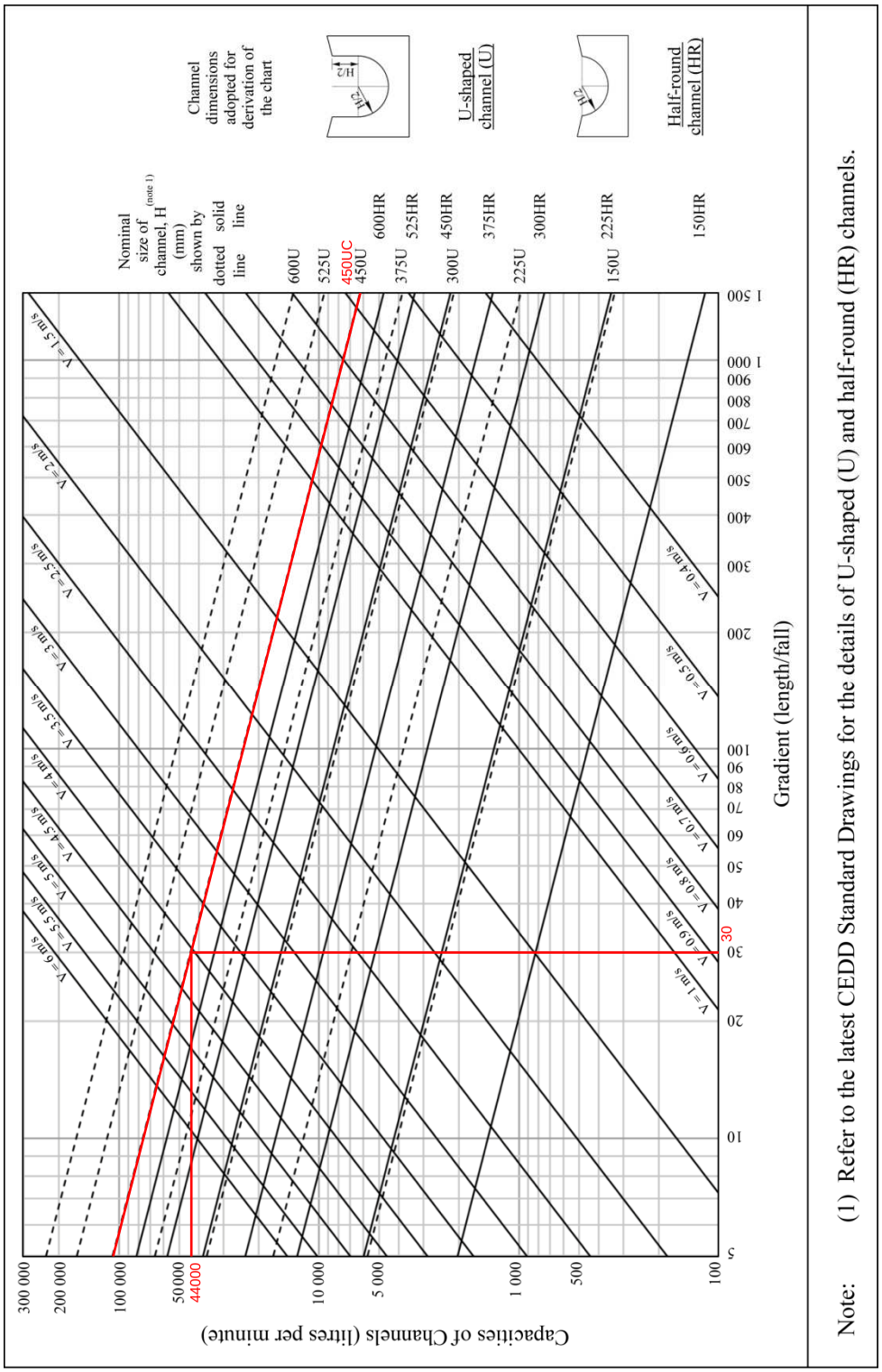


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Drainage Design and Checking

Project No.:	P2676	Date:	22-Dec-25
Prepared by:	KAY	Checked by:	KT

Check for the Drainage Capactiy inside Area A2,A3,A4 (Existing)

Total catchment area, A2,A3,A4 (paved) = 0 m^2
Total catchment area, A2,A3,A4 (vegetated) = 14916 m^2

