Supplementary Statement

1) Background

1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use *Lots 231 RP (Part), 232, 278 S.A and 278 S.B (Part) in D.D. 38, Man Uk Pin, New Territories* (the Site) for '**Proposed Temporary Warehouse (excluding Dangerous Goods Godown (excl. D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years**' (proposed development) (**Plan 1**).

1.2 In view of the pressing demand for indoor storage space in New Territories in recent years, the applicant would like to use the Site to operate a warehouse for storage of miscellaneous goods to support the local warehousing and storage industry.

2) Planning Context

2.1 The Site currently falls within an area zoned "Agriculture" ("AGR") on the Approved Man Uk Pin Outline Zoning Plan (OZP) No. S/NE-MUP/11. According to the Notes of the OZP, the applied use is neither a column 1 nor column 2 use within the "AGR" zone, which requires planning permission from the Board (**Plan 2**).

2.2 Although the Site falls within an area zoned "AGR", there is no active agricultural activity within the Site. The Site is also surrounded by areas occupied by some vacant/unused land, temporary structures for warehouses some open storage yards. Hence, the applied use is considered not incompatible with the surrounding area. Therefore, approval of the current application on a temporary basis of 3 years would not frustrate the long-term planning intentions of the "AGR" zone and would better utilise precious land resources in the New Territories.

2.3 Furthermore, several applications for the same applied use have been approved by the Board within the same "AGR" zone, among which the latest application No. A/NE-MUP/227 was approved by the Board with conditions on a temporary basis for a period of 3 years in April 2026. Noting that the applied use is of the same nature, approval of the current application would not set an undesirable precedent within the "AGR" zone and is in line with the Board's previous decision.

2.4 The Site is subject of an approved application No. A/NE-MUP/194 for the same applied use submitted by a different applicant, which was approved by the Board with conditions on a temporary basis for a period of 3 years in February 2024. Comparing with the previous application, the current application involves a different internal layout with the same site area and reduced gross floor area (GFA), details are shown at **Appendix I** and **Table 1** below:

Table 1 – Difference between the previous and the current applications

Development Parameters	**Previous application** (a)	**Current application** (b)	**Difference** (b) – (a)
Site area	6,496 m^2	6,496 m^2	No change
GFA	9,682 m^2	4,695 m^2	- 4,984 m^2

2.5 In support of the application, the fire service installations (FSIs) proposal, drainage proposal and preliminary Geotechnical Assessment Report are submitted by the applicant to mitigate the potential impacts that would have arisen from the proposed development (**Appendices II** to **IV**).

3) Development Proposal

3.1 The Site comprises an area of 6,496 m^2 (about) (**Plan 3**). The proposed operation hours are from 08:00 to 18:00 daily, including Sunday and public holiday. 5 temporary structures are proposed for warehouses (excl. D.G.G.), office, washroom and pump room, meter room, fire service (FS) control room, FS pump room and FS water tank with total GFA of 4,695 m^2 (about) (**Plan 4**). The ancillary office is intended to provide indoor workspace for administrative staff to support the daily operation of the proposed development. It is estimated that the proposed development would accommodate 8 nos. of staff. Given that the proposed development would operate as warehouses without shopfront, no visitor is anticipated therewithin. Details of development parameters are shown at **Table 2** below:

Table 2 – Major development parameters

Site area	6,496 m^2 (about)
Covered area	4,617 m^2 (about)
Uncovered area	1,879 m^2 (about)
Plot ratio	0.72 (about)
Site coverage	71% (about)
No. of structure	5

Total GFA - *Domestic GFA* - *Non-Domestic GFA*	4,695 m^2 (about) *Not applicable* *4,695 m^2 (about)*
Building height	3 m to 16 m (about)
No. of storey	1 to 2

3.2 The proposed warehouse is intended for storage of miscellaneous goods (including but not limited to packaged food, apparel, footwear, electronic goods, furniture, construction materials and machinery etc.). No open storage, storage of dangerous goods nor workshop activities will be stored/conducted therein at any time during the approval period of the planning permission. No open storage activities will be carried out therein at any time during the approval period of the planning permission.

3.3 The Site is proposed to be entirely filled with concrete of not more than 0.3 m (about) in depth for site formation of structures and circulation space (**Plan 5**). As heavy loading of structures and vehicles would compact the existing soiled ground and weaken the ground surface, concrete site formation is considered required to meet the operation needs and that has been kept to a minimum for the operation of the proposed development. The applicant will reinstate the Site to an amenity area upon expiry of the planning permission.

3.4 The Site is accessible from Sha Tau Kok Road – Wo Hang via a local access (**Plan 1**). 6 nos. of parking and loading/unloading (L/UL) spaces are proposed. Details are shown at **Table 3** below:

Table 3 – Parking and L/UL provisions

Type of space	**No. of space**
Parking spaces for private cars *(for staff use only)* - *2.5 m (W) x 5 m (L)*	4
L/UL spaces for heavy goods vehicles (HGV) - *3.5 m (W) x 11 m (L)*	1
L/UL spaces for container vehicles (CV) - *3.5 m (W) x 16 m (L)*	1

3.5 HGV and CV will be deployed for transportation of goods into/out of the Site during off-peak hours i.e. between 09:00 and 17:00. Sufficient space is provided for vehicle to smoothly manoeuvre therewithin to ensure that no vehicle will turn back onto the local access (**Plan 6**).

Staff will be also deployed at the ingress/egress to direct incoming/outgoing vehicle to enhance pedestrian and road safety. As traffic generated and attracted by the proposed development as shown at **Table 4** below is minimal, the potential adverse traffic impacts to the surrounding road network is not anticipated.

Table 4 – Estimated trip generation and attraction

Time period	PC		HGV		CV		2-way total
	In	Out	In	Out	In	Out	
Trips at AM peak (08:00 – 09:00)	2	0	1	1	1	1	6
Trips at PM peak (17:00 – 18:00)	0	2	1	1	1	1	6
Average trips per hour beyond peak hours	0	0	1	1	1	1	4

3.6 Relevant environmental protection/pollution control ordinances, i.e. *Water Pollution Control Ordinance*, *Air Pollution Control Ordinance*, *Noise Control Ordinance* etc. will be strictly complied with at all times during the approval period of the planning permission. The applicant will also follow relevant mitigation measures and requirements in the latest '*Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites*' issued by the Environmental Protection Department to minimise adverse environmental impacts and nuisance to the surrounding area.

4) Conclusion

4.1 The proposed development will not create significant nuisance to the surrounding areas. Adequate mitigation measures are provided, i.e. submission of FSIs proposal, drainage proposals and preliminary geotechnical assessment report, to mitigate any adverse impact arising from the proposed development after planning approval has been granted by the Board (**Appendices II** to **IV**).

4.2 In view of the above, the Board is hereby respectfully recommended to approve the subject application for '**Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years**'.

R-riches Planning Limited

October 2026

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Appendix III	Drainage proposal
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Plan 3	Land status plan
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Plan 5	Plan showing the filling of land at the Site
Plan 6	Swept path analysis

Appendix I

Comparison table

Appendix I – Comparison table showing the differences between the previous application (No. A/NE-MUP/194) and the current application

Development Parameters	**Previous application [a]**	**Current application [b]**	**Difference [b] - [a]**
Site area	6,496 m^2 (about)	6,496 m^2 (about)	No change
Covered area	4,909 m^2 (about)	4,695 m^2 (about)	-214 m^2
Uncovered area	1,587 m^2 (about)	1,801 m^2 (about)	+214 m^2
Plot ratio	1.49 (about)	0.72 (about)	-0.77
Site coverage	76% (about)	72% (about)	-4
No. of structure	4	5	+1
Total GFA - *Domestic GFA* - *Non-Domestic GFA*	9,682 m^2 (about) *Not applicable* *9,682 m^2 (about)*	4,695 m^2 (about) *Not applicable* *4,695 m^2 (about)*	-4,984 m^2 *Not applicable* *-4,984 m^2*
Building height	3 m to 16.5 m (about)	3 m to 16 m (about)	-0.5 m
No. of storey	1 to 2	1 to 2	No change
Parking Spaces for PC	3	4	+1
L/UL Spaces for MGV	1	-	-1
L/UL Spaces for HGV	-	1	+1
L/UL Spaces for CV	1	1	No change

Appendix II

Fire services installations proposal

F.S.NOTES:

1. GENERAL

1.1 FIRE SERVICE INSTALLATIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE CODES OF PRACTICE FOR MINIMUM FIRE SERVICE INSTALLATIONS AND EQUIPMENT AND INSPECTION, TESTING AND MAINTENANCE OF INSTALLATIONS AND EQUIPMENT 2022 (COP 2022), FSD CIRCULAR LETTERS AND THE HONG KONG WATERWORKS STANDARD REQUIREMENTS. [SEP 2022]"

1.2 ALL TUBES AND FITTINGS SHALL BE G.M.S. TO BS1387 MEDIUM GRADE WHERE PIPEWORK UP TO ø150mm.

1.3 ALL TUBES AND FITTINGS SHALL BE DUCTILE IRON TO BS EN545 K12 WHERE PIPEWORK ABOVE ø150mm.

1.4 ALL DRAIN PIPES SHALL BE DISCHARGED TO A CONSPICUOUS POSITION WITHOUT THE POSSIBILITY OF BEING SUBMERGED.

1.5 ALL PUDDLE FLANGES SHALL BE MADE OF DUCTILE IRON

1.6 SMOKE EXTRACTION SYSTEM(S) SHALL NOT BE PROVIDED AS THE AGGREGATE AREA OF OPERABLE WINDOW OF STRUCTURE EXCEEDS 6.25% OF THE FLOOR AREA OF THE COMPARTMENT.

1.7 VENTILATION/AIR CONDITIONING SYSTEM NOT TO BE PROVIDED.

2. AUTOMATIC SPRINKLER SYSTEM

2.1 AUTOMATIC SPRINKLER SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH LPC RULES FOR AUTOMATIC SPRINKLER INSTALLATIONS INCORPORATING BS EN 12845: 2015 (INCLUDING TECHNICAL BULLETINS, NOTES, COMMENTAR AND RECOMMENDATIONS) AND FSD CIRCULAR LETTER NO. 5/2020. THE CLASSIFICATION OF THE OCCUPANCIES WILL BE ORDINARY HAZARD GROUP III.

2.2 ONE 135m^3 SPRINKLER WATER TANK WILL BE PROVIDED AS INDICATED ON PLAN. THE TOWN MAIN WATER SUPPLY WILL BE FED FROM SINGLE END.

2.3 TWO SPRINKLER PUMPS (DUTY/STANDBY) AND ONE JOCKEY PUMP SHALL BE PROVIDED IN FS PUMP ROOM LOCATED AT EXTERNAL AREA.

2.4 SPRINKLER CONTROL VALVE SET AND SPRINKLER INLET SHALL BE PROVIDED AS INDICATED ON PLAN.

2.5 A TEST VALVE SHALL BE PROVIDED FOR EACH ZONE OF SPRINKLER PIPE. THIS VALVE SHALL BE AT A CONSPICUOUS POSITION THAT WATER CAN BE DRAINED AWAY EASILY.

2.6 ALL SUBSIDIARY STOP VALVES TO BE ELECTRIC MONITORING TYPE.

2.7 ALL ELECTRIC TYPE VALVES SHOULD GIVE VISUAL SIGNALS TO FIRE SERVICE MAIN SUPERVISORY CONTROL PANEL TO INDICATE THE STATUS (OPEN/CLOSE) OF THE VALVES.

2.8 SECONDARY ELECTRICITY SUPPLY DIRECTLY TEE OFF BEFORE CLP'S INCOMING MAIN SWITCH SHALL BE PROVIDED FOR THE SPRINKLER PUMPS.

2.9 THE SPRINKLER SYSTEM DESIGN IS BASED ON THE FOLLOWINGS:
HAZARD CLASS : ORDINARY HAZARD GROUP III
TYPE OF STORAGE : POST-PALLET (ST2)
STORAGE CATEGORY : CATEGORY I
MAXIMUM STORAGE HIEGHT : 3.5m
SPRINKLER PROTECTION : CEILING PROTECTION ONLY
THE MAXIMUM STORAGE AREAS SHALL BE 50m^2 FOR SINGLE BLOCK
THE MINIMUM CLEARANCE AROUND EACH SINGLE STORAGE CLOCK : 2.4m

THE SPRINKLER SYSTEM DESIGN IS BASED ON THE FOLLOWINGS:
HAZARD CLASS : ORDINARY HAZARD GROUP III
TYPE OF STORAGE : FREE STANDING
STORAGE CATEGORY : CATEGORY I
MAXIMUM STORAGE HIEGHT : 4m
SPRINKLER PROTECTION : CEILING PROTECTION ONLY
THE MAXIMUM STORAGE AREAS SHALL BE 50m^2 FOR SINGLE BLOCK
THE MINIMUM CLEARANCE AROUND EACH SINGLE STORAGE CLOCK : 2.4m

3. FIRE DETECTOR SYSTEM

3.1 THE STAND-ALONE FIRE DETECTOR SHALL BE PROVIDED IN ACCORDANCE WITH THE "STAND-ALONE FIRE DETECTOR GENERAL GUIDELINES ON PURCHASE, INSTALLATION & MAINTENANCE [SEP 2021]"

3.2 WHERE TWO OR MORE STAND-ALONE FIRE DETECTORS ARE INSTALLED IN AN ENCLOSED STRUCTURE, ALL DETECTORS SHALL BE INTERCONNECTED (EITHER WIRED OR WIRELESSLY) SUCH THAT WHEN ONE OF THE DETECTORS IS TRIGGERED, ALL CONNECTED DETECTORS SHALL SOUND AN ALARM SIMULTANEOUSLY.

4. EMERGENCY LIGHTING

4.1 EMERGENCY LIGHTING SHALL BE PROVIDED IN ACCORDANCE WITH 'BS 5266-1 :2016 AND BS EN 1838 :2013", AND THE FSD CIRCULAR LETTER NO. 4/2021, COVERING ALL AREA. EMERGENCY LIGHTINGS SHALL BE BACKED UP BY BUILT-IN BATTERY AND CAPABLE OF MAINTAINING FUNCTION OF NOT LESS THAN 2 HOURS IN CASE OF POWER FAILURE

5. EXIT SIGN

5.1 ALL EXIT SIGNS/DIRECTIONAL EXIT SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266-1 :2016 AND FSD CIRCULAR LETTER NO. 5/2008, FOR THE BUILDING. EXIT SIGNS/DIRECTIONAL EXIT SIGNS SHALL BE BACKED UP BY BUILT-IN BATTERY AND CAPABLE OF MAINTAINING FUNCTION OF NOT LESS THAN 2 HOURS IN CASE OF POWER FAILURE.

6. PORTABLE APPLIANCES

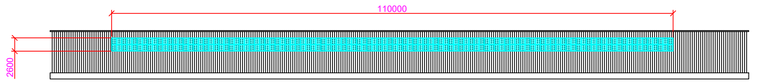
6.1 PORTABLE HAND OPERATED APPLIANCES SHALL BE PROVIDED AS INDICATED ON PLAN.

6.2 A SUITABLE TYPE OF PORTABLE FIRE EXTINGUISHER SHALL BE PROVIDED IN LOCATIONS WHERE EASILY ACCESSIBLE BY PERSON IN CHARGE WHERE THE NO. OF F.E. SHALL BE PROVIDED ACCORDING TO THE FORMULA = [STORAGE AREA] (M^2) X (0.003]

6.3 A 20-35 KG WHEELED TYPE DRY CHEMICAL FIRE EXTINGUISHER IN EVERY 500M^2 ON EVERY FLOOR OF THE PREMISES AND SHALL BE PROVIDED TO ENSURE THAT EVERY PART OF THE PREMISES CAN BE REACHED BY WHEELED TYPE DRY CHEMICAL FIRE EXTINGUISHER FROM A DISTANCE OF NOT MORE THAN 30M

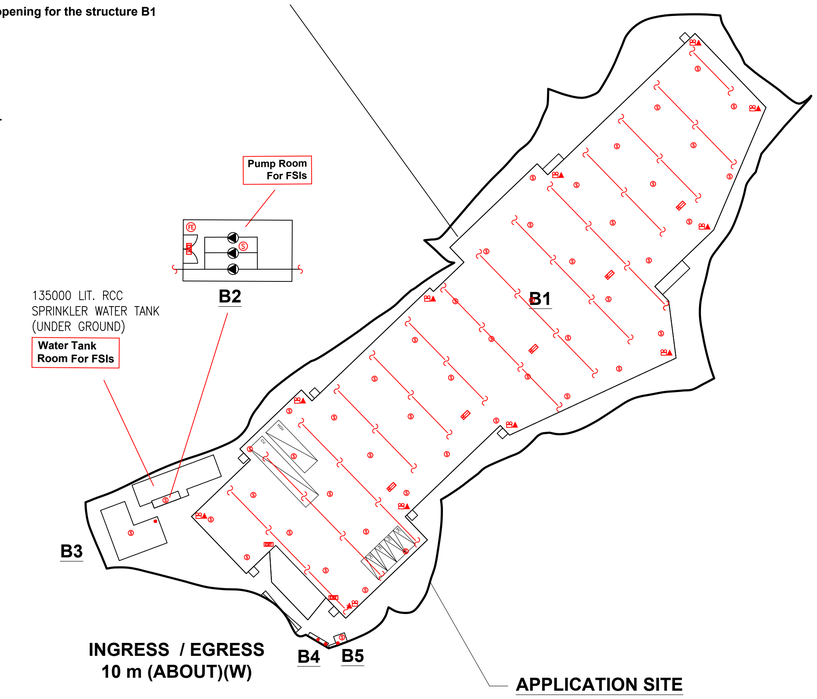
STRUCTURE	USE	COVERED AREA	GROSS FLOOR AREA	BUILDING HEIGHT
B1	WAREHOUSE (EXCL. D.G.G.*), OFFICE	4,519 m^2 (ABOUT)	4,519 m^2 (ABOUT)	16 m (ABOUT)(1-STOREY)
B2	FIRE SERVICE WATER TANK AND PUMP ROOM#	86 m^2 (ABOUT)	86 m^2 (ABOUT)	3.5 m (ABOUT)(2-STOREY)
B3	WASHROOM AND PUMP ROOM	81 m^2 (ABOUT)	81 m^2 (ABOUT)	3.5 m (ABOUT)(1-STOREY)
B4	METER ROOM	4 m^2 (ABOUT)	4 m^2 (ABOUT)	3 m (ABOUT)(1-STOREY)
B5	FIRE SERVICE CONTROL ROOM	5 m^2 (ABOUT)	5 m^2 (ABOUT)	3 m (ABOUT)(1-STOREY)
	TOTAL	**4,695 m^2 (ABOUT)**	**4,695 m^2 (ABOUT)**	

D.G.G. - DANGEROUS GOODS GODOWN
#PORTION OF STRUCTURE B2 IS UNDERGROUND (8 m^2 AT-GRADE STAIRCASE+ 78 m^2UNDERGROUND FS WATER TANK AND PUMP ROOM)



Section drawing of window opening for the structure B1

Structure B1 Openable Windows Calculation
Area of Structure B1 = 4519 sq.m.
Area of High Bay Window (H.B.W.) = 2.6m(H) x 110m = 286 sq.m.
Total openable window area = 286 sq.m.
= 6.32% of floor area



LEGEND

- STAND ALONE BATTERY TYPE SMOKE DETECTOR
- 25KG WHEELED TYPE DRY CHEMICAL FIRE EXTINGUISHER
- EMERGENCY LIGHT
- EXIT SIGN
- NON-RETURN VALVE
- SPRINKLER CONTROL VALVE SET
- GATE VALVE
- GATE TYPE (With MONITORING)
- PUMP SET
- Y-TYPE STRAINER
- SPRINKLER INLET
- PRESSURE GAUGE
- SPRINKLER HEAD (ON PLAN)
- 5KG DRY POWDER FIRE EXTINGUISHER
- SUBSIDIARY VALVE / FLOW SWITCH
- 5KG CO2 FIRE EXTINGUISHER
- DIRECTIONAL SIGN

PROJECT :
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS
VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

DRAWING TITLE :
F.S. Notes, Legend, Fire Service Installation Layout Plan

REV	DESCRIPTION	DATE

ARCHITECT :

CONSULTANT :

FIRE SERVICE CONTRACTOR :
Century Fire Service Engineering Co., Ltd.

	NAME	DATE
DRAWN BY	C.K.NG	16 SEP 2026
CHECKED BY		
APPROVED BY		

DRAWING NO : **FS-01**
REV. **0**
SCALE : 1 : 600 (A1)
SOURCE : B.O.O. Ref. BD
F.S.D. Ref. FP

Appendix III

Drainage proposal

EARNING PROPERTIES LIMITED

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 38, Man Uk Pin, N.T.

Drainage Proposal



Document No. Y1042/01
Issue 1

August 2026

MANNINGS
(Asia) Consultants Limited

Y1042/01
Issue 1
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Proposed Temporary Warehouse (Excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 38, Man Uk Pin, N.T.

Drainage Proposal

Approved for Issue by:

Simon Chan RPE (Civil)
RP0370071

Position: Project Manager

Date: 28 August 2026

Earning Properties Limited

Mannings (Asia) Consultants Ltd

[redacted]

Y1042/01
Issue 1
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Proposed Temporary Warehouse (Excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years at Various Lots in D.D. 38, Man Uk Pin, N.T.

Drainage Proposal

Issue	Prepared by	Reviewed by	Date
1	BH	SC	28 August 2026

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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 proposal of the Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land at Lots 231 RP (Part), 232, 278 S.A and 278 S.B (Part) in D.D. 38, Man Uk Pin, N.T. ("Site").

1.2 The entire Site (with a total area of 6,496m²) is proposed to be filled with concrete of not more than 0.3m (about) in depth for site formation of structures and circulation space. The proposal includes five temporary structures for warehouse, office, washroom, and fire service facilities. The proposed filling of land area and proposed structures are shown on **Appendix D**.

1.3 The Site is less than 1 ha in size and neither fall within flood-prone areas nor involve pond filling and substantial earth filling. Therefore, the Site is considered as a simple site.

1.4 Due to the concerns of possible drainage impact arising from the change of uses, Mannings (Asia) Consultants Limited (MACL) was appointed by the Earning Properties Limited to undertake a Drainage Proposal 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
- DSD Technical Note No. 1 – Technical Note to prepare a Drainage Submission

Design Parameters

2.2 Design Parameters

a) Runoff Coefficient

Table 2-1 Runoff Coefficients

Surface Characteristic	Runoff Coefficient, C
Hard paving with concrete	0.95 (Use 1.00 for conservative)
Structure Roofing Area	1.00
Grassland (heavy soil Flat), unpaved area	0.25

Note: 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)

Return Period

2.3 A return period of 1 in 50 years is adopted under this assessment.

Analysis Method

2.4 Description of Analysis Method

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

$$Q_p = 0.278\ CiA$$

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

b) 10% reduction of the flow area is allowed taken into account of the decomposition of siltation as per DSD's SDM 2018.

c) The time of concentration for determining the duration of the design storm is considered by the time of entry and the time of flow.

$$t_c = t_o + t_f \qquad t_f = L/V$$

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

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

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.

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

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

Table 2-3 Storm Constant of SDM – Corrigendum No.1/2024

Return Period T (years) (North District Area)	**50**
a	474.6
b	2.90
c	0.371

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

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

Where:

- V = mean velocity (m/s)
- g = gravitational acceleration (m/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 Basic Information of the Site

Current Land Use and Topography

3.1 The Site is a grassland with topography generally with a flat gradient and currently situated with levels from +25.8mPD to +26.5PD. In general, the direction of existing surface runoff flows from North-east to South-west.

Proposed Development

3.2 5 temporary structures for warehouse, office, washroom, and fire service facilities are proposed for the site as stated in Para. 1.2. After completion of the project, the finished ground level of the Site will be raised to approximately between +26.1mPD to +26.8mPD. The Site will be paved with concrete. The general layout plan of the proposed development is shown on **Drawing No. Y1042/101** in **Appendix A**.

4.0 Record of Existing Stormwater Drainage System

Information of Existing Stormwater Drains

4.1 Based on site observation, there are existing 450mm u-channels located along the road at south-west of the Site as shown in Drawing No. **Drawing No. Y1042/102** in **Appendix A**.

Records of Existing Stormwater Drain

4.2 Photos of the existing 450mm u-channels are attached in **Appendix C** for information.

5.0 Proposed Drainage Works

5.1 The runoff of the site and surrounding area are designed to be collected by proposed u-channels and flow into the existing 450mm u-channel along the road at south-west of the Site. The proposed drainage system of the Site is illustrated in **Drawing No. Y1042/102** in **Appendix A**.

5.2 As illustrated in **Drawing No. Y1042/102** in **Appendix A**, u-channels with size of 300mm to 450mm are proposed around the Site to collect the flow from the Site and surrounding area. The runoff will be flow into two existing catchpit (i.e. CP X1 and CP X3) as shown in **Drawing No. Y1042/102** in **Appendix A**.

5.3 Sand traps are proposed before the collected runoff is discharged to the public drainage facilities. Details are shown in **Drawing No. Y1042/111** in **Appendix A**.

6.0 Calculations

Proposed Drainage System

6.1 The proposed drainage system mentioned in Para. 5.1 to Para 5.3 are designed to have sufficient capacity to cater the flow from the Site and surrounding area. Detailed calculation is attached in **Appendix B**.

6.2 The design runoff, capacity and utilization of the propsoed U-channels are summarized in below tables.

Table 6-1 Design Runoff, Capacity and Utilization of the Proposed U - Channels to Existing Catchpit CP X1

Proposed U-Channel	Design Runoff (m^3/s)	Capacity (m^3/s)	Utilization (%)
SP1 – CP1 (300UC)	0.03	0.07	36
CP1 – CP2 (300UC)	0.06	0.09	65
CP2 – CP3 (300UC)	0.06	0.10	55
CP3 – CP4 (300UC)	0.08	0.12	62
CP4 – CP5 (300UC)	0.10	0.15	64
CP5 – CP6 (300UC)	0.12	0.15	82
CP6 – CP7 (300UC)	0.12	0.17	70
SP2 – CP7 (225UC)	0.05	0.07	78
CP7 – CP X1 (300UC)	0.15	0.26	58

Table 6-2 Design Runoff, Capacity and Utilization of the Proposed U - Channels to Existing Catchpit CP X2

Proposed U-Channel	Design Runoff (m^3/s)	Capacity (m^3/s)	Utilization (%)
SP3 – CP8 (300UC)	0.03	0.07	40
CP8 – CP9 (300UC)	0.10	0.13	80
CP9 – CP10 (375UC)	0.19	0.24	79
CP10 – CP11 (450UC)	0.23	0.29	80
CP11 – CP12 (450UC)	0.25	0.31	80
CP12 – CP13 (450UC)	0.25	0.31	82
CP13 – CP14 (450UC)	0.28	0.33	84
SP4 – CP14 (225UC)	0.02	0.09	23
CP14 – CP X3 (450UC)	0.29	0.47	62

Existing Drainage System

6.3 The existing drainage system are check to have sufficient capacity to cater the flow from the site and surrounding area. Detailed calculation is attached in **Appendix B** and summarised in below table.

Table 6-3 Design Runoff, Capacity and Utilization of the Existing U-Channels

Existing U-Channel	**Design Runoff (m^3/s)**	**Capacity (m^3/s)**	**Utilization (%)**
CP X1 – CP X2 (450mm)	0.15	0.70	21
CP X3 – CP X2 (450mm)	0.29	0.75	39
CP X2 – Outlet (450mm)	0.44	0.81	54

7.0 Conclusion

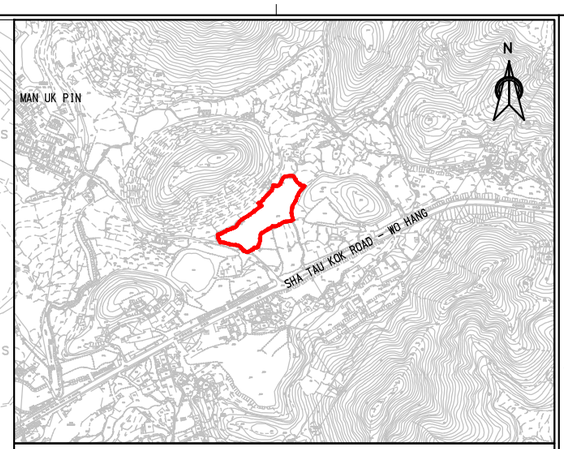
7.1 A Drainage Proposal has been conducted for the proposed land use changes of the application site. U-channels are proposed to have sufficient capacity to cater the surface flow from the Site and surrounding area.

7.2 Proposed U-channels are proposed to connect to existing 450mm U-channels. The existing u-channels have been checked for the runoff from the Site and surrounding area. The existing drainage u-channels are checked to have sufficient capacity for the proposed development and the surrounding area.

7.3 Based on our assessment, no adverse drainage impact is anticipated due to the proposed 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 :

- SITE BOUNDARY
- STRUCTURE (AT GRADE)
- STRUCTURE (RAIN SHELTER)
- STRUCTURE (UNDERGROUND)
- PC — PARKING SPACE (PC)
- LGV — LOADING/ UNLOADING SPACE (LGV)
- HGV — LOADING/ UNLOADING SPACE (HGV)
- INGRESS/ EGRESS
- +7.0 PROPOSED LEVEL
- +3.9 EXISTING LEVEL

Rev.	Description of Revision	Date	Ckd.

Client

EARNING PROPERTIES LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3	Date
AS SHOWN	JUN 2026

Designed	Drawn	Checked
EM	KAM	BLE

Design Team Leader	Date
SC	JUN 2026
Approved	Date
KTC	JUN 2026

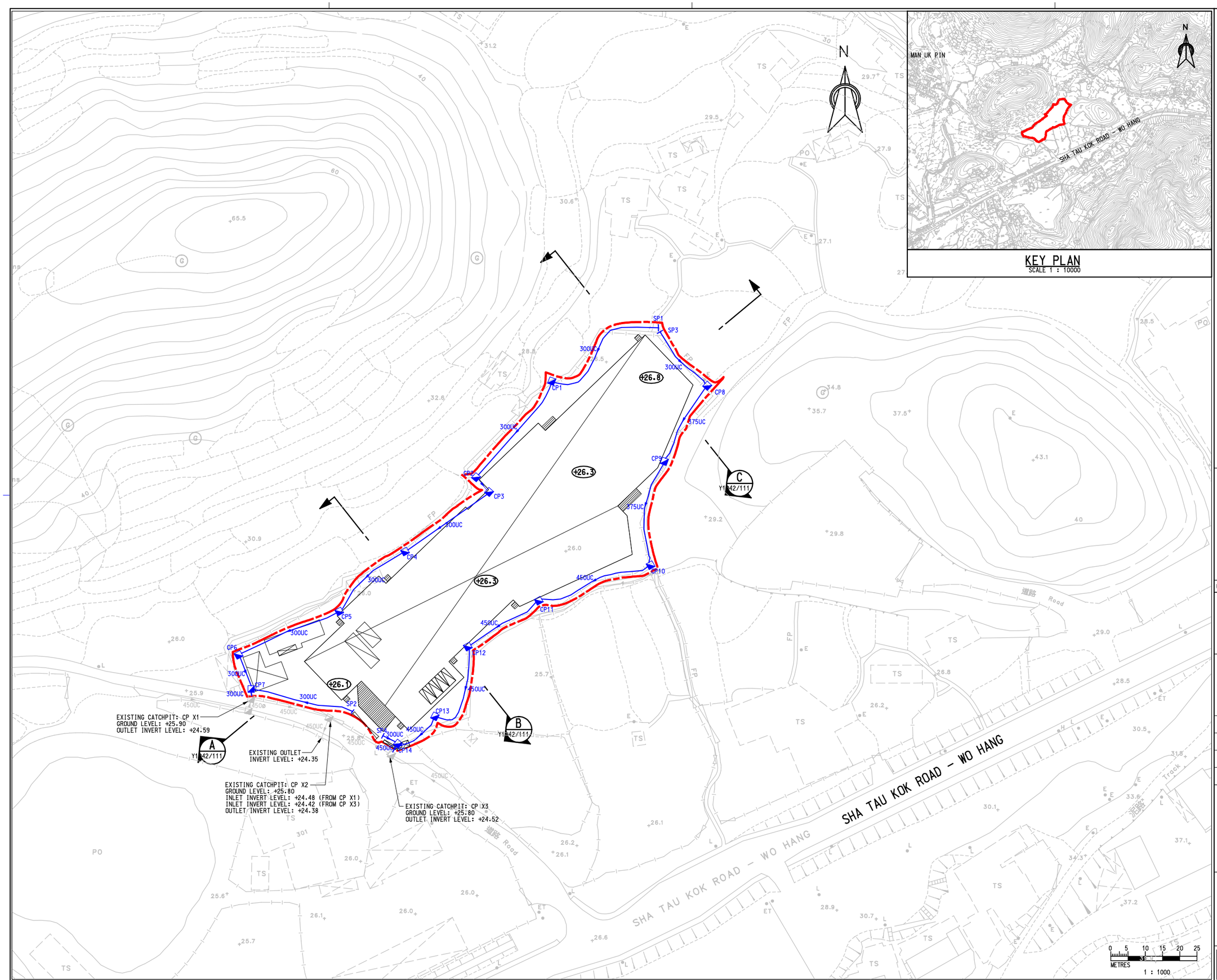
Project

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN (D.G.G.)) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS AT VARIOUS LOTS IN D.D. 38, MAN UK PIN, N.T.

Title

GENERAL LAYOUT

Drawing No.	Stage	Rev.
Y1042/101	D	-



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 :

	SITE BOUNDARY
	STRUCTURE (AT GRADE)
	STRUCTURE (RAIN SHELTER)
PC	PARKING SPACE (PC)
LGV	LOADING/ UNLOADING SPACE (LGV)
HGV	LOADING/ UNLOADING SPACE (HGV)
	INGRESS/ EGRESS
300UC	PROPSOED U-CHANNEL
600G	PROPSOED PIPE
	PROPSOED CATCHPIT
+7.0	PROPOSED LEVEL
+3.9	EXISTING LEVEL

Rev.	Description of Revision	Date	Ckd.

Client

EARNING PROPERTIES LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3: AS SHOWN		Date: JUN 2026
Designed: EM	Drawn: KAM	Checked: BLE
Design Team Leader: SC		Date: JUN 2026
Approved: KTC		Date: JUN 2026

Project

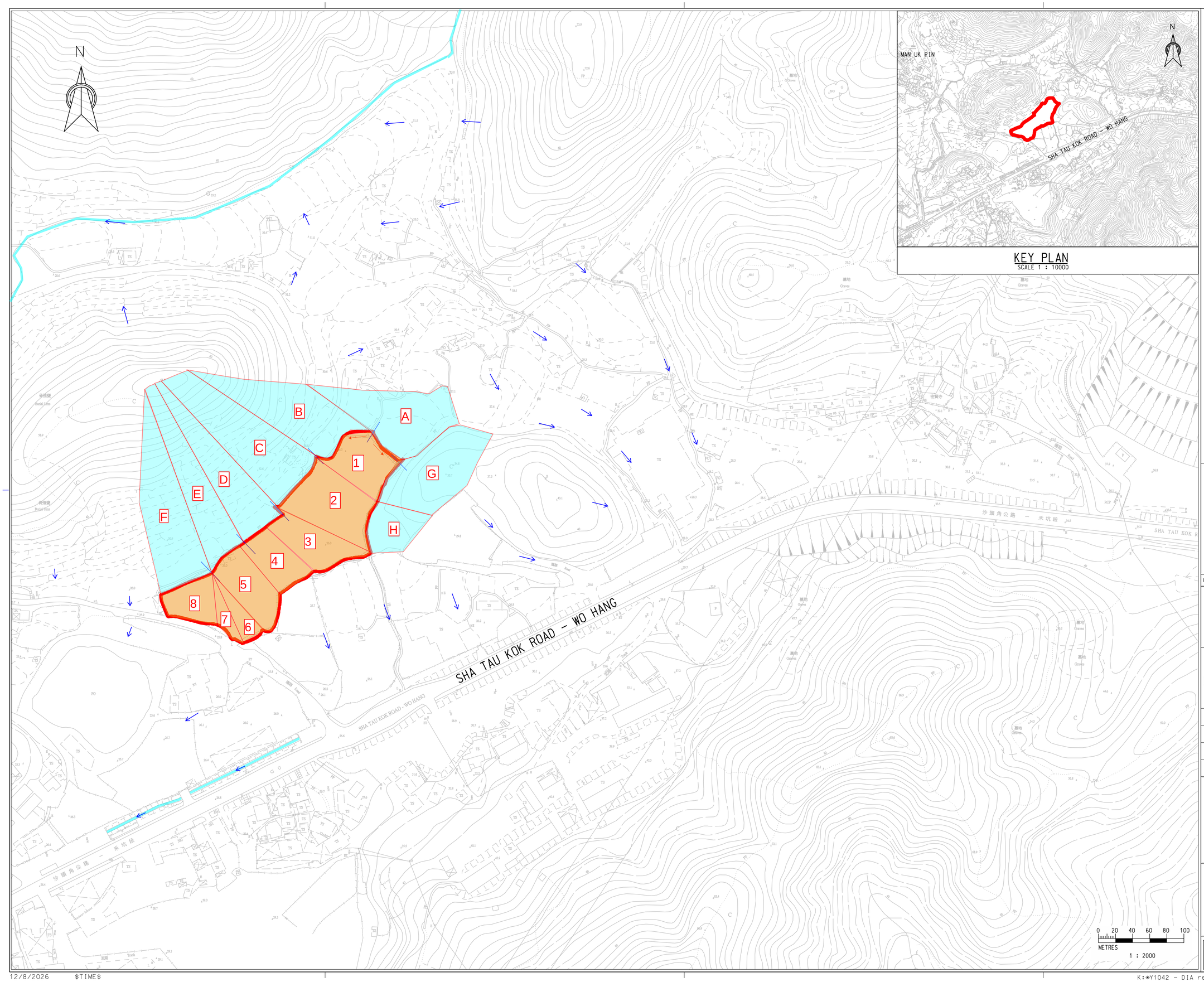
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN (D.G.G.)) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS AT VARIOUS LOTS IN D.D. 38, MAN UK PIN, N.T.

Title

DRAINAGE LAYOUT PLAN

0 5 10 15 20 25
METRES
1 : 1000

Drawing No.	Stage	Rev.
Y1042/102	D	-



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 :

	SITE BOUNDARY
	EXISTING STREAM
+7.0	PROPOSED LEVEL
+3.9	EXISTING LEVEL

Rev.	Description of Revision	Date	Ckd.

Client

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MANNINGS (Asia) Consultants Limited

Scale in A3 AS SHOWN		Date JUN 2026
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC		Date JUN 2026
Approved KTC		Date JUN 2026

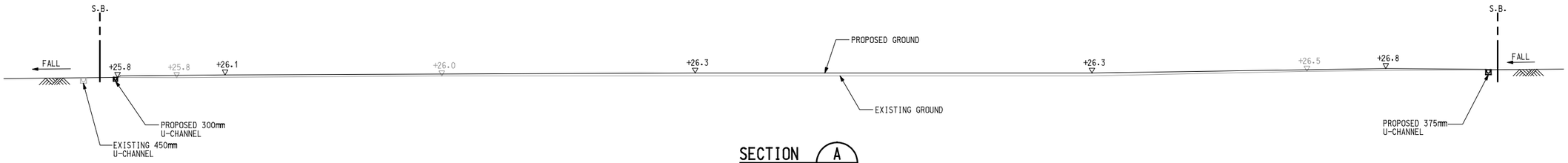
Project

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN (D.G.G.)) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS AT VARIOUS LOTS IN D.D. 38, MAN UK PIN, N.T.

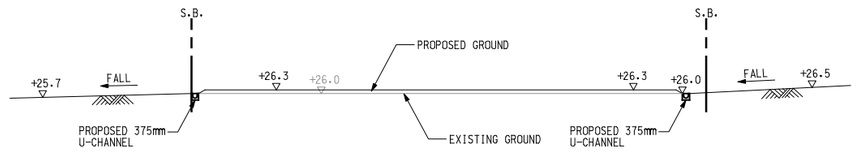
Title

CATCHMENT PLAN - BEFORE DEVELOPMENT

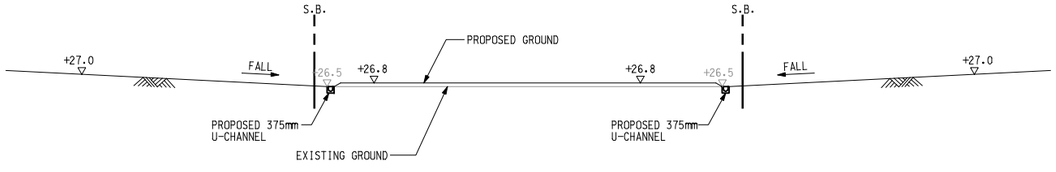
Drawing No.	Stage	Rev.
Y1042/103	D	-



SECTION A
SCALE 1:500 (1042/102)



SECTION B
SCALE 1:500 (1042/102)



SECTION C
SCALE 1:500 (1042/102)

0 2.5 5 7.5 10 12.5
METRES
1 : 500

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

EARNING PROPERTIES LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3 AS SHOWN		Date JUN 2026
Designed EM	Drawn KAM	Checked BLE
Design Team Leader SC		Date JUN 2026
Approved KTC		Date JUN 2026

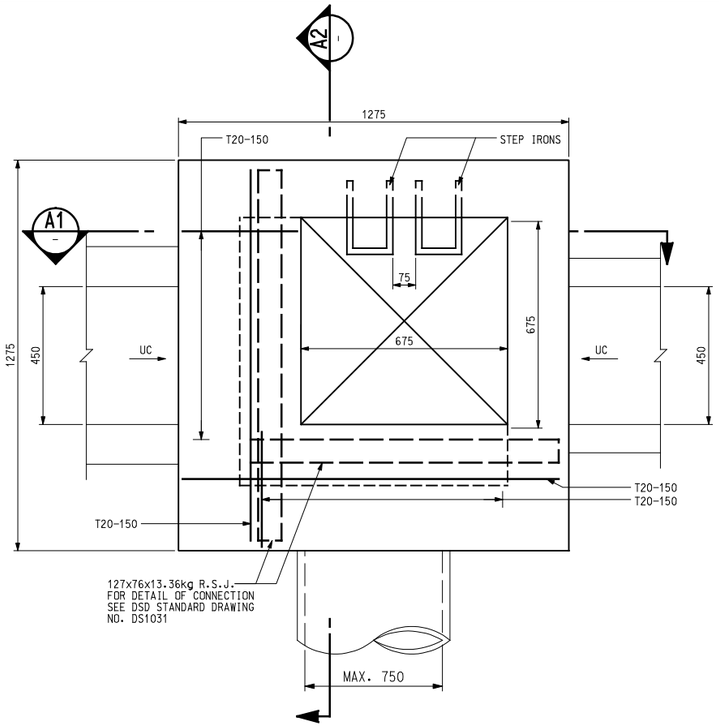
Project

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN (D.G.G.)) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS AT VARIOUS LOTS IN D.D. 38, MAN UK PIN, N.T.