Use Rational Method from Geo-Manual

$Q = kiA/3600$ where,

Q = Maximum runoff (lit/sec)
k = Runoff coefficient
i = Design mean intensity of rainfall (mm/hr)
A = Total catchment area (m^2)

Assume k = 0.85 (paved)
Assume k = 0.35 (steep,vegetated)

Longest distance from summit to outlet (Ld) = 345.30 m

Average fall, H = 16.77 m per 100m

From Bransby-Williams Equation (Geo-Manual)

$T_c = 0.14465 \times L_d / (H^{0.2} \times A^{0.1})$
= 10.87 min > 1.0 min
= 10.87 min

Assume a 1 in 10 year design rainfall return period for existing channel

Corrigendum No. 1/2022, Table 28 - Rainfall Incease 16.0% for End of 21st Centur

i = 190 mm/hr x 1.16 = 220.40 mm/hr
Q = kiA/60
= 19177 lit/min
= 0.320 m3/s

From Geo-Manual (Fig 8.7) 10% reduction in flow area for sedimentation reduction
For existing 470 UC with 1 in 3 gradient
Maximum capacity = 140000 x 0.9
= 126000 lit/min > 19177 o.k.

Existing Intensity A2,A3,A4

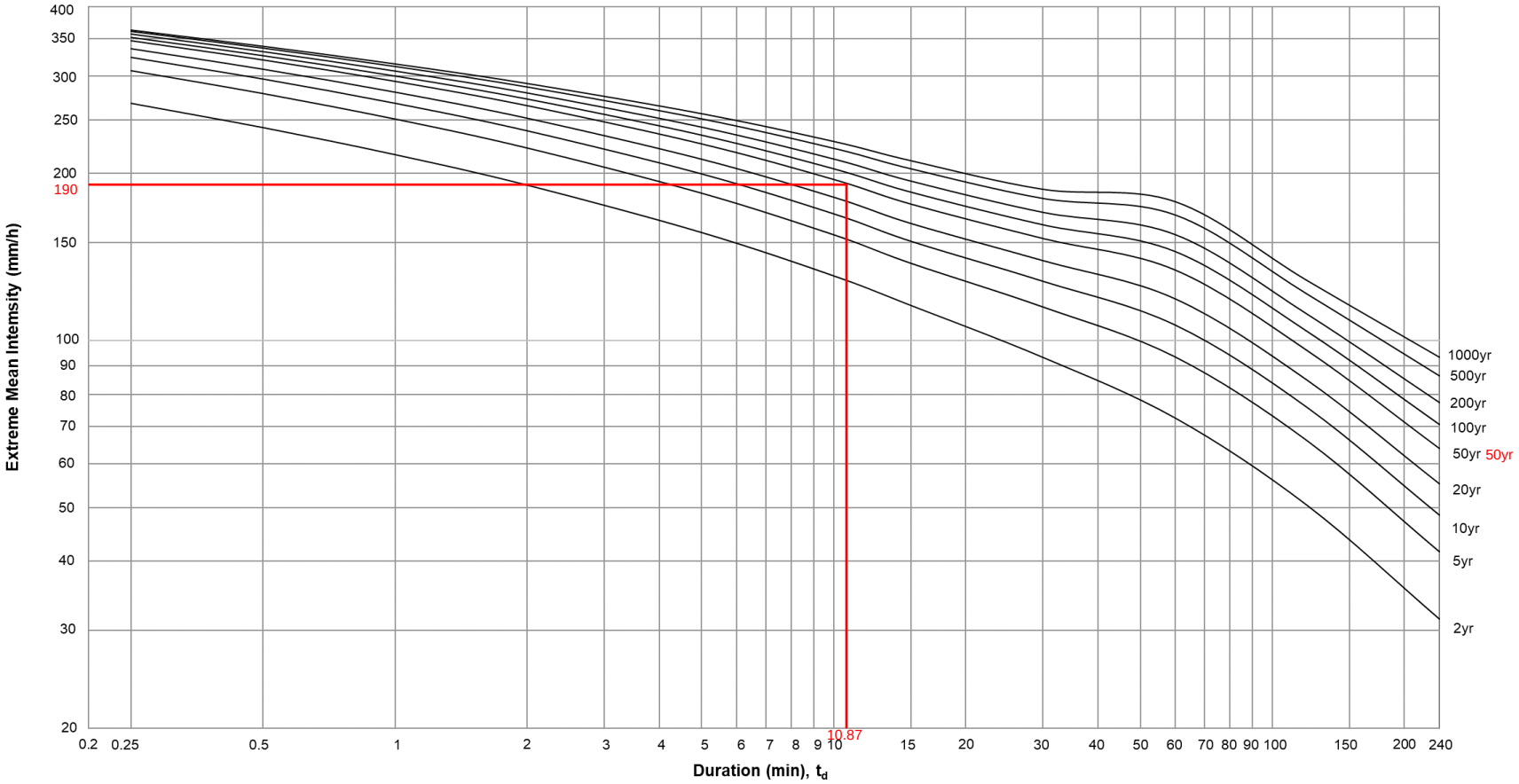


Figure 4a – Intensity-Duration-Frequency Curves of HKO Headquarters
(for durations not exceeding 4 hours)