Title

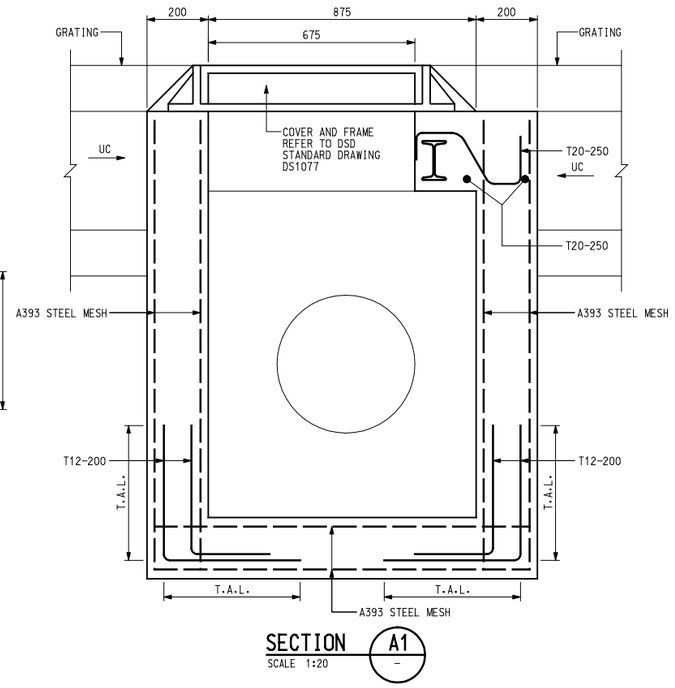
CROSS SECTION

Drawing No.	Stage	Rev.
Y1042/111	D	-

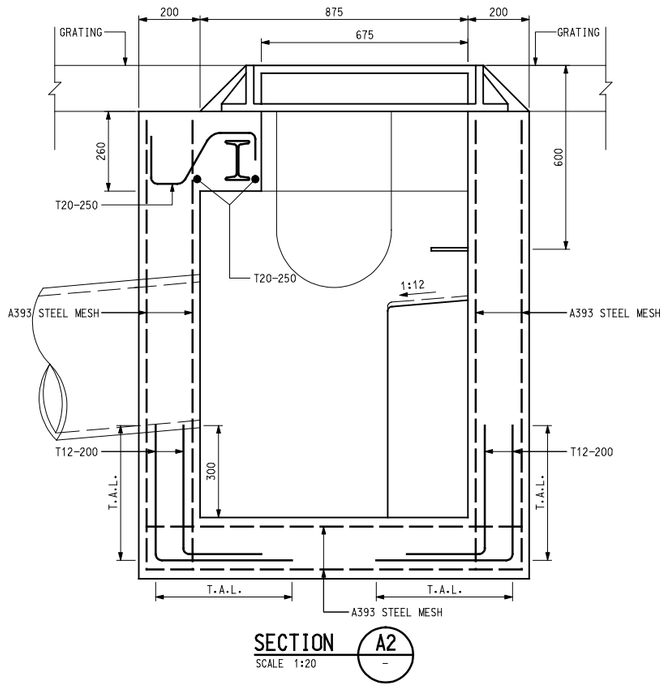


TYPICAL DETAILS OF CATCHPIT TYPE A

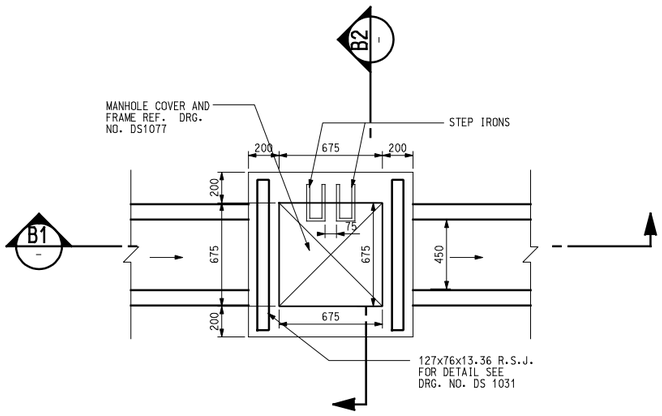
SCALE 1:20



SECTION A1 (–)
SCALE 1:20

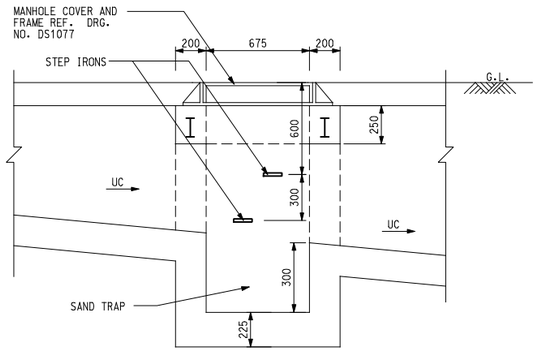


SECTION A2 (–)
SCALE 1:20

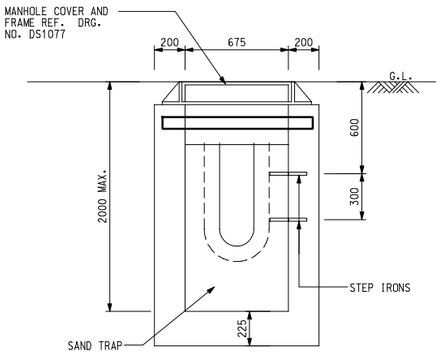


TYPICAL DETAILS OF CATCHPIT TYPE B

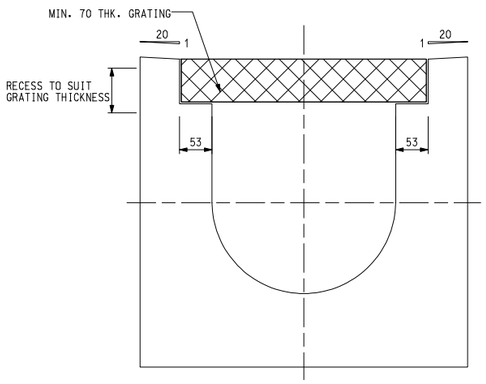
SCALE 1:40



SECTION B1 (–)
SCALE 1:40

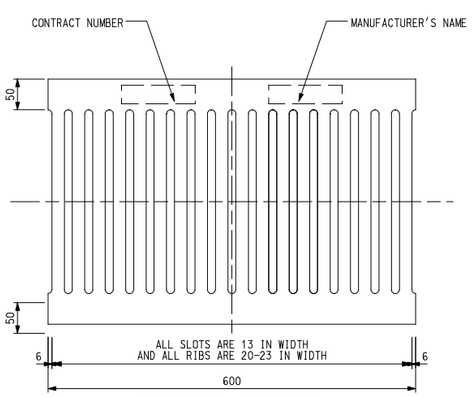


SECTION B2 (–)
SCALE 1:40



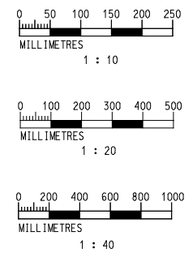
TYPICAL CROSS SECTION OF CHANNEL

SCALE 1:10



TYPICAL GRATING

SCALE 1:10



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

EARNING PROPERTIES LIMITED

Consultants

MANNINGS (Asia) Consultants Limited

Scale in A3	Date
AS SHOWN	JUN 2026

Designed	Drawn	Checked
EM	KAM	BLE

Design Team Leader	Date
SC	JUN 2026
Approved	Date
KTC	JUN 2026

Project

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN (D.G.G.)) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS AT VARIOUS LOTS IN D.D. 38, MAN UK PIN, N.T.

Title

TYPICAL DETAILS OF DRAINAGE

Drawing No.	Stage	Rev.
Y1042/121	D	-

Appendix B

Design Calculations

Appendix B -
Capacity of the Proposed U-Channel

Catchpit		Incre. Catchment No.	Incre. Area (m^2)		Accum. Area (m^2)		Rain Flow							U-Channel														
From	To		Soil	Concrete/ Structure Roofing Area*	Soil	Concrete/ Structure Roofing Area*	Longest flow path (m)	Gradient (m per 100m)	to (min) = 0.14465 L/ ($H^{0.2}A^{0.1}$)	tf = L/v	tc = to + tf	50 year Intensity (mm/hr)	50 year design runoff = 0.278CiA	Size	Length	Area of Cross section	Hydraulic Radius	Wetted Perimeter	Manning ' s	Gradient		Velocity	Capacity	U/S Ground Level	D/S Ground Level	U/S I.L.	D/S I.L.	Capacity > Total Flow ?	Utilization
			0.25	1.00	0.25	1.00	(m)		(min)	(min)	(min)	(mm/hr)	(m^3/s)	(mm)	(m)	(m^2)	(m)	(m)		%	(1 in)	(m/s)	(m^3/s)	(mPD)	(mPD)	(mPD)	(mPD)		
U-Channel to Existing Catchpit CP X1																												
SP1	CP1	B	2064	0	2064	0	230.0	17.0	8.80	1.19	10.00	184	0.03	300	75	0.070	0.100	0.70	0.014	0.467	214	1.05	0.07	26.50	26.50	26.25	25.90	Yes	36%
CP1	CP2	C	2538	0	4601	0	-	-	-	1.13	11.13	178	0.06	300	70	0.085	0.106	0.80	0.014	0.414	241	1.03	0.09	26.50	26.25	25.89	25.60	Yes	65%
CP2	CP3	-	0	0	4601	0	-	-	-	0.11	11.24	178	0.06	300	7	0.097	0.110	0.88	0.014	0.429	233	1.07	0.10	26.25	26.25	25.59	25.56	Yes	55%
CP3	CP4	D	1715	0	6316	0	-	-	-	0.78	12.02	174	0.08	300	50	0.115	0.115	1.00	0.014	0.400	250	1.07	0.12	26.25	26.10	25.55	25.35	Yes	62%
CP4	CP5	E	1678	0	7994	0	-	-	-	0.78	12.80	171	0.09	300	49	0.142	0.120	1.18	0.014	0.367	272	1.05	0.15	26.10	26.00	25.34	25.16	Yes	64%
CP5	CP6	F	2356	0	10350	0	-	-	-	0.99	13.79	167	0.12	300	60	0.145	0.121	1.20	0.014	0.333	300	1.01	0.15	26.00	25.80	25.15	24.95	Yes	82%
CP6	CP7	-	0	0	10350	0	-	-	-	0.29	14.08	166	0.12	300	18	0.166	0.124	1.34	0.014	0.333	300	1.02	0.17	25.80	25.80	24.94	24.88	Yes	70%
SP2	CP7	8	0	645	0	645	-	-	-	0.96	0.96	288	0.05	225	60	0.063	0.086	0.74	0.014	0.567	176	1.04	0.07	25.90	25.90	25.60	25.26	Yes	78%
CP7	CP X1	-	0	0	10350	645	-	-	-	0.03	14.08	166	0.15	300	2	0.202	0.128	1.58	0.014	0.500	200	1.28	0.26	25.90	25.90	24.87	24.86	Yes	58%
U-Channel to Existing Catchpit CP X3																												
SP3	CP8	A	2013	0	2013	0	100.0	0.600	7.49	0.86	8.35	193	0.03	300	50	0.070	0.100	0.70	0.014	0.400	250	0.97	0.07	26.50	26.50	26.10	25.90	Yes	40%
CP8	CP9	1,G	1948	1020	3960	1020	-	-	-	0.91	9.25	188	0.10	300	55	0.130	0.118	1.10	0.014	0.345	289	1.01	0.13	26.50	26.50	25.89	25.70	Yes	80%
CP9	CP10	2, H	773	1560	4733	2580	-	-	-	0.81	10.07	183	0.19	375	65	0.182	0.144	1.26	0.014	0.462	217	1.33	0.24	26.50	26.25	25.69	25.39	Yes	79%
CP10	CP11	3	0	946	4733	3526	-	-	-	0.89	10.95	179	0.23	450	70	0.224	0.166	1.35	0.014	0.371	269	1.31	0.29	26.25	26.00	25.38	25.12	Yes	80%
CP11	CP12	4	0	310	4733	3836	-	-	-	0.68	11.63	176	0.25	450	45	0.278	0.175	1.59	0.014	0.244	409	1.10	0.31	26.00	26.00	25.11	25.00	Yes	80%
CP12	CP13	5	0	240	4733	4076	-	-	-	0.87	12.51	172	0.25	450	55	0.291	0.177	1.65	0.014	0.218	458	1.05	0.31	26.00	25.90	24.99	24.87	Yes	82%
CP13	CP14	6	0	645	4733	4721	-	-	-	0.51	13.02	170	0.28	450	35	0.291	0.177	1.65	0.014	0.257	389	1.14	0.33	25.90	25.80	24.86	24.77	Yes	84%
SP4	CP14	7	0	240	0	240	-	-	-	0.21	0.21	311	0.02	225	15	0.077	0.089	0.86	0.014	0.667	150	1.17	0.09	25.80	25.80	25.20	25.10	Yes	23%
CP14	CP X3	-	0	0	4733	4961	-	-	-	0.02	13.02	170	0.29	450	2	0.296	0.177	1.67	0.014	0.500	200	1.59	0.47	25.80	25.80	24.77	24.76	Yes	62%

Remarks:

*Runoff Coefficient of Concrete Paving is adopted as 1.00 for conservative

Conclusion： Proposed U-Channels have sufficient capacity to cater the flow from the Site and surrounding area

Appendix B -
Capacity of the Existing U-Channel

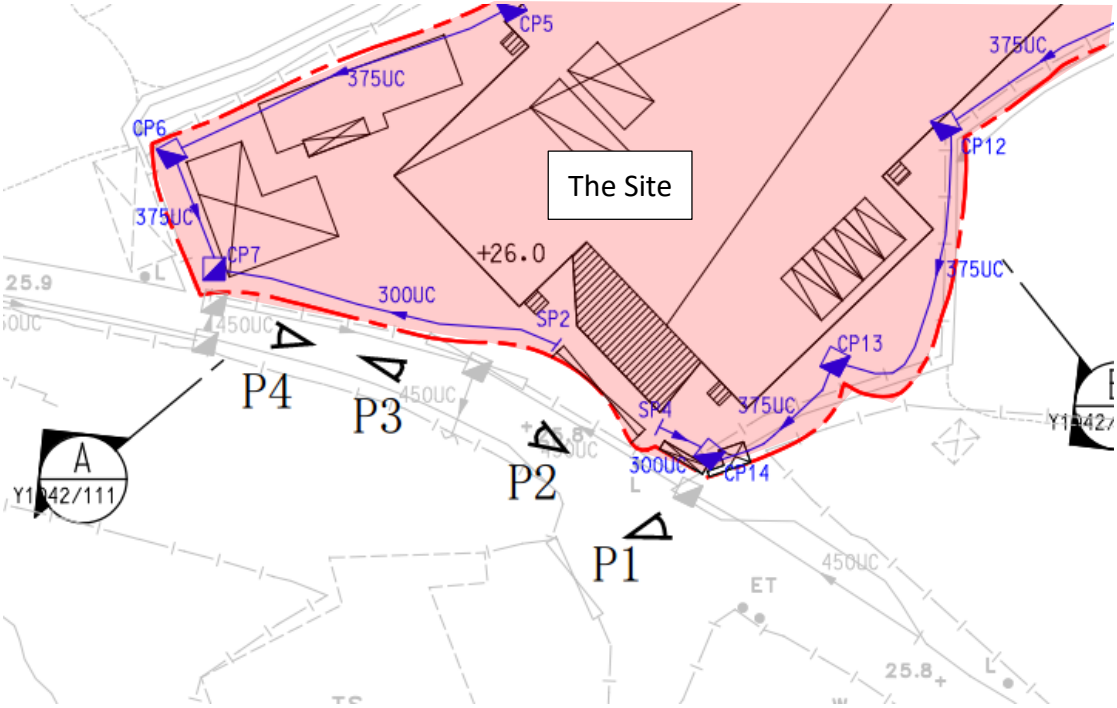
Catchpit			U-Channel															
From	To	50 year design runoff = 0.278CiA	Size	Length	Area of Cross section	Hydraulic Radius	Wetted Perimeter	Manning ' s	Gradient		Velocity	Capacity	U/S Ground Level	D/S Ground Level	U/S I.L.	D/S I.L.	Capacity > Total Flow ?	Utilization
		(m^3/s)	(mm)	(m)	(m^2)	(m)	(m)		%	(1 in)	(m/s)	(m^3/s)	(mPD)	(mPD)	(mPD)	(mPD)		
CP X1	CP X2	0.15	450	22	0.422	0.189	2.23	0.014	0.500	200	1.67	0.70	25.90	25.80	24.59	24.48	Yes	21%
CP X3	CP X2	0.29	450	20	0.449	0.191	2.35	0.014	0.500	200	1.68	0.75	25.80	25.80	24.52	24.42	Yes	39%
CP X2	Outlet	0.44	450	6	0.480	0.193	2.49	0.014	0.500	200	1.69	0.81	25.80	25.80	24.38	24.35	Yes	54%

Remarks:

Conclusion： Existing U-Channels are checked to have sufficient capacity to cater the flow from the Site and surrounding area

Appendix C

Photos of Existing Stormwater Drain



Location Plan



Photo 1



Photo 2



Photo 3



Photo 4

Appendix IV

Preliminary geotechnical assessment report

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Preliminary Geotechnical Assessment Report

Document No. Y1070/GAR/001
Issue 1

October 2026

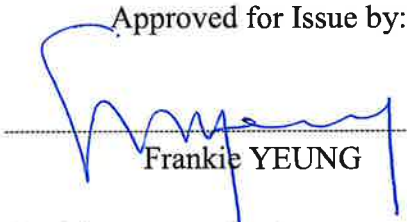
MANNINGS
(Asia) Consultants Limited

Y1070/GAR/001
October 2026

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Preliminary Geotechnical Assessment Report

Approved for Issue by:



Frankie YEUNG

Position: Project Manager

Date: 09 October 2026

Y1070/GAR/001
October 2026

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Preliminary Geotechnical Assessment Report

Issue	Prepared by	Reviewed by	Date
1	KPT	FY	09 Oct 2026

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1.0 Introduction

1.1 General

Mannings (Asia) Consultants Limited was commissioned by Earning Properties Limited to undertake the Preliminary Geotechnical Assessment for the applicant to use Lots 231 RP (Part), 232, 278 S.A and 278 S.B (Part) in D.D. 38, Man Uk Pin, New Territories for 'Proposed Temporary Warehouse (Excluding Dangerous Goods Godown (D.G.G.)) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years'.

1.2 Project Description

The applicant proposes to construct warehouses and the associated ancillary facilities/ land filling works at various Lots in D.D. 38, Man Uk Pin, New Territories. The location of the Site is presented in Drawing No. **Y1070/GS/001**.

Located within an "Agriculture" ("AGR") zone, the Site spans approximately 6,496 m². The development proposal comprises 5 temporary structures featuring a total non-domestic Gross Floor Area (GFA) of approximately 4,695 m² and a plot ratio of 0.72. These structures will accommodate the main warehouse space, an ancillary office for 8 administrative staff, a washroom and pump room, a meter room, a fire service (FS) control room, an FS pump room, and an FS water tank.

The facility is intended strictly for the storage of miscellaneous goods—including packaged food, apparel, footwear, electronics, furniture, construction materials, and machinery—with no retail shopfront or public visitors anticipated. To support heavy structures and logistics operations without compacting the existing soil ground, the entire site will undergo minimal site formation consisting of a concrete fill layer not exceeding 0.3m in depth. Paved and covered spaces are strictly optimized to leave approximately 1,803 m² of uncovered circulation yard space, providing a total of 6 internal parking and loading/unloading spaces (4 private car spaces, 1 container vehicle space, and 1 heavy goods vehicle space) to ensure smooth internal maneuvering without disrupting local access roads.

The applicant guarantees full compliance with local environmental protection ordinances and commits to fully reinstating the Site to an amenity area upon the expiry of the 3-year planning approval period.

1.3 Objectives of the Report

The objectives of this Assignment are to define the geotechnical risk to the proposed development of the Site:

a. Carry out desk study on files and records kept in GEO and site reconnaissance. The checking determines the status of any previous geotechnical studies/ upgrading works and any current development proposals affecting each of the man-made slopes.

b. Carry out preliminary slope stability assessment;

c. Preparation of the GAR for the acceptance of GE.

The layout plan, elevation and sections of the Site are shown in Drawings Nos. **Y1070/GS/001, Y1070/NT/001,** and **Y1070/NT/002**.

2.0 Desk Study

2.1 Site Topography

The application site comprises unoccupied flat land covering an area of approximately 6,496 m². The Site's elevation ranges from roughly +25.8 mPD at its lowest point to +26.5 mPD at its highest. Situated to the northwest of the Site is a hill rising to a peak elevation of +65.5 mPD, where several burial urns and graves have been identified.

2.2 Land Status

The Site is currently a vacant land with sparse vegetation cover. Pre-existing temporary / low-rise structures within the Site were demolished. Additionally, the site boundary encompasses several private lots, specifically Lots 231 RP (Part), 232, 278 S.A and 278 S.B (Part) in D.D. 38, Man Uk Pin, New Territories.

According to the Man Uk Pin Outline Zoning Plan ("OZP") No. S/NE-MUP/11 approved by the Chief Executive in Council under Section 9(1)(a) of the Town Planning Ordinance on 17 October 2006, the Site falls within the "Agriculture" ("AGR") zone. Planning permission for both the proposed temporary warehouse and the associated land-filling works is required from the Town Planning Board via a Section 16 application under the Town Planning Ordinance.

2.3 Site Geology

Solid and Superficial Geology

The Site is covered by the 1:20,000 scale Hong Kong Geological Survey – Solid and Superficial Geology Sheet 3 "Sheung Shui" (Edition I) series HGM20 published by Geotechnical Engineering Office in 1991. According to the geological map (Figure 1), the Site is generally underlain by debris flow deposits (Qpd) of quaternary period. No adverse geological features are identified in the vicinity of the Site.

2.4 Previous Ground Investigation

No previous ground investigation within or in the vicinity of the Site was found in GInfo. However, the nearest available ground investigation records, located over 100m away from the Site, has been summarized in this Section. The following ground investigation fieldworks reports from the Geotechnical Information Unit (GIU) were studied: -

- DrilTech Ground Engineering Limited (2005). Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern NT – Package C, Investigation, Design and

Construction (Man Uk Ping). Ground Investigation, Final Fieldwork Report. (GIU Ref. 41501)

- Tysan Foundation Limited (2011). Upgrading / Improvement Works to Lands Department Slopes in the Northern Regions. Feature No. 3NE-C/F23, Sha Tau Kok Road, West of Sheung Wo Hang, North, Final Fieldwork Report (GIU Ref. 55541)

GIU Report No. 41501 contains records of GI works carried out by DrilTech Ground Engineering Limited in March 2005 for "Agreement No. CE6/2002 (DS) Drainage Improvement in Northern NT – Package C, Investigation, Design and Construction." located in Man Uk Ping, Sheung Shui was found. The nearest drillhole is a vertical drillhole located approximately 112m southeast of the Site (Drillhole No. B20). The GI records are summarized in the following **Table 1**: -

Table 1 Summary of Relevant Ground Investigation Extracted from GIU Report No. 41501

GI Station	Ground Level	Ground Level of Soil Stratum (mPD) (Thickness of Soil)			
		FILL	ALLU	C/HDT	MDT or better
B20	+25.74mPD	+25.74 to +24.74 (1.0m)	+24.74 to +22.64 (2.1m)	+22.64 to +16.02 (6.62m)	+16.02 to +10.51 (5.51m)

Notes: FILL = Fill, ALLU = Alluvium, C/HDT = Completely to Highly Decomposed Tuff, MDT = Moderately Decomposed Tuff.

Piezometer was installed in Drillhole No. B20 at specific tip depths for groundwater monitoring in Jan 2005. The groundwater monitoring record is summarized in **Table 2** below.

Table 2 Summary of Groundwater Monitoring Records from Relevant Ground Investigation in GIU Report No. 41501

GI Station	Ground Level	Piezometer Tip Level	Material in Response Zone	H.M.G.W.L (mPD)
B20	+25.74mPD	+16.54mPD	C/HDT	+23.54mPD

Notes: Highest Measured Groundwater Level (H.M.G.W.L.)

Ground Investigation Works for Feature No. 3NE-C/F23, Sha Tau Kok Road, West of Sheung Wo Hang, North

GIU Report No. 55541 contains records of GI works carried out by Tysan Foundation Limited in June 2011 for "Contract No. 2/LANDS/10 Upgrading / Improvement Works to Lands Department Slopes in the Northern Regions." located in Sha Tau Kok Road, West of Sheung Wo Hang, North was found. The report consists of 3 trial pits located approximately 170m southeast of the Site (Nos. F23-TP1, F23-TP2 and F23-TP3). The GI records are summarized in the following **Table 3**: -

Table 3 Summary of Relevant Ground Investigation Extracted from GIU Report No. 55541

GI Station	Ground Level	Ground Level of Soil Stratum (mPD) (Thickness of Soil)			
		FILL	Old TS	COLL	C/HDT
F23-TP1	+37.80mPD	+37.80 to +37.30 (0.5m)	-	+37.30 to +35.80 (1.5m)	+35.80 to +34.50 (1.30m)
F23-TP2	+37.80mPD	+37.80 to +36.30 (1.5m)	+36.30 to +36.10 (0.2m)	+36.10 to +35.60 (0.5m)	+35.60 to +34.30 (1.30m)
F23-TP3	+37.80mPD	+37.80 to +37.20 (0.6m)	-	+37.20 to +35.30 (1.9m)	+35.30 to +34.50 (0.80m)

Notes: FILL = Fill, Old TS = Old Top Soil, COLL = Colluvium, C/HDT = Completely to Highly Decomposed Tuff

Standpipe was installed in Trial Pit No. F23-TP1 at specific tip depths for groundwater monitoring in July 2011. The groundwater monitoring record is summarized in **Table 4** below.

Table 4 Summary of Groundwater Monitoring Records from Relevant Ground Investigation in GIU Report No. 55541

GI Station	Ground Level	Standpipe Tip Level	Material in Response Zone	H.M.G.W.L (mPD)
F23-TP1	+37.80mPD	+35.10mPD	CDT	Dry

Notes: Highest Measured Groundwater Level (H.M.G.W.L.)

The existing ground investigation information and laboratory test result, are summarized and included in **Appendix A**. The ground investigation plan of the Site is presented in Drawing Nos. **Y1070/GI/001**.

2.5 Existing Geotechnical Features

Two (2) existing geotechnical features are identified in close proximity to the Site. The locations of the existing geotechnical features are shown in **Drawing No. Y1070/GS/001**. Basic slope information of the features is enclosed in **Appendix B**.

Table 5 Summary of Existing Geotechnical Features to be studied

Feature No.	Maintenance Responsibility*	Height (m)	Angle (°)	Previous Study
3NW-D/C46	(1): DD38Lot226 (2): DD38Lot237 (3): DD38Lot235 (4): DD38Lot236 (5): DD38Lot254	4	45	Y
3NW-D/C47	(1): DD38Lot277 (2): DD38Lot257	4	40	Y (S2R 269/2007)

* (1): Sub-division 1

Feature Information – Feature No. 3NW-D/C46

Feature No. 3NW-D/C46 is located to the Southeast of Man Uk Pin, North District. It is a southeast-facing soil cut slope, with 90% vegetated and 10% bare surface. The Hong Kong Metric Grid Reference for the Feature is (837339E, 842863N). According to the Slope Information System (SIS), the crest facility of the Feature is an undeveloped green belt and the toe facility of the Feature is a district open space. The Consequence-to-life Category of the Feature is classified as 3. The Feature is constructed before 1963.

Based on 'Systematic Inspection of Features in the Territory' (SIFT) Report No. 3NW-25B/S31 compiled on 18 February 1997, the Feature is a cut slope or CR greater than 3m. The SIS data registered the date of formation as pre-1963.

Systematic Identification and Registration of Slopes in the Territory (SIRST) field inspection sheet dated 17 March 2001 was found. The weather was registered as mainly fine for past 48 hours to the inspection time. No sign of distress and no inferred past instability were reported. The report indicated that the slope is a soil cut slope with soil type of colluvium. The slope had a maximum height of 4m, a length of 140m and an angle of 45°. The registered slope covering type is of 90% vegetated and 10% bare surface in fair condition.

The relevant past information is enclosed in **Appendix B.**

Feature Information – Feature No. 3NW-D/C47

Feature No. 3NW-D/C47 is located 400m due east of Man Uk Bin Village, Sha Tau Kok Road – Wo Hang, North. It is a generally east-facing soil cut slope with 90% vegetated surface and 10% bare surface. The Hong Kong Metric Grid Reference for the Feature is (837423E, 842942N). According to the SIS, the crest and toe facilities of the Feature horticulture garden and cottage, licensed and squatter area respectively. The Consequence-to-life Category of the Feature is classified as 1.

Stage 2 Study was carried out for the Feature (S2R 269/2007) in 2008. The study concluded that the sub-divisions 1 and 2 of the feature possess the minimum FOS of 1.436 and 1.488 and did not satisfy the requirements for the service of a Dangerous Hillside Order in accordance with GEO Circular No. 24 based on engineering judgement and therefore no statutory action was recommended. The relevant past information is enclosed in **Appendix B.**

The study indicated that the sub-soil strata of the Feature is completely composed of Colluvium (COLL). No groundwater monitoring records were conducted and no sign of seepage was noted for the Feature, a design groundwater table of one-third of the slope height to account for 1 in 10 years return period of rainfall. In the absence of laboratory testing results, Colluvium of c'=4kPa, ϕ'=34°, bulk unit weight= 19 kN/m^3 as suggested in Table 8 of Geoguide 1 were assumed. A lower set of soil parameters of c'=3kPa, ϕ'=33°, bulk unit weight= 19 kN/m^3 was used for the purpose of sensitivity analysis.

According to the available information, there are no records of any previous landslides occurred on the Feature.

2.6 Existing Structure

The Site is currently a vacant land with sparse vegetation cover. Pre-existing temporary / low-rise structures within the Site were demolished.

2.7 Preliminary Review of the Potential Natural Terrain Hazards

The preliminary review is a fundamental stage preceding the detailed design stage. The objective is to i) review available geotechnical information, ii) assess the necessity of NTHS for the Site and iii) identify the extent of study area of NTHS.

The Site is overlooked by a natural hillside, which is identified to the northwest of the Site. The Site has been screened for a NTHS purposed in accordance with the guidelines provided in GEO Report No. 138, 2nd Edition. The location of the natural hillside is shown in Drawing No. **Y1070/NT/001**.

Screening of the Site Subject to Natural Terrain Hazards

"Inclusion" Guideline

As discussed in Section 2.3.2 of GEO Report No. 138, the GEO has established a set of simple guidelines for identifying whether a site may require screening in respect of natural terrain hazards. This set of "Inclusion" guidelines comprise the follow two conditions:

(a) the proposed development involves Group 1, 2 or 3 facilities (refer to Table 2.2 of GEO Report No. 138), and

(b) there is a 'hillside' sloping at more than 15° within 100m horizontally upslope of the site boundary. For the purpose of applying the "Inclusion" guidelines, the term 'hillside' refers to sloping natural or quasi-natural terrain that is undeveloped or largely undeveloped. It excludes built-up areas, such as terraces supported by retaining walls, and a series of paved platforms separated by man-made slopes. Where there are man-made slope features adjoining a sloping terrain that is undeveloped or largely undeveloped, the 'hillside' includes both the man-made slope features and the sloping terrain.

For screening of the Site, natural hillside in the vicinity of the Site have been identified and the relative distance between the Site are presented in Drawing Nos. **Y1070/NT/001** and **Y1070/NT/002**.

It is anticipated that the Site will be occupied by 5 temporary structures including the main warehouses, an ancillary office, a washroom and pump room, a meter room, a fire service (FS) control room, an FS pump room and an FS water tank. Thus, it is classified as Facility Group 2a in accordance with Table 2.2 of GEO Report No. 138.

Table 6 Summary of Initial Screening for NTHS

Section	Inclusion Guidelines		Need for further screening
	Group 1, 2 or 3 Facility	**Presence of an undisturbed "hillside" sloping at more than 15° within 100 m horizontally upslope of the facility**	
A-A	Yes	Yes	Yes

As presented in Sections A (Drawing No. **Y1070/NT/002**), natural hillsides located upslope of the Site has a gradient of over 15° and within 100m horizontal upslope of the site. Hence, further screening for the Site is required.

In-principle Objection Criteria

With reference to Section 2.3.3 of the GEO Report No. 138 (Second Edition) (Ho & Roberts, 2016), the GEO would object in-principle to proposals for the zoning and disposal of a site that falls under either (a) or (b) of the following conditions: -

(a) The site is faced with severe natural terrain hazards. A site falls within this category if any proposed Facility Groups 1(a), 1(b) and 2(a) is either:

i) located within an angle of reach of 35° from any natural terrain at an elevation of 50 m or more above the proposed site formation level, or

ii) located on or immediately below terrain that is known to be affected by active, large scale, deep seated movement (e.g. Tuen Mun Area 19).

(b) The site is proposed for small-scale New Territories Exempted House (NTEH) and is subject to potential natural terrain hazards. However, the required NTHS and mitigation works are disproportionate to the scale of the proposed development and could thereby render the proposed development not economically viable. A site falls within this category if it meets all of the following conditions: -

i) the site meets GEO's requirement for study of natural terrain hazards,

ii) the site is not located in a cluster of existing developments of a comparable nature and affected by similar hazards, and

iii) it is unlikely that the requirement for study and mitigation of natural terrain hazards can be lifted by alternative means, such as adjustment of the layout of the proposed development, delineation of no-build zone, simple drainage provisions, confirmation of no need for NTHS and mitigation by a brief review of the natural terrain hazards, etc.

The Site will involve Group 2(a) facilities, and there is natural hillslope at an elevation less than 50 m above the Site. The Site do not satisfy the criteria (a) of the In-principle Objection Criteria.

The Site does not involve small-scale NTEH development. The Site does not satisfy the criteria (b) of the In-principle Objection Criteria.

The Site does not satisfy the In-principle Objection Criteria. A summary of the In-principal Objection Criteria screening result is presented in **Table 7**.

Table 7 In-principle Objection Criteria Screening for NTHS

Section	**Any proposed Group 1(a), 1(b) and 2(a) Facility is either**		**In-principle Objection Criteria Met?**
	located within an angle of reach of 35° from the natural terrain at an elevation of ≥50 m above proposed site formation level	**located on or immediately below terrain that is known to be affected by active, large scale, deep seated movement (e.g. Tuen Mun Area 19).**	
A-A	No	No	No

Alert Criteria

For a Site that may be affected by natural terrain hazards, but does not satisfy the "In-principle Objection Criteria", an NTHS is required to study the hazards and identify any mitigation measures required. As discussed in Section 2.3.4 of GEO Report No. 138, the following "Alert Criteria" are used by the GEO to help decide whether a site falls under this category:

(a)It is a new development site involving provision of Group 1 to 3 facilities (Table 2.2), or it is a redevelopment that requires modification of the lease conditions and involves either a significant population at risk or a significant increase in population at risk.

(b) Where there is natural terrain outside the site, but within the same catchment, that is at an angular elevation of 20° or more from the site and where there is ground sloping at more than 15° within 50 m horizontally upslope of the site boundary, provided that there is a credible debris flow path to the site.

As presented in Sections A in Drawing Nos. **Y1070/NT/001** and **Y1070/NT/002**, natural hillsides located upslope of the Site have a gradient of angular elevation of 20°. Therefore, the Site meets the requirements of "Alert Criteria" and require NTHS.

A summary of assessment is presented in Table 8 below

Table8 Summary of NTHS Site Screening – Application of Alert Criteria

Cross-Section	**Angular Elevation of Natural Terrain ≥ 20°**	**Within 50m of ground sloping at > 15°**	**Alert Criteria Met?**
A – A	Yes	Yes	Yes

Site Screening Results

The Site satisfy the Alert Criteria and require NTHS.

Study Area Delineation

For the NTHS, the study of the hillside catchments (Study Area) to the Site is delineated based on the site morphology. The Study Areas and hillside catchments for the Site are discussed below:

The Study Area contains two hillside catchments, which are located above the Site:

Hillside Catchment OH	Hillside Catchment OH is a predominately SE-facing open hillslope catchment, which is about 33 m high with a plan area of about 6461 m^2.
Hillside Catchment TD	Hillside Catchment TD contains a SE-opening topographic depression, which is about 36 m high with a plan area of about 8002 m^2.

The proposed study area extents of NTHS for the Site are shown in Drawing No. **Y1070/NT/001**.

2.8 Landslide and Boulder Inventory

Past landslide incident records in the vicinity of the Site was collected through a review of GEO landslide incident records, landslide study report, the Enhanced Natural Terrain Landslide Inventory (ENTLI), and the Large Landslide Dataset (Scott, 1999). The locations of the past landslide records are presented in Drawing No. **Y1070/NT/001**.

GEO Landslide Incidents

There is a no landslide incident record is found in the vicinity of the Site.

Enhanced Natural Terrain Landslide Inventory (ENTLI)

Two relict landslide (nos. 03NWD0103E and 03NWD0104E) are identified in the vicinity of the Site and the proposed study area of NTHS. Their details are tabulated in table below.

Table 9 Summary of Enhanced Natural Terrain Landslide Inventory records

ENTLI Ref.	Recent/ Relict	Landslide Class*	Year	Measured Width (m)	Source Length (m)	Slope	Crown (mPD)	Trail (mPD)
03NWD0103E	Relict	B2	1963	15	7	46.5	+57	+53
03NWD0104E	Relict	B2	1963	14	6	27	+58	+54

Notes:
* Class B2 – Identifying feature is based on rock scarp beyond which scarp predominantly rounded (50% certain)

Landslide Study Report

There was no landslide study report related to the Site.

Historical Landslide Catchment

There was a Historical Landslide Catchment (HLC) identified to the north of the Site (3NW-D/OH 20) with a catchment area of approximately 4101m2. The location of the HLC is presented in Drawing No. **Y1070/NT/001**.

Boulder Field Inventory

With reference to the Boulder Field Inventory (Emery, 1998), the Site and the proposed study area for NTHS fall within the boulder polygon no. S3_H, S3_23 and S3_24 respectively. There is no data about percentage of area covered by boulders. This means that either no boulder was recorded or no boulder was observed on the surface within the Site and the proposed study area of NTHS. The boulder polygons are shown in Drawing No. **Y1070/NT/003**.

2.9 Land Contamination

Based on the site inspection, there was no identified existing land use with potential land contamination concern within and in the vicinity of the Site, such as open storage, vehicle repair workshops and petrol stations. Therefore, the land contamination is not envisaged.

3.0 Ground Conditions

3.1 Ground Conditions

According to existing GIs in the vicinity of the site and previous studies of Feature No. 3NW-D/C47, the Site generally comprise of Colluvium.

3.2 Groundwater Conditions

The nearest groundwater monitoring records, which is over 100m from the site boundary, were available at drillhole no. 41501/B20 and F23-TP1. The results are summarized in the table below. Records of groundwater monitoring are enclosed in **Appendix A**.

Table 10 Summary of Groundwater Level

GI Station	Ground Level	Piezometer Tip Level	Material in Response Zone	H.M.G.W.L (mPD)
B20	+25.74mPD	+16.54mPD	C/HDT	+23.54mPD
F23-TP1	+37.80mPD	+35.10mPD	CDT	Dry

Notes: Highest Measured Groundwater Level (H.M.G.W.L.)

3.3 Soil Parameters

In accordance with the stage 2 report for feature no. 3NW-D/C47 (S2G 269/2007), the Site mainly comprises colluvium (COLL). The soil parameters are summarized from the stage 2 report and presented in **Table 11.**

Table 11 Summary of Soil Parameters

Soil Type	Bulk density (kN/m^3)	Cohesion c' (kPa)	Friction angle ϕ'(°)
COLL	19	3	33

4.0 Impact Assessment

4.1 Proposed Development

The proposed scheme comprises 5 nos. of low rise temporary structures, the structures accommodate the main warehouse space, an ancillary office, utility rooms (meter room, washroom, FS pump room, FS control room), and an FS water tank. Since the proposed structures is situated lower than the existing features 3NW-D/C 46 and 3NW-D/C 47, there is no effect or impact to the stability of the features.

4.2 Existing Man-made Features

Features No. 3NW-D/C46

The feature is located outside the site boundary and unlikely to be affected by the proposed development.

No previous stability assessment can be found for the feature no. 3NW-D/C46. In accordance with TGN15, the Site is located beyond the possible extreme travel distance of the potential landslide debris originating from the feature. As the feature present negligible risk to the Site. Thus, no stability assessment is required for the feature.

Feature No. 3NW-D/C47

The feature is located outside the site boundary and unlikely to be affected by the proposed development.

Stage 2 study was carried out for the Feature (S2R 269/2007) in 2008. The study concluded that the sub-divisions 1 and 2 of the feature possess the factor of safety meet the current geotechnical standard. Moreover, the Site is located beyond the possible extreme travel distance of the potential landslide debris originating from the feature in accordance with TGN15. Thus, no further stability assessment is required for the feature.

However, stability of the feature nos. 3NW-D/C46 and 3NW-D/C47 should be reviewed if there is any change in the ground condition of the features (groundwater table, loading, ground profile, distance between the Site and the feature etc.) in associated with the construction of proposed development. Should this review identify any risk of slope failure, upgrading works will be required to maintain the long-term stability of the features and to mitigate its risk to the proposed development.

5.0 Conclusion

Desk study was carried out including background information, existing GI/LT records and geotechnical records/documents. The information were reviewed and presented in this report.

A review of available ground investigation found that the nearest GI information are located over 100m away from the site boundary. Therefore, the design parameters for the proposed development are determined from the stage 2 study report of feature no. 3NW-D/C47, which is in close proximity to the Site.

Stage 2 study was carried out for feature no. 3NW-D/C47 (S2R 269/2007) in 2008. The study concluded that the feature possess the factor of safety meet the current geotechnical standard. No previous stability checking can be found for feature no. 3NW-D/C46. No stability assessment is required for the geotechnical feature nos. 3NW-D/C46 and 3NW-D/C47.

For natural terrain hazards, the Site does not satisfy the "In-principle Objection Criteria" but it satisfy the "Alert Criteria".

To conclude, we consider that the proposed development would not cause any adverse environmental nor geotechnical problems to the surrounding areas. Therefore, the proposed development is considered geotechnically satisfactory from the geotechnical point of view.