Existing Catchment A2,A3,A4

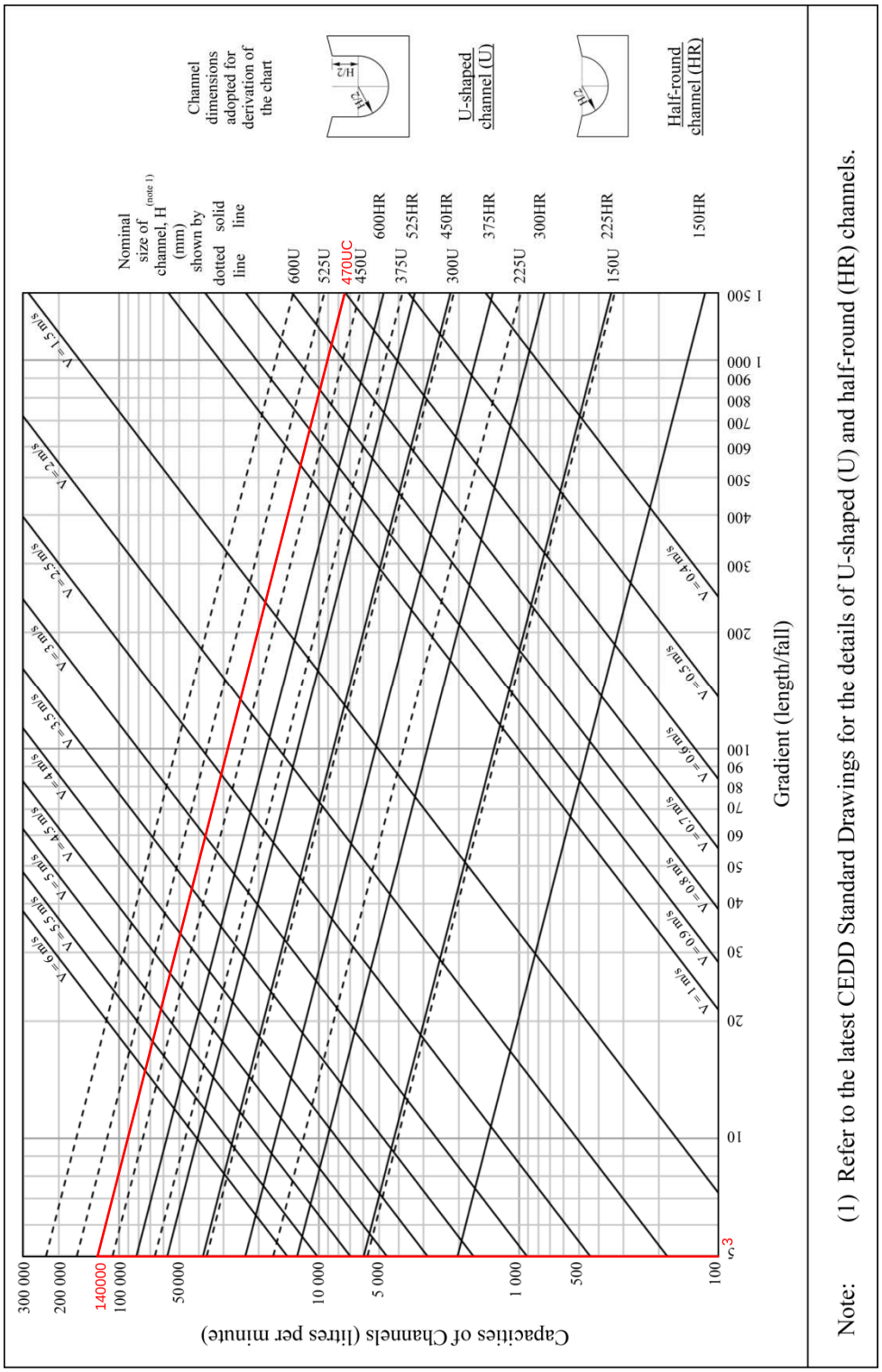
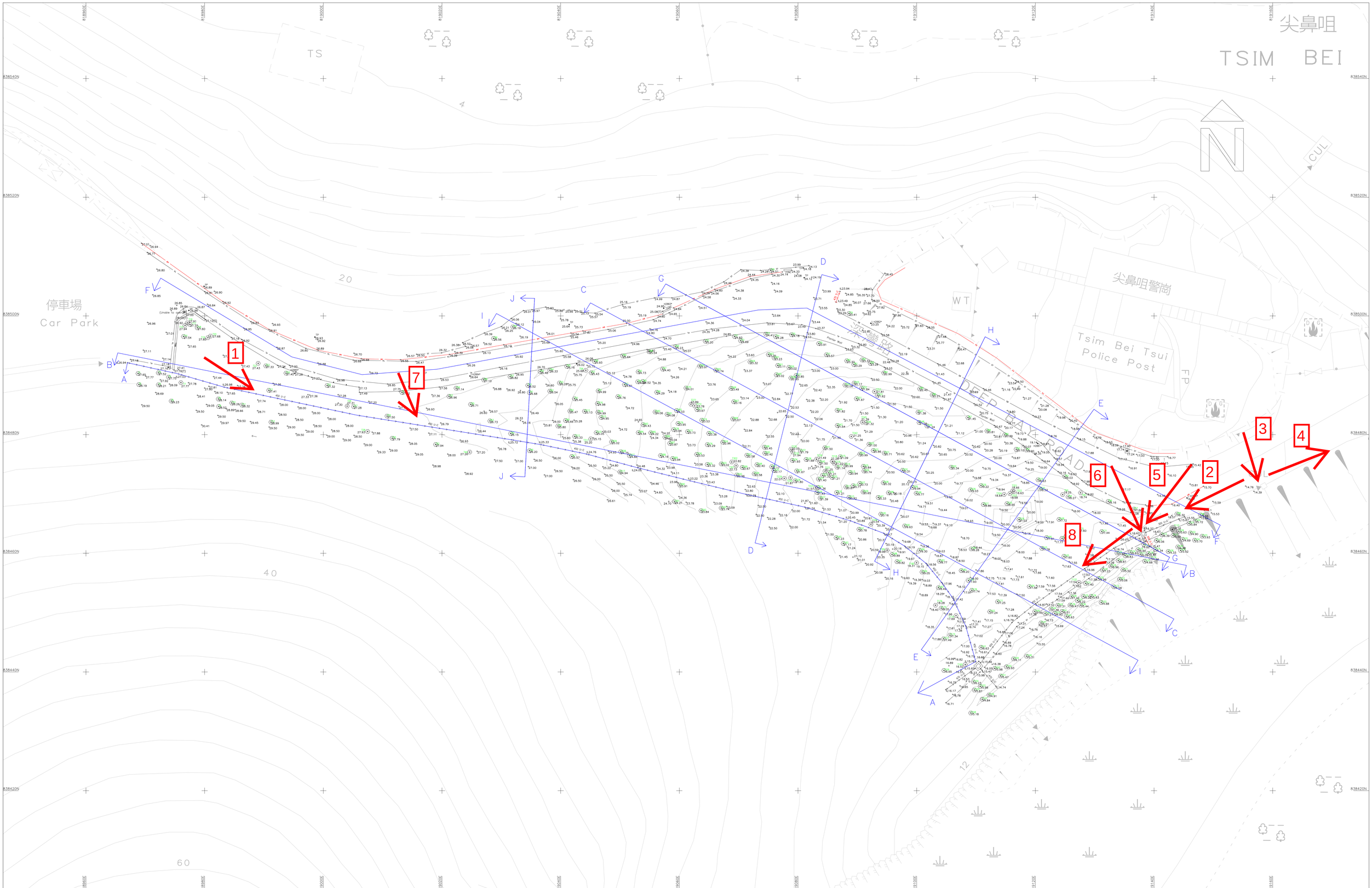