6.0 Reference

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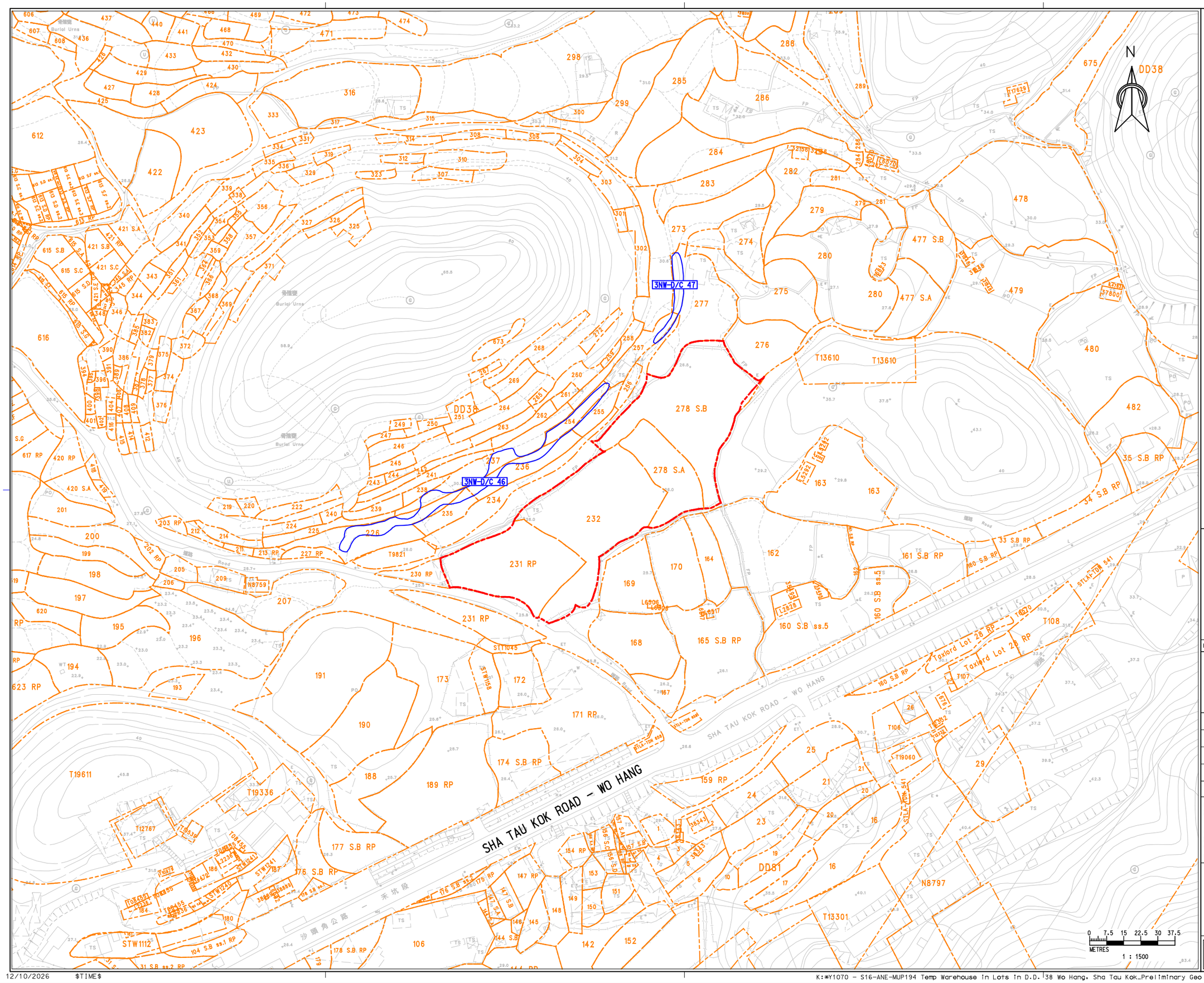
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GEO(2007). *GEO Technical Guidance Note No. 15 (TGN15) Guidelines for Classification of Consequence-to-Life Category for Slope Features.* Geotechnical Engineering Office, Hong Kong,14p.

Drawings



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE APPROXIMATE VALUES AND IN METERS ABOVE HONG KONG PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

SLOPE FEATURE

LOT BOUNDARY

SITE BOUNDARY

Rev.	Description of Revision	Date	Ckd.

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3 AS SHOWN		Date SEP 2026
Designed YKW	Drawn KAM	Checked FY
Design Team Leader FY		Date SEP 2026
Approved FY		Date SEP 2026

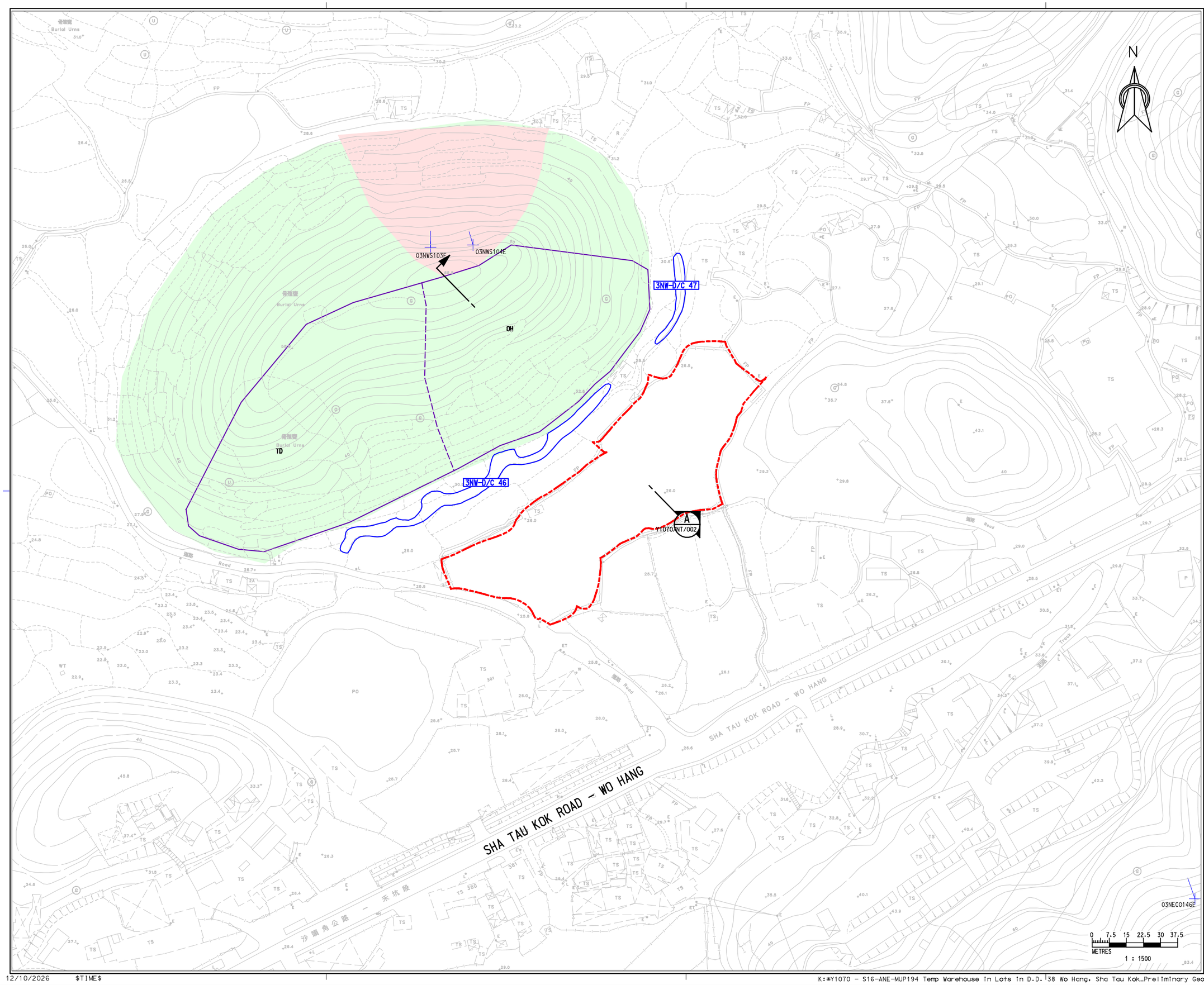
Project

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Title

LAYOUT PLAN

Drawing No.	Stage	Rev.
Y1070/GS/001	I	A



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE APPROXIMATE VALUES AND IN METERS ABOVE HONG KONG PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

- NATURAL HILLSIDE
- SLOPE FEATURE
- HISTORICAL LANDSLIDE CATCHMENT
- RELICT LANDSLIDE CROWN
- RELICT LANDSLIDE TRAIL
- SITE BOUNDARY
- PROPOSED STUDY AREA FOR NTHS
- HILLSIDE CATCHMENT
  OH – OPEN HILLSLOPE
  TD – TOPOGRAHIC DEPRESSION

Rev.	Description of Revision	Date	Ckd.

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3: AS SHOWN		Date: SEP 2026
Designed: YKW	Drawn: KAM	Checked: FY
Design Team Leader: FY		Date: SEP 2026
Approved: FY		Date: SEP 2026

Project

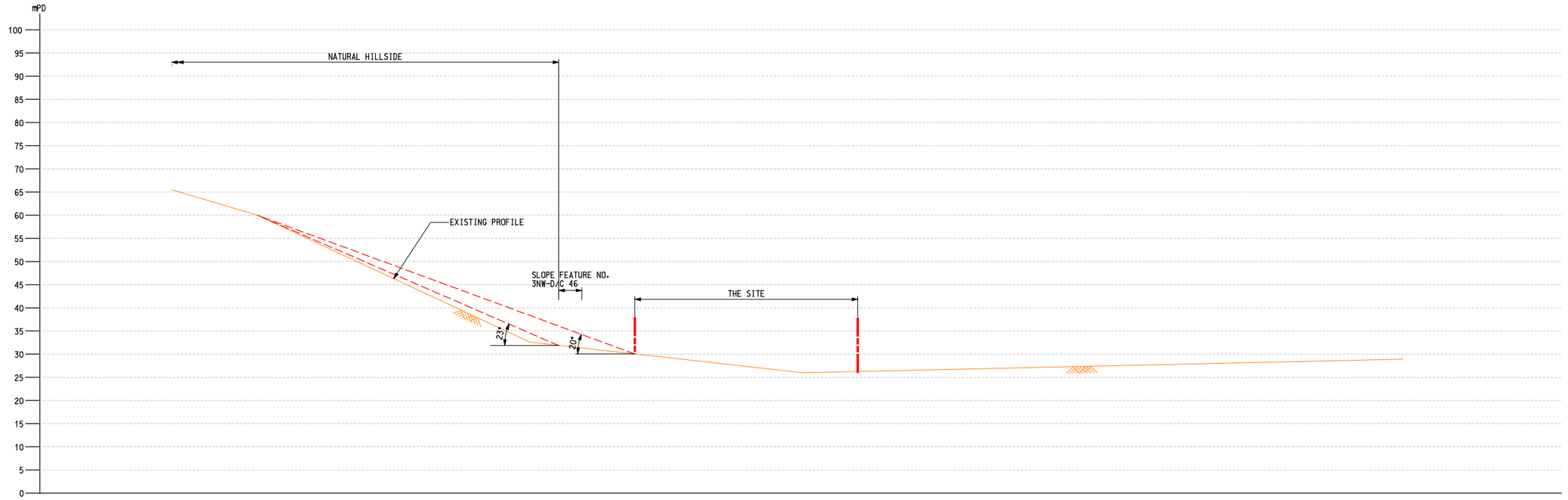
Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Title

NATURAL HILLSIDE LOCATION PLAN

Drawing No.	Stage	Rev.
Y1070/NT/001	I	A

K:*Y1070 – S16-ANE-MUP194 Temp Warehouse in Lots in D.D. 38 Wo Hang, Sha Tau Kok_Preliminary Geo Assessment Report*Ustation*Y1070-NT-001.dgn



SECTION A
SCALE 1:1000

0 5 10 15 20 25
METRES
1 : 1000

NOTES :

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

LEGEND :

ANGULAR ELEVATION

Rev.	Description of Revision	Date	Ckd.

Consultants

MANNINGS (Asia) Consultants Limited

Scale in A3: AS SHOWN	Date: SEP 2026
Designed: YKW	Drawn: KAM / Checked: FY
Design Team Leader: FY	Date: SEP 2026
Approved: FY	Date: SEP 2026

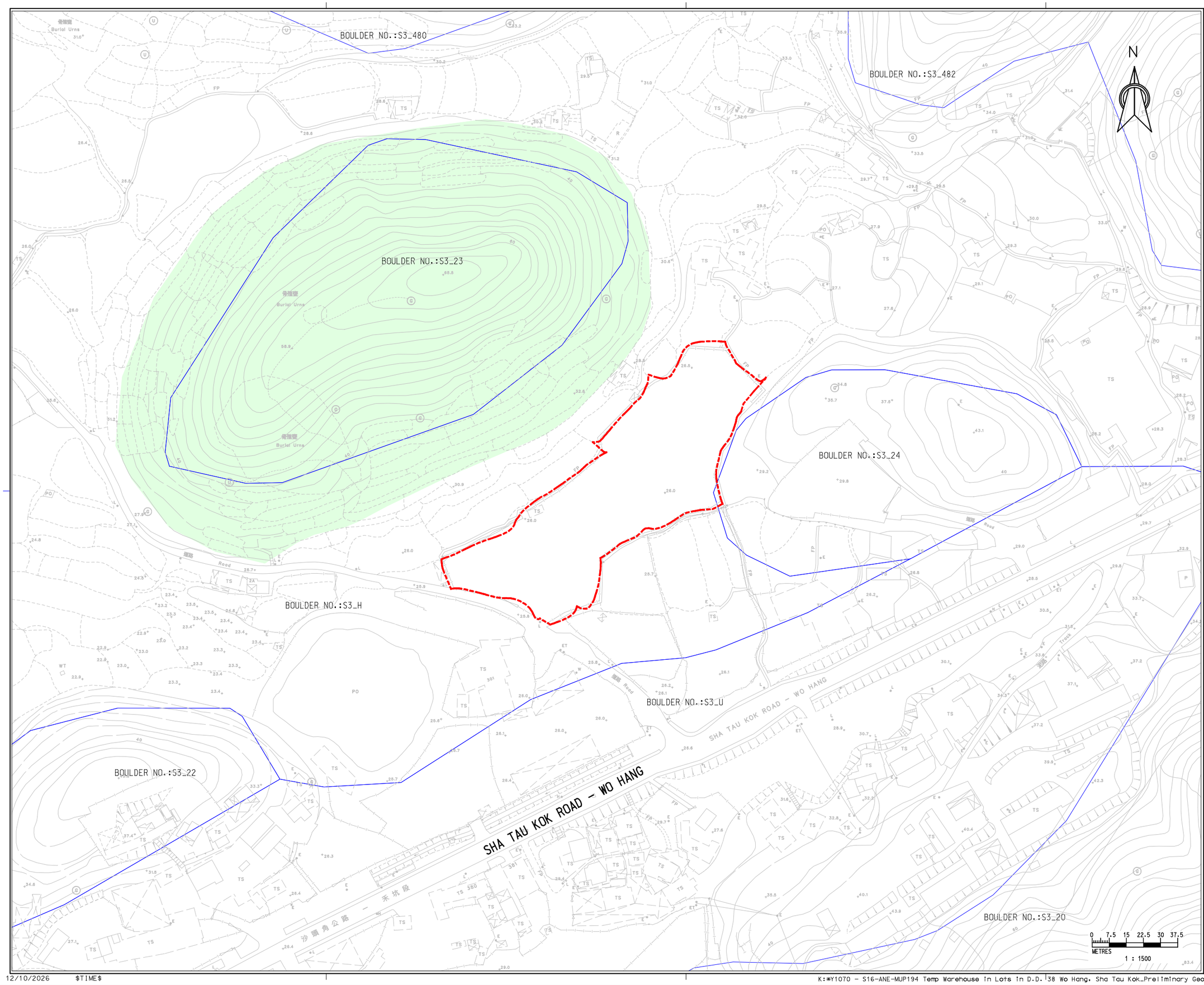
Project

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Title

CROSS - SECTIONS

Drawing No.	Stage	Rev.
Y1070/NT/002	I	A



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE APPROXIMATE VALUES AND IN METERS ABOVE HONG KONG PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

- NATURAL HILLSIDE
- BOULDER INVENTORY
- SITE BOUNDARY

Rev.	Description of Revision	Date	Ckd.

Consultants

MANNINGS (Asia) Consultants Limited

Scale in A3	Date
AS SHOWN	SEP 2026

Designed	Drawn	Checked
YKW	KAM	FY

Design Team Leader	Date
FY	SEP 2026

Approved	Date
FY	SEP 2026

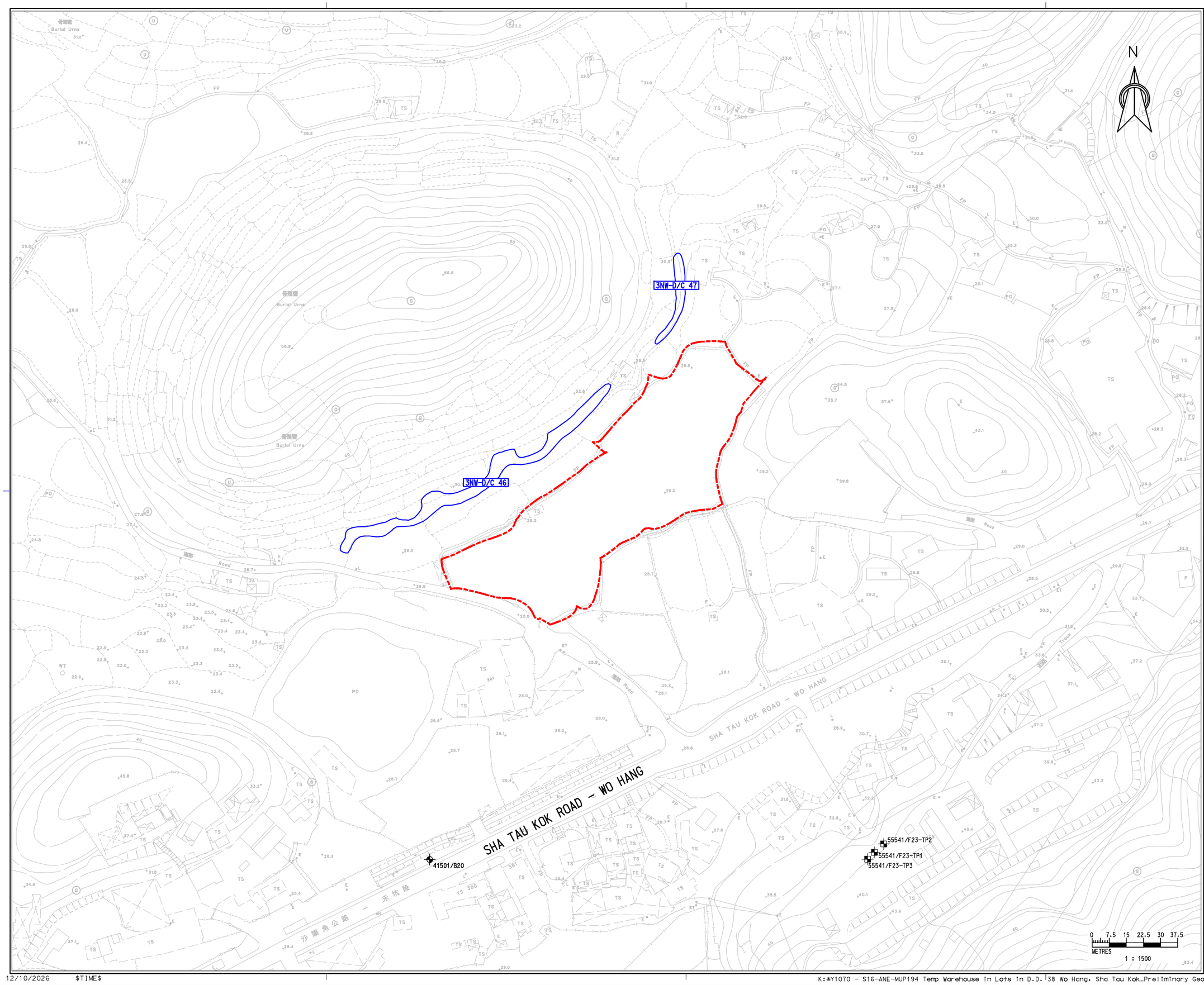
Project

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

Title

BOULDER INVENTORY

Drawing No.	Stage	Rev.
Y1070/NT/003	I	A



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL LEVELS ARE APPROXIMATE VALUES AND IN METERS ABOVE HONG KONG PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

- SITE BOUNDARY
- SLOPE FEATURE
- BOREHOLES
- TRIAL PITS

Rev.	Description of Revision	Date	Ckd.