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Appendix I

Photographic Record of Existing Drainage



LEGEND:

- ARTIFICIAL SLOPE
- CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF CHANNEL)
- STEP CHANNEL WITH FLOW DIRECTION (0.80 WIDE OF STEP CHANNEL)
- BOUNDARY LINE & BOUNDARY POINT
- GATE
- PERMANENT BUILDING AND CANOPY
- TREE WITH TREE NO.
- INCLINED WALL (DWL (BOTTOM))
- GRAVE
- CONTOURS
- TS — TEMPORARY STRUCTURE
- PB — PILLAR BOX
- HR — HAND RAILING
- HO — HOARDING
- KL — KERB LINE (BOTTOM)
- ST — SLOPE TOP
- SB — SLOPE BOTTOM
- FX — FENCE
- BARRIERS
- BS — BENCH
- E — ELECTIC POLE
- SB — SIGN BOARD
- SP — SIGN POLE
- LP — LAMP POST
- TP — TELEPHONE POLE
- TL — TRAFFIC LIGHT
- FH — FIRE HYDRANT
- P.M — PARKING METER
- BOLLARD AT ROAD
- GULLY
- GRATING
- VALVE FIRE
- VALVE GAS
- VALVE WATER WORKS
- MANHOLE
- MANHOLE, ATC
- MANHOLE, CABLE TV
- MANHOLE, ELECTRIC & MECHANICAL SERVICES DEPARTMENT
- MANHOLE, PCCW-HKT TELEPHONE LIMITED
- MANHOLE, DRAINAGE SERVICES DEPARTMENT
- MANHOLE, PUBLIC LIGHTING
- MANHOLE, HUTCHISON COMMUNICATION LIMITED
- MANHOLE, HUTCHISON GLOBAL CROSSING LIMITED BROADBAND
- CATCH PIT
- MANHOLE, FOUL WATER/SEWER
- MANHOLE, STORM WATER
- MANHOLE, PACIFIC CENTURY CABLE & WIRELESS
- MANHOLE, NEW WORLD TELEPHONE
- MANHOLE, CLP POWER
- MANHOLE, WHART T & T
- MANHOLE, TOWNGAS TELECOM
- RX — TRAFFIC BARRIER

* Lamp Pole number is referred to Geoinfo Map system (for client's reference only)

ABBREVIATION:

BD	BOULDER
BE	BERM
BS	BOUNDARY STONE
CA	CANOPY
CUL	CULVERT
CL	CLIFF
CONC	CONCRETE
EB	ELECTRIC BOX
END	END OF OBJECT
FB	FLOWER BED
FP	FOOTPATH
IL	INVERT LEVEL
KL	KERB LINE
OH	OVERHANG
PL	PLATFORM
PO	POND
P2	PIEZOMETER TUBE
RP	RAMP
RU	RUIN
SR	SHRINE
TS	TEMPORARY STRUCTURE
VB	VEHICLE BARRIERS
WL	WELL
WIP	WORK IN PROGRESS
WT	WATER TANK

SCALE 1 : 200 (A0 SIZE)

metres 0 4 8 12 16 20 metres

HONG KONG METRIC GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS IN METRES

NOTE
ALL SPOT LEVEL POSITIONS ARE THE DECIMAL POINT OR 'A' CROSS

DATE OF SURVEY: JANUARY 2024

REVISION	DATE	DESCRIPTION
INITIAL	24/02/2024	---

ARCHITECTURAL SERVICES DEPARTMENT

Topographical Survey
Guangdong–Hong Kong–Macao Greater Bay Area (GBA)
Air Quality Laboratory and Meteorological Monitoring Supersite

SAM MAK & ASSOCIATES SURVEYORS (HK) LTD.
CONSULTANTS IN LAND, ENGINEERING, MAPPING & AERIAL SURVEYS
ROOM 901, MARINA HOUSE, NO.68 HING MAN STREET, SHAUKEIWAN, HONG KONG.
TEL : 28951918 FAX : 28901759 E-mail: hkoffice@sammak.com

PRELIMINARY
(24/02/2024)

PLAN NO. 9594/01(SHEET 1 OF 3)

JESSICA FUI YEE LEUNG MHKIS RPS(LS)
REGISTERED PROFESSIONAL SURVEYOR


1

2

3

不得擅進
NO UNAUTHORISED ENTRY

4


5

6

T113

T114

T115


7

8