Consultants

MANNINGS (Asia) Consultants Limited

Scale In A3 AS SHOWN		Date SEP 2026
Designed YKW	Drawn KAM	Checked FY
Design Team Leader FY		Date SEP 2026
Approved FY		Date SEP 2026

Project

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories

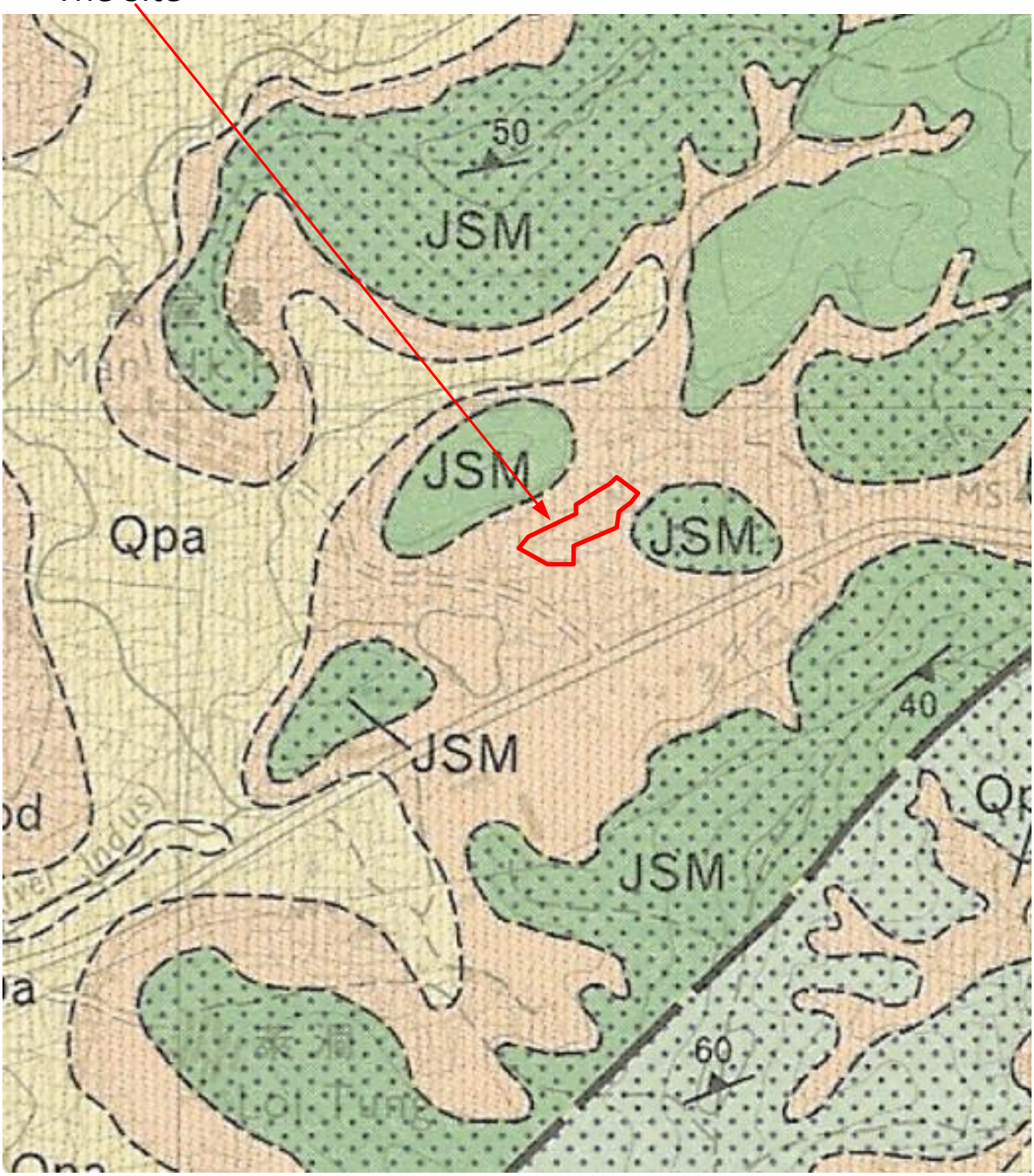
Title

GROUND INVESTIGATION PLAN

Drawing No.	Stage	Rev.
Y1070/GI/001	I	A

Figures

Maps reproduced with permission of the Director of Lands, (C) Hong Kong Government.



Legend:

Qpd — Debris Flow Deposit

From the published 1:20 000 geological map (Hong Kong Geological Survey Sheet No. 3, Sheung Shui, Solid and Superficial Geology), (GEO, 1991) shows that the site is underlain by debris flow deposits (Qpd).

DESIGNED : FY	CHECKED : FY	DRAWN : KAM	PROJECT : Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "AGR" Zone, Various Lots in D.D. 38, Man Uk Pin, New Territories	LOCATION : Wo Hang, Sha Tau Kok, New Territories
APPROVED : FY	DATE : AUG 26	SCALE : NTS		FIGURE TITLE : GEOLOGICAL MAP
PLAN DERIVED FROM :		DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE. © COPYRIGHT RESERVED.		FIGURE NO. : 1 / REV. : -

MANNINGS (Asia) Consultants Limited

PRINTED BY: $USER$ $DATE$ $TIME$
PLOT DRV: $PLTDRV$
MODELNAME: $MODEL$
FILENAME: $FILE$

APPENDIX A

Existing Ground Investigation Records and Laboratory Testing Results

Summary of Existing Ground Investigation Records

Drillhole	Easting	Northing	Ground Level (mPD)	Bottom Level (mPD)					End of Hole	Groundwater Monitoing?	Laboratory Test?
				Top Soil / Fill / Concrete	Colluvium	Alluvium	C/HDT	M/SDT			
41501_B20	837313.12	842697.16	25.74	24.74	-	22.64	16.02	10.51	10.51	Yes	Yes (GIU Ref.41913-14)
55541_F23-TP1	837508.00	842700.30	37.8	37.3	35.8	-	34.5	-	34.5	Yes	No
55541_F23-TP2	837512.10	842704.00	37.8	36.1	35.6	-	34.3	-	34.3	No	No
55541_F23-TP3	837505.00	842697.30	37.8	37.2	35.3	-	34.5	-	34.5	No	No

C/HDT: Completely / Highly Decomposed Tuff
M/SDT: Moderately / Slightly Decomposed Tuff

GEOTECHNICAL INFORMATION
RECEIVED

DRiLTECH

CONTRACT NO. GE/2003/19
GROUND INVESTIGATION – NEW TERRITORIES EAST
(TERM CONTRACT)

WORKS ORDER NO. GE/2003/19.29
Agreement No. CE 6/2002 (DS)
Drainage Improvement in Northern NT – Package C
Investigation, Design and Construction (Man Uk Ping)

Ground Investigation

FINAL FIELD WORK REPORT

Checked in accordance with Contract No. GE/2003/19 requirements and accepted.
Signed _____ Date 14/4/05

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
GEOTECHNICAL INFORMATION UNIT

Report No.	41501
AREA Ref.	

Report Type	Coll. Indicator
☑ Ground Investigation Report	☑ Open Section
☐ Geophysics Report	☐ Govt Section
☐ Groundwater Report	☐ Others
☐ Laboratory Test Report	
☐ Site Specific Non-GEO Report	
☐ Miscellaneous Report	

With ( ) 3½" diskeltes(s)

Certified as Checked

Clement Lun
Geotechnical Engineer

Certified as Complete by

K C Sung
Contractor's Representative

CONTRACTOR
DRiLTECH Ground Engineering Ltd.
Blk A & B, 9/F., Hong Kong Spinners Industrial Bldg.
Phase VI,
481 – 483 Castle Peak Road,
Kowloon.

CLIENT
Geotechnical Engineering Office,
Civil Engineering and Development Department,
25/F, No. 410,
Kwun Tong Road, Kowloon

24th March 2005

DRILLHOLE RECORD

DRiLTECH

CONTRACT NO. **GE/2003/19**

HOLE NO. **B20**

SHEET **1** of **2**

PROJECT **Agreement No. CE6/2002(DS), Drainage Improvement in Northern NT - Package C Investigation, Design and Construction (Man Uk Ping), Ground Investigation**

METHOD **ROTARY**	CO-ORDINATES E **837313.12** N **842697.16**	WORKS ORDER NO. **GE/2003/19.29**
MACHINE **SD-8**		DATE **20.01.2005** to **21.01.2005**
FLUSHING MEDIUM **WATER**	ORIENTATION **VERTICAL**	GROUND LEVEL **+25.74** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
20.01.2005	SW								1 0.45	+25.74	0.00			Light yellowish brown (2.5Y6/4), dry, clayey silty sandy subangular GRAVEL of moderately strong tuff and quartz fragments. (FILL)
										+25.24	0.50			Soft, moist, brown (10YR4/3), sandy clayey SILT with occasional subangular gravel and rootlets. (FILL)
1									2 0.95	+24.74	1.00			Soft, moist, light yellowish brown (2.5Y6/3), slightly sandy, silty CLAY with occasional subangular fine gravel of quartz and rootlets. (ALLUVIUM)
									3 1.45					
2			80	100					4 2.00	+23.74	2.00			Soft, light greenish grey (10Y8/1), silty sandy CLAY with some subangular gravel of quartz. (ALLUVIUM)
									5 3.00					
3	SW								6 3.10	+22.64	3.10		V	Extremely weak, occasionally very weak, light grey (2.5Y7/2) to light yellowish brown (2.5Y6/4), completely decomposed coarse ash crystal TUFF with iron and manganese oxide stained relict joints. (Firm, slightly sandy, clayey SILT with occasional subangular gravel, occasional cobble sized rock fragments)
	PW							1,1 2,3,3,4 N=12	7 3.50					
4			80	100					8 4.00					
		Dry at 1800							9 5.00					
5									10 5.10					
20.01.2005 21.01.2005		1.60 at 0800						4,12 21,27,19,17 N=84	11 5.50					
6			80	100					12 6.00					
									13 7.00	+18.74	7.00			
7								4,13 20,23,35,22/45mm 100blS/270mm	14 7.10				V-IV	Very weak to weak, light yellowish brown (2.5Y6/4), completely to highly decomposed coarse ash crystal TUFF. (Very stiff, sandy clayey SILT with much gravel and occasional cobbles)
									15 7.47					
8	PW								16 8.00					
	HW		80	100										
9								7,18 53,47/35mm 100blS/110mm	17 9.00 18 9.10					
	HW								19 9.31					
10							NI		9.72 T2-101	+16.02	9.72 9.86 10.00		III	Moderately strong, light grey to brownish grey,

SMALL DISTURBED SAMPLE
LARGE DISTURBED SAMPLE
U76 SAMPLE
U100 SAMPLE
PISTON SAMPLE (76mm)
MAZIER / PT SAMPLE
SPT LINER SAMPLE
WATER SAMPLE

STANDARD PENETRATION TEST
IN-SITU VANE SHEAR TEST
IMPRESSION PACKER TEST
PERMEABILITY TEST
PRESSUREMETER TEST
PIEZOMETER TIP
STANDPIPE TIP

LOGGED L. Zhang
DATE 26.01.2005
CHECKED C. Lun
DATE 26.01.2005

REMARKS
1. An inspection pit was excavated to 1.50m deep by hand tools.
2. One piezometer was installed with tip at 9.20m.
3. 5 nos. of piezometer Halcrow Buckets were installed from 0.50m to 2.50m with 0.50m intervals.

DRiLTECH

DRILLHOLE RECORD

CONTRACT NO. **GE/2003/19**

HOLE NO. **B20**

SHEET **2** of **2**

PROJECT **Agreement No. CE6/2002(DS), Drainage Improvement in Northern NT - Package C Investigation, Design and Construction (Man Uk Ping), Ground Investigation**

METHOD **ROTARY**

MACHINE **SD-8**

FLUSHING MEDIUM **WATER**

CO-ORDINATES
E **837313.12**
N **842697.16**

WORKS ORDER NO. **GE/2003/19.29**

DATE **20.01.2005** to **21.01.2005**

GROUND LEVEL **+25.74** mPD

Drilling Progress	Casing Size	Water Level (m) Shift Start/ End	Water Return%	TCR%	SCR%	RQD%	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
11			80	85	52	33	12.2 >20 5.9		T2-101 10.86		10.15 10.38 10.86		III	moderately decomposed coarse ash crystal TUFF. Joints are closely to medium, occasionally very closely spaced, rough planar, very narrow to narrow, iron and manganese oxide stained, dipping at 5° to 15°, 25° to 35° and 65° to 75°.
12			80	100	90	85	7.1		T2-101 12.28					
13			80	100	93	87	>20 7.7		T2-101 13.77		13.38 13.51 13.77 13.87			
14			80	100	97	62	>20 5.6 18.6		T2-101		14.23 14.66			
15 21.01.2005		1.96 at 1800					5.3			+10.51	15.23			
16														End of hole at 15.23 m.
17														
18														
19														
20														

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- U76 SAMPLE
- U100 SAMPLE
- PISTON SAMPLE (76mm)
- MAZIER / PT SAMPLE
- SPT LINER SAMPLE
- WATER SAMPLE
- STANDARD PENETRATION TEST
- IN-SITU VANE SHEAR TEST
- IMPRESSION PACKER TEST
- PERMEABILITY TEST
- PRESSUREMETER TEST
- PIEZOMETER TIP
- STANDPIPE TIP

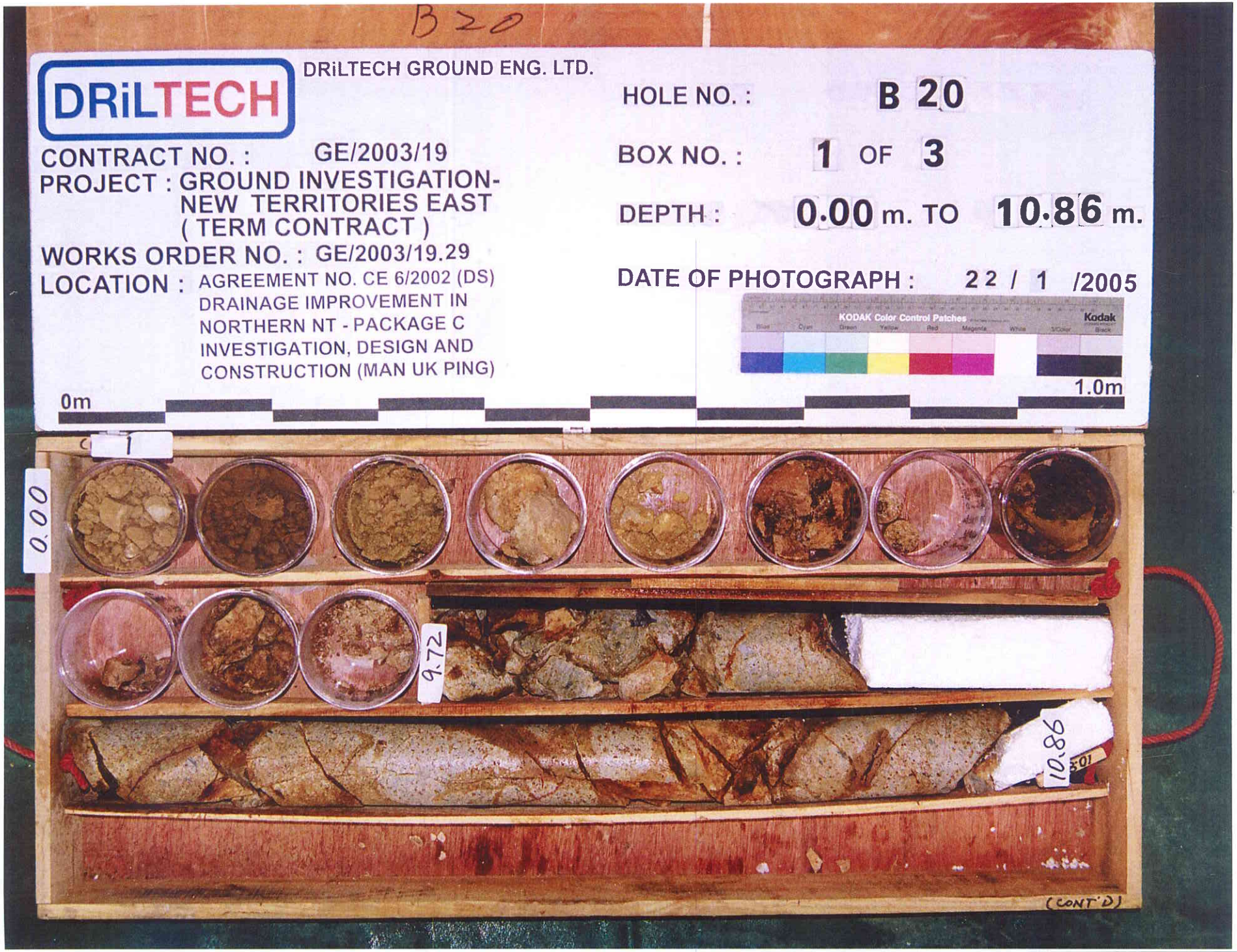
LOGGED **L. Zhang**

DATE **26.01.2005**

CHECKED **C. Lun**

DATE **26.01.2005**

REMARKS


B 20
DRiLTECH
DRiLTECH GROUND ENG. LTD.
HOLE NO. : B 20
CONTRACT NO. : GE/2003/19
BOX NO. : 1 OF 3
PROJECT : GROUND INVESTIGATION-
NEW TERRITORIES EAST
(TERM CONTRACT)
DEPTH : 0.00 m. TO 10.86 m.
WORKS ORDER NO. : GE/2003/19.29
LOCATION : AGREEMENT NO. CE 6/2002 (DS)
DRAINAGE IMPROVEMENT IN
NORTHERN NT - PACKAGE C
INVESTIGATION, DESIGN AND
CONSTRUCTION (MAN UK PING)
DATE OF PHOTOGRAPH : 22 / 1 /2005
KODAK Color Control Patches
Kodak
0m
1.0m
C 1
0.00
9.72
10.86
(CONT'D)


B20
DRiLTECH
DRiLTECH GROUND ENG. LTD.
HOLE NO. : B 20
CONTRACT NO. : GE/2003/19
PROJECT : GROUND INVESTIGATION-
NEW TERRITORIES EAST
(TERM CONTRACT)
BOX NO. : 2 OF 3
WORKS ORDER NO. : GE/2003/19. 29
DEPTH : 10.86 m. TO 14.33 m.
LOCATION : AGREEMENT NO. CE 6/2002 (DS)
DRAINAGE IMPROVEMENT IN
NORTHERN NT - PACKAGE C
INVESTIGATION, DESIGN AND
CONSTRUCTION (MAN UK PING)
DATE OF PHOTOGRAPH : 22 / 1 /2005
KODAK Color Control Patches
Kodak
1.0m
0m
(CONT'D)
10.86
12.28
13.77
(14.33)
(CONT'D)


DRiLTECH
DRiLTECH GROUND ENG. LTD.
HOLE NO. : B 20
CONTRACT NO. : GE/2003/19
PROJECT : GROUND INVESTIGATION-
NEW TERRITORIES EAST
(TERM CONTRACT)
BOX NO. : 3 OF 3
WORKS ORDER NO. : GE/2003/19. 29
DEPTH : 14.33 m. TO 15.23 m.
LOCATION : AGREEMENT NO. CE 6/2002 (DS)
DRAINAGE IMPROVEMENT IN
NORTHERN NT - PACKAGE C
INVESTIGATION, DESIGN AND
CONSTRUCTION (MAN UK PING)
DATE OF PHOTOGRAPH : 22 / 1 /2005
KODAK Color Control Patches
Kodak
0m
1.0m
(CONT'D)
(1433)
15.23
END
(END)

DRiLTECH

WATER LEVEL MONITORING RECORD

Station No. B20

Contract No. : GE/2003/19

Works Order No. : GE/2003/19.29

Project: Agreement No. CE6/2002(DS) Drainage Improvement in Northern NT - Package C Investigation, Design and Construction (Man Uk Ping)

Date of Installation : 22-Jan-05

Measured by : B. Chan

~~Standpipe~~/Piezometer*

Co-ordinates :

E 837313.12 N 842697.16

Ground Level : +25.74mPD

Tip Level : +16.54mPD

Dip Meter I.D. : DT-010-018

Date	Time	Depth of Ground Water Level/below G.L. (m)	Depth of Ground Water/Reduced Level (mPD)	Weather
25-Jan-05	10:00 AM	2.20	+23.54	Fine
26-Jan-05	11:00 AM	2.20	+23.54	Fine
27-Jan-05	4:00 PM	2.20	+23.54	Fine
28-Jan-05	3:00 PM	2.20	+23.54	Fine
29-Jan-05	12:00 PM	2.20	+23.54	Fine
31-Jan-05	1:35 PM	2.21	+23.53	Fine
1-Feb-05	12:50 PM	2.22	+23.52	Fine

Remarks :

* Delete as appropriate

DGEL\Site-F12 03/02 STD

41913

DATA BANK

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.

[redacted]

香港土力混凝土工程有限公司

[redacted]

MATERIAL TESTING LABORATORY

FINAL REPORT

ON

LABORATORY TESTING

GEOTECHNICAL INFORMATION UNIT
20 JUL 2005
RECEIVED

With (1) 3½" diskettes(s)
for 41913-41914

Volume 1 of 2

Client	:	Drainage Services Department
Site / Project	:	Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29
Contract No.	:	GE/2004/41
Service Order No.	:	GE/2004/41.20
GCE Job No.	:	GCE/NT/05020
Date	:	22 June 2005

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
GEOTECHNICAL INFORMATION UNIT
Report No. 41913
AREA Ref.

Check and Certified :

Report Type	Coll. Indicator
☐ Ground Investigation Report	☐ Open Section
☐ Geophysics Report	☐ Govt Section
☐ Groundwater Report	☐ Others
☑ Laboratory Test Report	
☐ Site Specific Non-GEO Report	
☐ Miscellaneous Report	

Certified Accurate and Complete :

See also 41501 41914

Jackel Y.K. Sham
Main Signatory

Samuel T.M. Ho
Person appointed to act for the contractor

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060216

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 **SERVICE ORDER NO.** GE/2004/41.20

JOB NO. GCE/NT/05020 **DATE** 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth	(m)	2.0-2.15	2.15-2.25	2.25-2.4	2.4-2.65	2.65-2.7
Description			Moist brown slightly sandy clayey SILT Alluvium clay				
In-situ	MC 45°C	(%)		35			
	Density Bulk	(Mg/m³)				1.83	
	Density Dry	(Mg/m³)				1.32	
Specific gravity					2.70		
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)						
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay	(%)					37
	Silt	(%)					50
	Sand	(%)					13
	Gravel	(%)					0
Consolidation	e_0		0.5968				
	c_v (for t_{50})	(m²/yr)	2.04-5.92				
	c_v (for t_{90})	(m²/yr)	2.23-7.50				
	m_v	(m²/MN)	0.0977-1.0741				
	Type of test		Oedometer				
Triaxial Compr.	Normal Stress (kPa)	s'					
	Shear Stress (kPa)	t					
	σ_3'	(kPa)					
	Type of test						
Chemical	Organic Matter content	(%)					
	Carbonate Content	(%)					
	Chloride content	(%)					
	pH value						
	Sulphate content	(%)					
	Resistivity (20°C)	Ωm					
	Redox Potential	mV					
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060217

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 SERVICE ORDER NO. GE/2004/41.20

JOB NO. GCE/NT/05020 DATE 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth	(m)	2.7-2.8	2.8-3.0			
Description			Moist brown slightly sandy clayey SILT Alluvium clay				
In-situ	MC 45°C	(%)					
	Density Bulk	(Mg/m³)					
	Density Dry	(Mg/m³)					
Specific gravity							
Atterberg Limits	Liquid Limit (LL)		24				
	Plastic Limit (PL)		12				
	Plasticity Index (PI)		12				
	Liquidity Index (LI)		2.850				
Particle Size	Clay	(%)					
	Silt	(%)					
	Sand	(%)					
	Gravel	(%)					
Consolidation	e_0						
	c_v (for t_{50})	(m^2/yr)					
	c_v (for t_{90})	(m^2/yr)					
	m_v	(m^2/MN)					
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'		76.0			
	Shear Stress (kPa)	t		50.7			
	σ_3'	(kPa)		30			
	Type of test			CUS			
Chemical	Organic Matter content	(%)					
	Carbonate Content	(%)					
	Chloride content	(%)					
	pH value						
	Sulphate content	(%)					
	Resistivity (20°C)	Ωm					
	Redox Potential	mV					
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060218

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 SERVICE ORDER NO. GE/2004/41.20

JOB NO. GCE/NT/05020 DATE 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth	(m)	4.1-4.2	4.3-4.4	4.4-4.5	4.5-4.7	4.7-4.8
Description			Moist yellowish brown sandy SILT CDT - silt				
In-situ	MC 45°C	(%)	17				
	Density Bulk	(Mg/m³)				2.11	
	Density Dry	(Mg/m³)				1.83	
Specific gravity							2.68
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)			N.P.			
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay	(%)			5		
	Silt	(%)			38		
	Sand	(%)			53		
	Gravel	(%)			4		
Consolidation	e_0						
	c_v (for t_{50})	(m^2/yr)					
	c_v (for t_{90})	(m^2/yr)					
	m_v	(m^2/MN)					
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'					
	Shear Stress (kPa)	t					
	σ_3'	(kPa)					
	Type of test						
Chemical	Organic Matter content	(%)					
	Carbonate Content	(%)					
	Chloride content	(%)					
	pH value						
	Sulphate content	(%)					
	Resistivity (20°C)	Ωm					
	Redox Potential	mV					
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
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TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060219

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 **SERVICE ORDER NO.** GE/2004/41.20

JOB NO. GCE/NT/05020 **DATE** 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth (m)		4.8-5.0				
Description			Moist yellowish brown sandy SILT CDT - silt				
In-situ	MC 45°C (%)						
	Density	Bulk (Mg/m³)					
		Dry					
Specific gravity							
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)						
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay (%)						
	Silt (%)						
	Sand (%)						
	Gravel (%)						
Consolidation	e_0						
	c_v (for t_{50}) (m^2/yr)						
	c_v (for t_{90}) (m^2/yr)						
	m_v (m^2/MN)						
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'	288.0				
	Shear Stress (kPa)	t	194.8				
	σ_3' (kPa)		40				
	Type of test		CUS				
Chemical	Organic Matter content (%)						
	Carbonate Content (%)						
	Chloride content (%)						
	pH value						
	Sulphate content (%)						
	Resistivity (20°C) Ωm						
	Redox Potential mV						
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060220

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 SERVICE ORDER NO. GE/2004/41.20

JOB NO. GCE/NT/05020 DATE 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth (m)		6.6-6.8	6.8-7.0			
Description			Moist light brown gravelly silty SAND CDT - silt				
In-situ	MC 45°C (%)						
	Density	Bulk (Mg/m³)					
		Dry					
Specific gravity			2.62				
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)						
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay (%)						
	Silt (%)						
	Sand (%)						
	Gravel (%)						
Consolidation	e_0						
	c_v (for t_{50}) (m^2/yr)						
	c_v (for t_{90}) (m^2/yr)						
	m_v (m^2/MN)						
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'		596.3			
	Shear Stress (kPa)	t		408.5			
	σ_3' (kPa)			55			
	Type of test			CUS			
Chemical	Organic Matter content (%)						
	Carbonate Content (%)						
	Chloride content (%)						
	pH value						
	Sulphate content (%)						
	Resistivity (20°C) Ωm						
	Redox Potential mV						
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060221

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 **SERVICE ORDER NO.** GE/2004/41.20

JOB NO. GCE/NT/05020 **DATE** 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth	(m)	8.15-8.3	8.3-8.4	8.4-8.5	8.6-8.7	8.7-8.8
Description			Moist light brown gravelly very silty SAND CDT - silt				
In-situ	MC 45°C	(%)			11		
	Density Bulk	(Mg/m^3)	2.00				
	Density Dry	(Mg/m^3)	1.78				
Specific gravity				2.65			
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)					N.P.	
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay	(%)					5
	Silt	(%)					17
	Sand	(%)					61
	Gravel	(%)					17
Consolidation	e_0						
	c_v (for t_{50})	(m^2/yr)					
	c_v (for t_{90})	(m^2/yr)					
	m_v	(m^2/MN)					
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'					
	Shear Stress (kPa)	t					
	σ_3'	(kPa)					
	Type of test						
Chemical	Organic Matter content	(%)					
	Carbonate Content	(%)					
	Chloride content	(%)					
	pH value						
	Sulphate content	(%)					
	Resistivity (20°C)	Ωm					
	Redox Potential	mV					
Remarks							

GEOTECHNICS & CONCRETE ENGINEERING (H. K.) LTD.
6 KO SHAN RD., GROUND FL., HUNG HOM, KOWLOON, HONG KONG.
TEL.: 852-2365 9123 FAX NO.: 852-2765 8034

SUMMARY OF SOIL TEST RESULTS

REPORT NO. SUM 05060222

CLIENT Drainage Services Department

SITE Agreement No. CE 6/2002 (DS) Drainage Improvement in Northern New Territories - Package C Investigation, Design and Construction G.I.W.O No. GE/2003/19.29

CONTRACT NO. GE/2004/41 SERVICE ORDER NO. GE/2004/41.20

JOB NO. GCE/NT/05020 DATE 22-6-2005

Site Data	Hole No.		B20				
	Sample / Specimen No.						
	Type		M101				
	Sample Depth	(m)	8.8-9.0				
Description			Moist light brown gravelly very silty SAND CDT - silt				
In-situ	MC 45°C	(%)					
	Density Bulk	(Mg/m^3)					
	Density Dry	(Mg/m^3)					
Specific gravity							
Atterberg Limits	Liquid Limit (LL)						
	Plastic Limit (PL)						
	Plasticity Index (PI)						
	Liquidity Index (LI)						
Particle Size	Clay	(%)					
	Silt	(%)					
	Sand	(%)					
	Gravel	(%)					
Consolidation	e_0						
	c_v (for t_{50})	(m^2/yr)					
	c_v (for t_{90})	(m^2/yr)					
	m_v	(m^2/MN)					
	Type of test						
Triaxial Compr.	Normal Stress (kPa)	s'	300.7				
	Shear Stress (kPa)	t	193.9				
	σ_3'	(kPa)	65				
	Type of test		CUS				
Chemical	Organic Matter content	(%)					
	Carbonate Content	(%)					
	Chloride content	(%)					
	pH value						
	Sulphate content	(%)					
	Resistivity (20°C)	Ωm					
	Redox Potential	mV					
Remarks							

CONTRACT NO. 2/LANDS/10

UPGRADING / IMPROVEMENT WORKS TO LANDS DEPARTMENT SLOPES IN THE NORTHERN REGIONS

WORKS ORDER NO. LD210/11/033

FEATURE NO. 3NE-C/F23 SHA TAU KOK ROAD WEST OF SHEUNG WO HANG, NORTH

FINAL FIELDWORK REPORT

(REPORT NO.: J1101S26(TFL)/F23-01)

CLIENT
Lands Department

CONSULTING ENGINEER
Fugro (Hong Kong) Limited

[redacted]

MAIN CONTRACTOR
Marshall-Karson Construction & Engineers Limited

[redacted]

G.I. CONTRACTOR
Tysan Foundation Limited

[redacted]

Date: 28th June 2011

TYSAN FOUNDATION LIMITED 泰昇地基工程有限公司

PROJECT: Upgrading / Improvement Works to Lands Department Slopes in the Northern Regions (Feature No. 3NE-C/F23, Sha Tau Kok Road, West of Sheung Wo Hang North)

W.O. No. LD210/11/033 | CONTRACT No. 2/LANDS/10

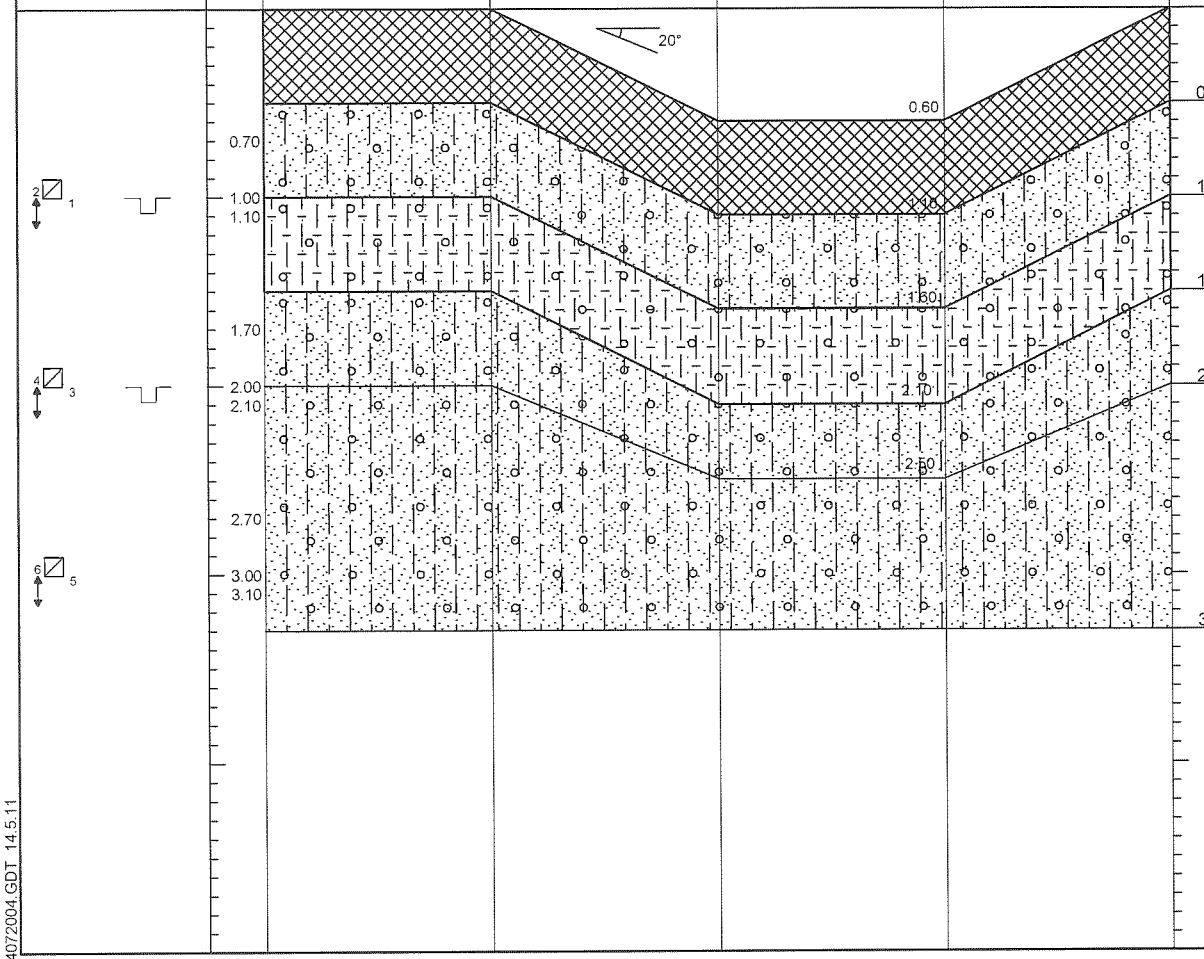
Logged by : K.H. LAI
Date : 12/05/2011
Checked by : EDWARD CHENG
Date : 13/05/2011

Co-ordinates :
E 837508.00
N 842700.30
Ground Level : +37.80 mPD

Excavation Dates:
15/04/2011 to 09/05/2011
Backfill Dates:
24/06/2011

TRIAL PIT No.
F23-TP 1

TRIAL PIT RECORD

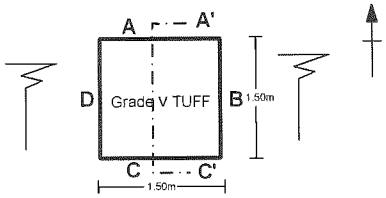


Sample & Tests	Depth (m)	Depth (m)	Legend	Grade	Description
		0.50			Very loose to loose, brown and dark brown, very silty fine to coarse SAND with some angular fine to coarse gravel of brick and rock fragments with rubbish. (FILL)
2 1	0.70 1.00 1.10	1.00			Greyish brown and reddish brown, very silty fine to coarse SAND with much subangular to subrounded fine to coarse gravel of highly to moderately decomposed tuff fragments. (COLLUVIUM)
		1.50			Firm, reddish brown, sandy clayey SILT with occasional angular to subrounded highly to moderately decomposed tuff fragments. (COLLUVIUM)
4 3	1.70 2.00 2.10	2.00			Greyish brown and reddish brown, very silty fine to coarse SAND with much subangular to subrounded fine to coarse gravel of highly to moderately decomposed tuff fragments. (COLLUVIUM)
	2.70			V	Extremely weak, pinkish brown mottled yellowish grey, completely decomposed metamorphosed coarse ash TUFF. (Very silty fine to medium SAND with occasional subangular fine to coarse gravel sized tuff fragments with locally clayey silt patches)
6 5	3.00 3.10	3.30			Bottom of pit at 3.30m.

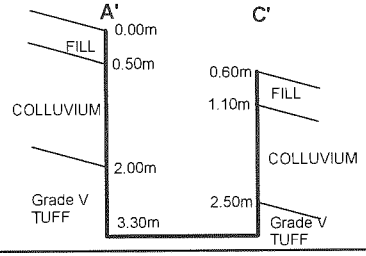
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N-Schmidt Hammer

PLAN



SECTION



REMARKS

1. No seepage observed.
2. Shoring installed to full depth.
3. Average depth of trial pit was 3.00m depth.
4. Trial pit was stable during excavation.
5. A standpipe installed to 2.70m depth.

TRIAL PIT No.
F23-TP 1

TRIAL PIT LOG 033-F23.GPJ TYSAN3 2407/2004.GDT 14.5.11

F077-061125

TYSAN FOUNDATION LIMITED 泰昇地基工程有限公司

PROJECT: Upgrading / Improvement Works to Lands Department Slopes in the Northern Regions (Feature No. 3NE-C/F23, Sha Tau Kok Road, West of Sheung Wo Hang North)

W.O. No. LD210/11/033 | CONTRACT No. 2/LANDS/10

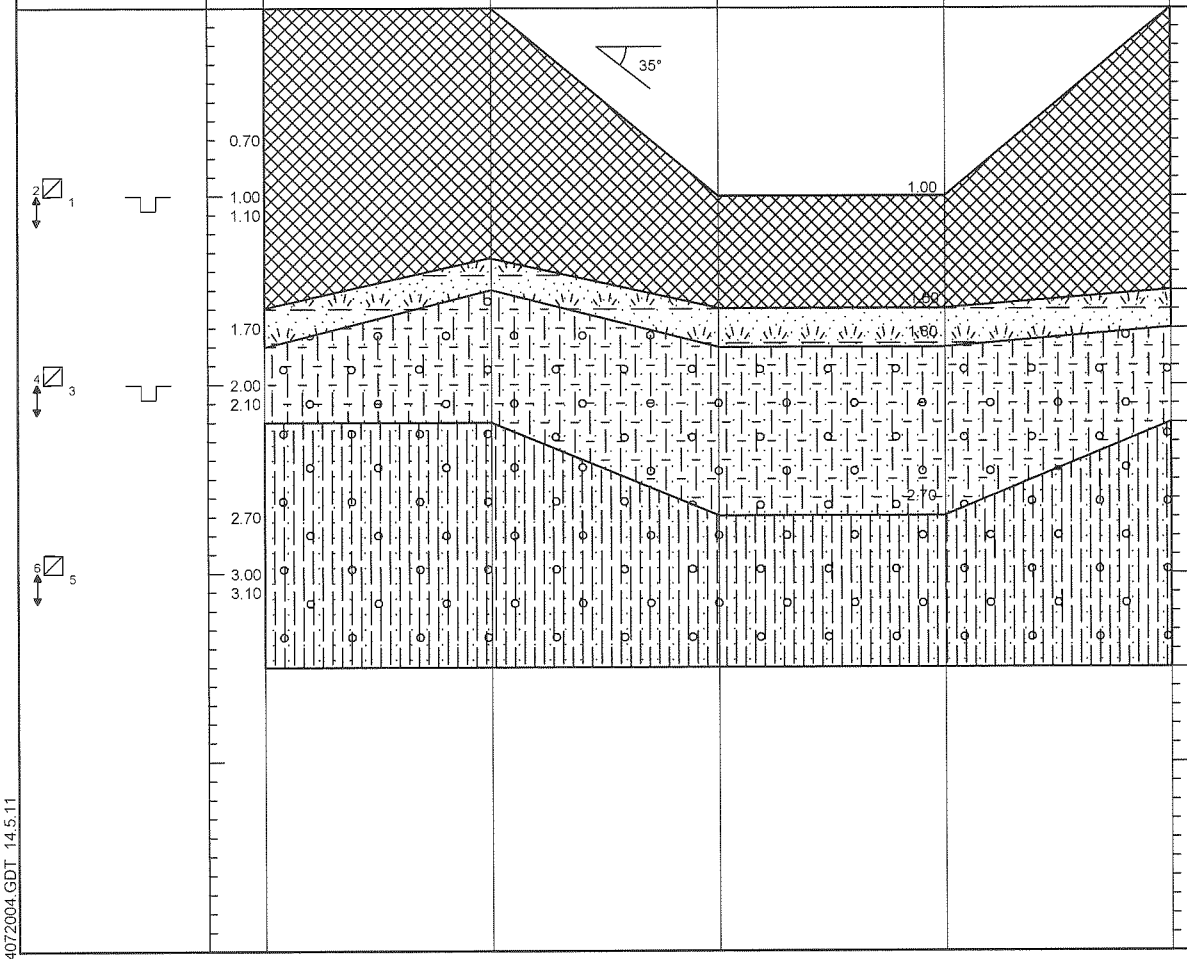
Logged by : K.H. LAI
Date : 12/05/2011
Checked by : EDWARD CHENG
Date : 13/05/2011

Co-ordinates :
E 837512.10
N 842704.00
Ground Level : +37.80 mPD

Excavation Dates: 06/05/2011 to 09/05/2011
Backfill Dates: 24/06/2011

TRIAL PIT No. F23-TP 2

TRIAL PIT RECORD

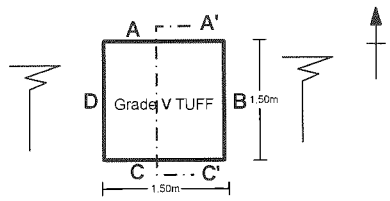


Depth (m)	Legend	Grade	Description
0.00 – 1.50			Very loose to loose, reddish brown and greyish brown, very silty fine to coarse SAND with some to much angular fine to coarse gravel and cobble sized concrete, brick and rock fragments with much rubbish. (FILL)
1.50 – 1.70			Brown, very silty fine to coarse SAND with occasional angular fine to medium gravel sized rock fragments. (OLD TOPSOIL)
1.70 – 2.20			Firm, reddish brown, sandy clayey SILT with occasional subangular to subrounded fine to coarse gravel and cobble sized moderately decomposed tuff fragments. (COLLUVIUM)
2.20 – 3.50		V	Extremely weak, reddish brown mottled grey and brown, completely decomposed metamorphosed coarse ash TUFF. (Sandy SILT with some angular fine gravel sized tuff fragments)
3.50			Bottom of pit at 3.50m.

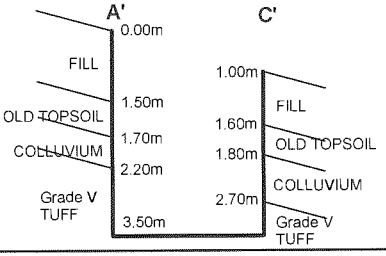
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N-Schmidt Hammer

PLAN



SECTION



REMARKS

1. No seepage observed.
2. Shoring installed to full depth.
3. Average depth of trial pit was 3.00m depth.
4. Trial pit was stable during excavation.

TRIAL PIT No. F23-TP 2

TRIAL PIT LOG 033-F23.GPJ TYSAN3 24072004.GDT 14.5.11

F077-061125

TYSAN FOUNDATION LIMITED 泰昇地基工程有限公司

PROJECT: Upgrading / Improvement Works to Lands Department Slopes in the Northern Regions (Feature No. 3NE-C/F23, Sha Tau Kok Road, West of Sheung Wo Hang North)

W.O. No. LD210/11/033 | CONTRACT No. 2/LANDS/10

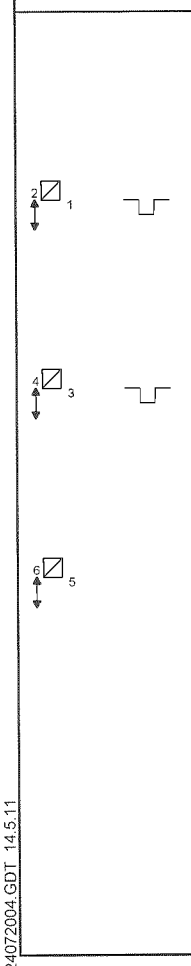
Logged by : K.H. LAI
Date : 12/05/2011
Checked by : EDWARD CHENG
Date : 13/05/2011

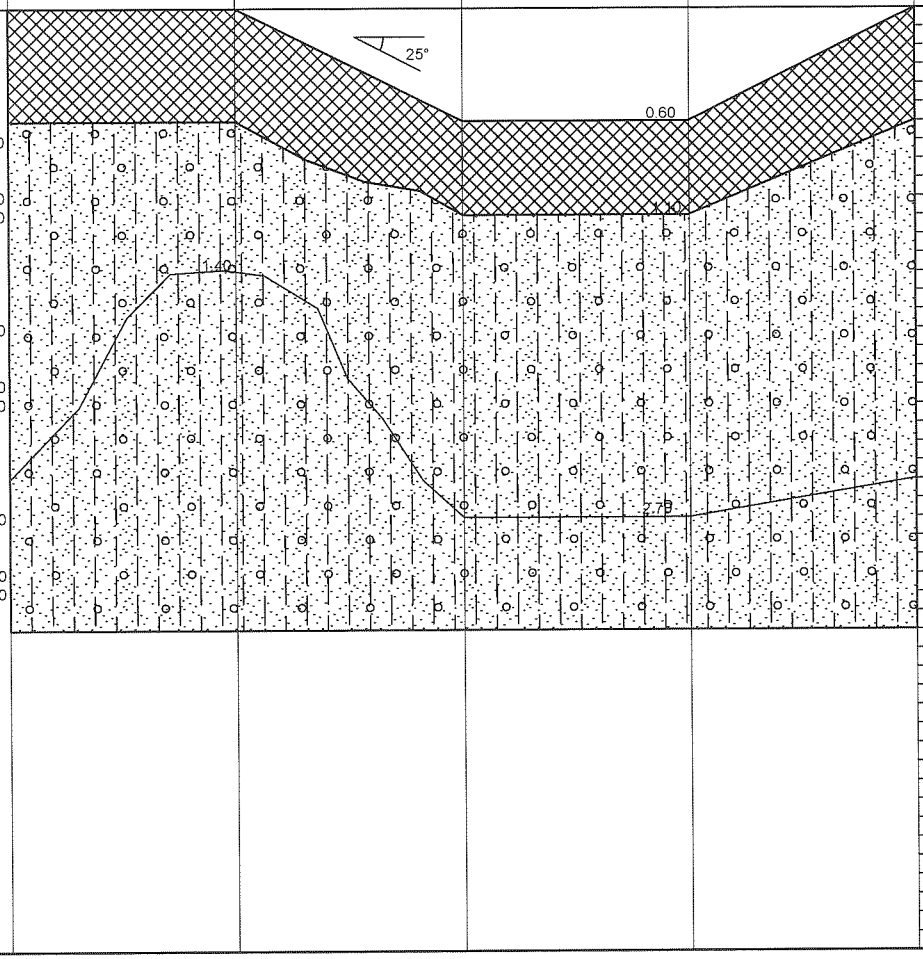
Co-ordinates :
E 837505.00
N 842697.30
Ground Level : +37.80 mPD

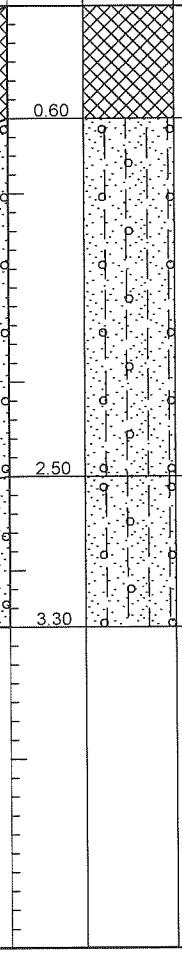
Excavation Dates:
15/04/2011 to 06/05/2011
Backfill Dates:
24/06/2011

TRIAL PIT No.
F23-TP 3

TRIAL PIT RECORD





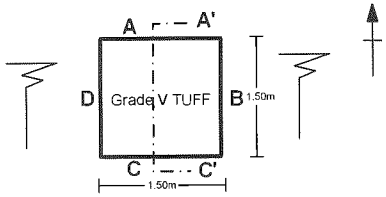


Grade	Description
	Very loose to loose, brown and dark brown, very silty fine to coarse SAND with some angular fine to coarse gravel of brick and rock fragments with rubbish. (FILL)
	Greyish brown and reddish brown, very silty fine to coarse SAND with much subangular to subrounded fine to coarse gravel of highly to moderately decomposed tuff fragments. (COLLUVIUM)
V	Extremely weak, pinkish brown mottled yellowish grey, completely decomposed coarse ash TUFF. (Very silty fine to medium SAND with occasional subangular fine to coarse gravel sized tuff fragments with locally clayey silt patches)
	Bottom of pit at 3.30m.

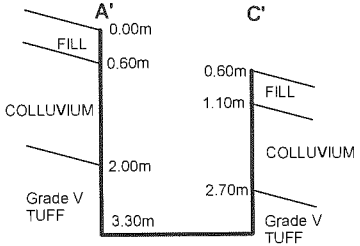
SYMBOL

- Small disturbed sample
- Large disturbed sample
- Undisturbed vertical sample
- Undisturbed horizontal sample
- Block sample
- In-situ density test
- Water sample
- Water seepage
- N-Schmidt Hammer

PLAN



SECTION



REMARKS

1. No seepage observed.
2. Shoring installed to full depth.
3. Average depth of trial pit was 3.00m depth.
4. Trial pit was stable during excavation.

TRIAL PIT No. F23-TP 3

TRIAL PIT LOG 033-F23.GPJ TYSAN3 24072004.GDT 14.5.11

F077-061125

TYSAN FOUNDATION LIMITED 泰昇地基工程有限公司	GROUND WATER MONITORING RECORD	Drillhole No. : F23-TP1 Pipe No. : S

Project : 2/LANDS/10 ~ Upgrading/Improvement Works to Lands Department Slopes in the Northern Regions Works Order No. LD210/11/033 (Feature No.: 3NE-C/F23)

Instrument Installed :	Standpipe	**Co-Ordinates**		**Buckets No. :**	5
Depth of Pipe Tip below G.L. :	2.70 m	**E**	837508.00	**Buckets Depth :**	0.50m - 2.50m
Pipe Top below Ground Level :	0.03 m	**N**	842700.30	**Buckets Spacing :**	0.50m
Ground Level :	+37.80 mPD	**Initial Groundwater Level:**	Dry	**Date installed :**	23/07/2011

Date	Time	Dip Meter Reading		Piezometer Bucket Record			Weather	Recorded By
				Buckets Found to Contain Water	GWL From Buckets			
		m BGL	m PD		m BGL	m PD		
06-07-2011	10:30	Dry	-	NIL	-	-	Fine	F. Cheung
07-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung
08-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung
09-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung
11-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung
12-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung
13-07-2011	10.30	Dry	-	NIL	-	-	Fine	F. Cheung

Bucket No.:	1	2	3	4	5			
Depth (m)	0.50	1.00	1.50	2.00	2.50			

APPENDIX B

Slope Information System Records

BASIC INFORMATION

Location:	SOUTH-EAST OF MAN UK PIN, NORTH DISTRICT
Registration Date:	24-10-1997
Ranking Score (NPRS):	0 (Notional)
Date of Formation:	pre-1977
Date of Construction/ Modification:	
Data Source:	SIRST
Approximate Coordinates:	Easting : 837339 Northing : 842863

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Undeveloped green belt
Distance of Facility from Crest (m):	1
Facility at Toe:	District open space
Distance of Facility from Toe (m):	0
Consequence-to-life Category:	3
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 4 Length (m): 140 Average Angle (deg): 45

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 1	Private Feature	Party: DD38 Lot226	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 02-04-1998
(2) Sub Div.: 2	Private Feature	Party: DD38 Lot237	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 02-04-1998
(3) Sub Div.: 3	Private Feature	Party: DD38 Lot235	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 02-04-1998
(4) Sub Div.: 4	Private Feature	Party: DD38 Lot236	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 02-04-1998
(5) Sub Div.: 5	Private Feature	Party: DD38 Lot254	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 02-04-1998

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection:	17-03-2001
Data Source:	SIRST
Slope Part Drainage:	N/A
Wall Part Drainage:	N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 10 Vegetated: 90 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: Colluvium
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

N/A

SERVICES

N/A

CHECKING STATUS INFORMATION

N/A

BACKGROUND INFORMATION

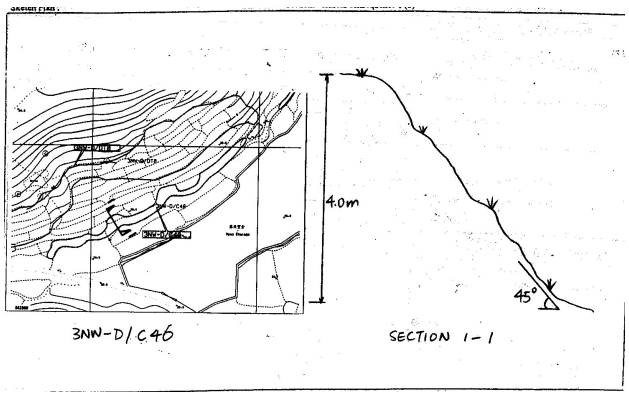
GIU Cell Ref.:	3NW25B6
Map Sheet Reference (1:1000):	3NW-25B
Aerial Photos:	Y10133-4 (1963),
Nearest Rainguage Station (Station Number):	Cheung Chi House, Cheung Wah Estate(N05)
Data Collected On:	17-03-2001
Date of Construction, Subsequent Modification and Demolition:	Modification: Constructed Before: 1963 After: 0 Modification: Constructed Before: 1963 After: N/A
Related Reports/Files or Documents:	File/Report: Other Ref. No.: None File/Report: PWDC Ref. No.: GC 4/1/2-3 f (19) Pt. VI File/Report: PWDC Ref. No.: GC 4/1/2-3 f(19) pt.VI File/Report: Peizometres Ref. No.: N
Remarks:	N/A
Follow Up Actions:	N/A
DH-Order (To Be Confirmed with Buildings Department):	None
Advisory Letter (To Be Confirmed with Buildings Department):	None
LPMIS:	None

ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

STAGE 1 STUDY REPORT

Inspected On:	17-03-2001
Weather:	Mainly Fine
District:	ME



Section No:	1-1
Height(m):	H1 : 4 , H2 : 0
Type of Toe Facility:	District open space
Distance from Toe(m):	0
Type of Crest Facility:	Undeveloped green belt
Distance from Crest(m):	1
Consequence Category:	3
Engineering Judgement:	U
Section No:	2-2
Type of Toe Facility:	N/A
Distance from Toe(m):	0
Type of Crest Facility:	N/A
Distance from Crest(m):	0
Consequence Category:	3
Engineering Judgement:	U
Sign of Seepage:	Slope : No signs of seepage Wall : N/A
Criterion A satisfied:	N
Sign of Distress:	Slope : N/A Wall : N/A
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A

Consequence category (for critical section):	3
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	N
Action By:	N/A

OTHER EXTERNAL ACTION

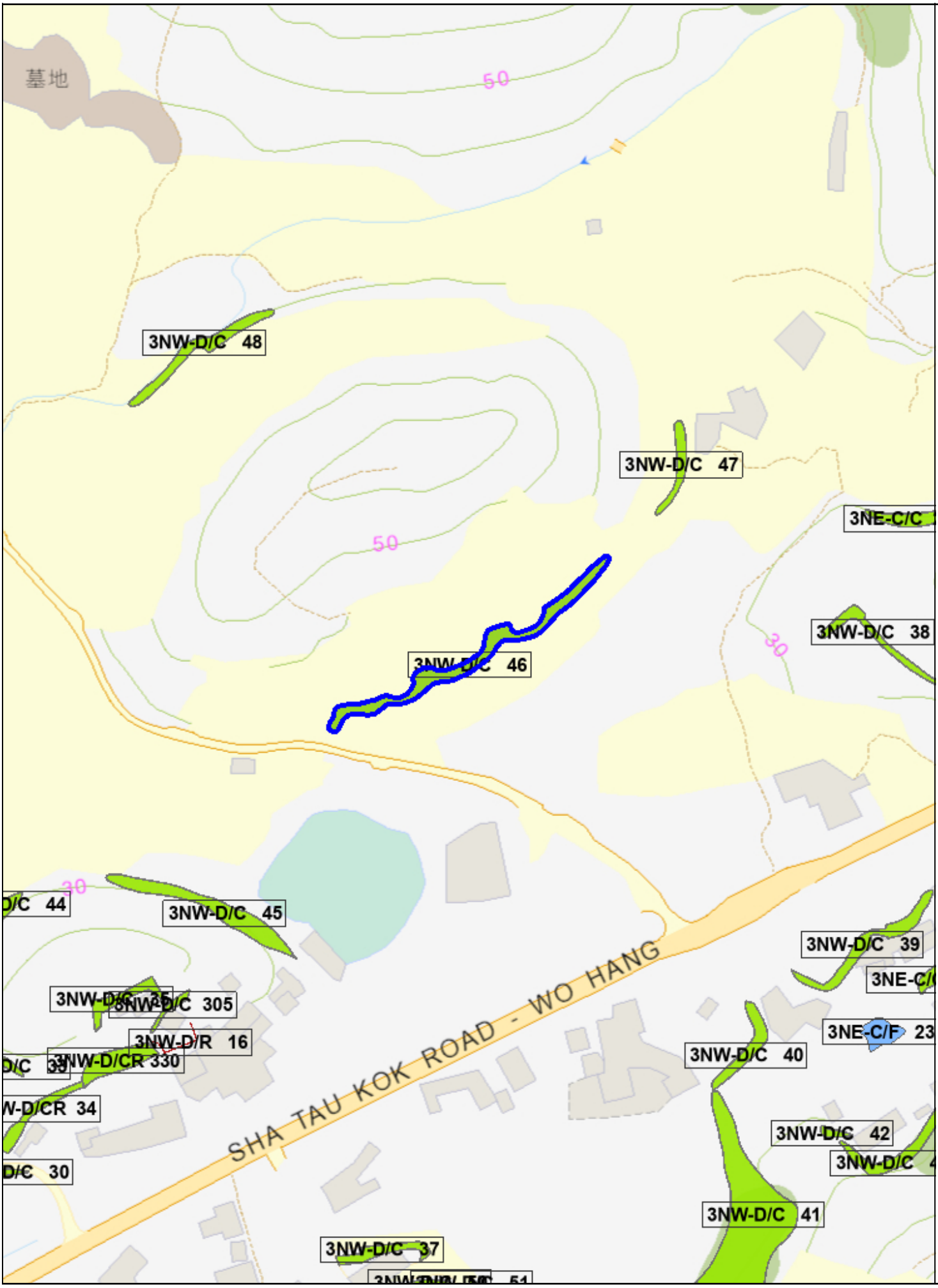
Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

PHOTO








墓地
50
50
30
30
3NW-D/C 48
3NW-D/C 47
3NE-C/C
3NW-D/C 38
3NW-D/C 46
3NW-D/C 45
3NW-D/C 44
3NW-D/C 39
3NE-C/C
3NW-D/C 305
3NW-D/R 16
3NW-D/CR 330
3NE-C/F 23
3NW-D/C 40
3NW-D/CR 34
3NW-D/C 42
3NW-D/C 30
3NW-D/C 41
3NW-D/C 37
SHA TAU KOK ROAD - WO HANG

Slope Maintenance Responsibility Report (3NW-D/C46)	**ESTATE MANAGEMENT SECTION** **LANDS DEPARTMENT**

List of Slope Maintenance Responsibility Area(s)

1	**3NW-D/C46**		**Sub-Division**	1
	Location	PARTLY WITHIN DD38 LOT237, LOT254, LOT226, LOT235 & LOT236		
	Responsible Lot/Party	DD38 Lot226	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		
2	**3NW-D/C46**		**Sub-Division**	2
	Location	PARTLY WITHIN DD38 LOT237, LOT254, LOT226, LOT235 & LOT236		
	Responsible Lot/Party	DD38 Lot237	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		
3	**3NW-D/C46**		**Sub-Division**	3
	Location	PARTLY WITHIN DD38 LOT237, LOT254, LOT226, LOT235 & LOT236		
	Responsible Lot/Party	DD38 Lot235	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		
4	**3NW-D/C46**		**Sub-Division**	4
	Location	PARTLY WITHIN DD38 LOT237, LOT254, LOT226, LOT235 & LOT236		
	Responsible Lot/Party	DD38 Lot236	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		
5	**3NW-D/C46**		**Sub-Division**	5
	Location	PARTLY WITHIN DD38 LOT237, LOT254, LOT226, LOT235 & LOT236		
	Responsible Lot/Party	DD38 Lot254	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		

- End of Report -

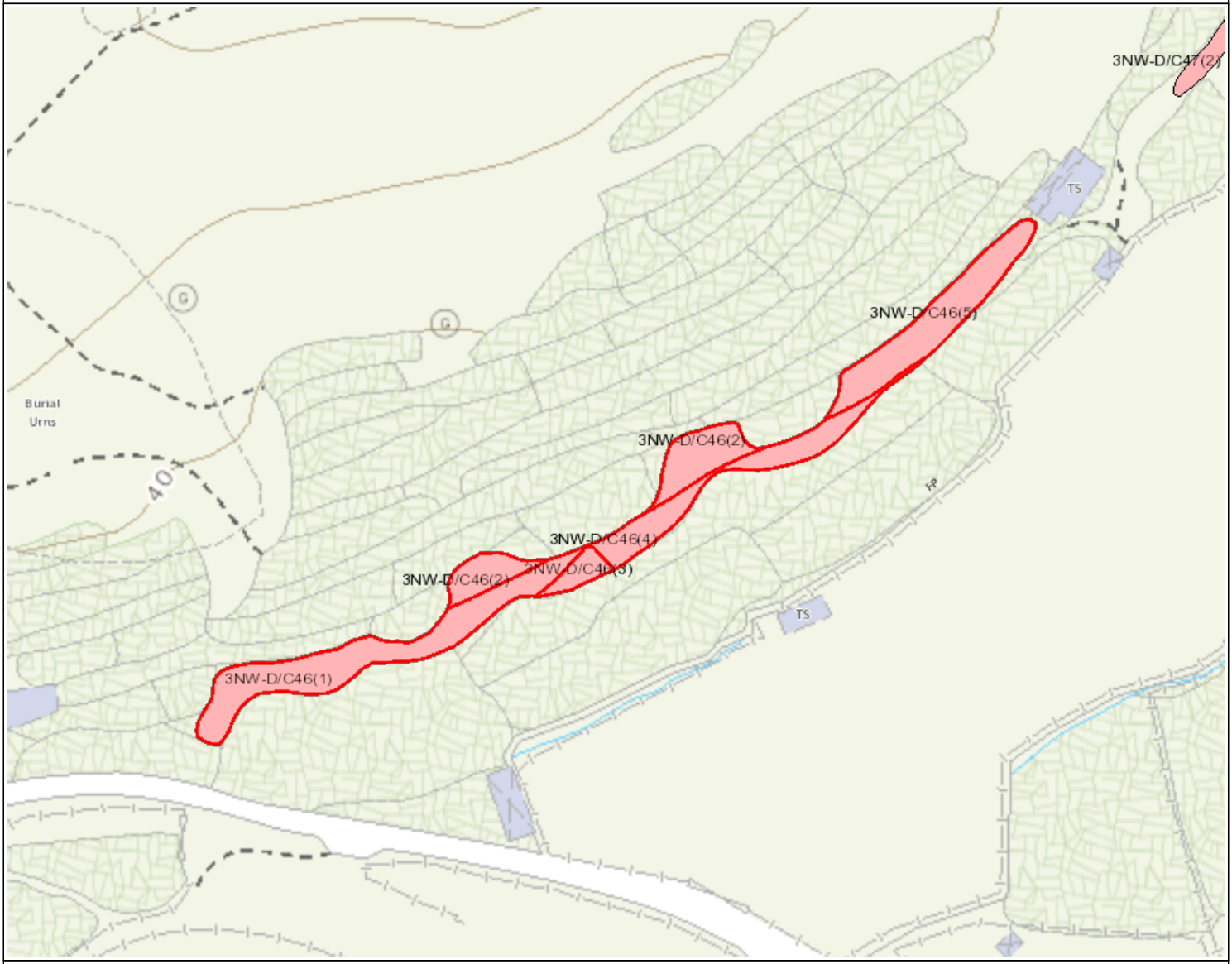
Notes:

(i) The location plan in Annex is for identification purposes of slope(s) only.

(ii) The slope(s) as listed in the Slope Maintenance Responsibility Report may not be shown on the location plan in Annex.

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Location Plan



Legend

- Slope Area(s)
- Search Location
- Slope(s) Maintained by Government
- Slope(s) Maintained by Private Party/Parties
- Slope(s) Maintained by Government and Private Party/Parties

ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

This Plan is **NOT TO SCALE** and intended for **IDENTIFICATION** only. All information shown on this plan **MUST** be verified by field survey.

Printed on: 31/08/2026

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PHASE 2 SYSTEMATIC INSPECTION OF FEATURES IN THE TERRITORY (SIFT 2 Version 4.5)

Version 4.5 (1.12.96)

SIFT No: 3NW-25B/S 30 GEO Reg. No: _____ Grid Ref. : See - Table 4 in SIFT Report

Location: CENTRE EASTERN SECTION OF MAP

1. Registration Criteria from GEO Circular 7/93:

R greater than 3m high. F or FR greater than 5m high.
F or FR less than 5m high which pose a direct risk to life in the event of failure. } Part of Larger Fill Body (Y / N)
C or CR greater than 3m high.

WC (Work Complete)
WIP (Work In Progress) } Date: _____, registerable features may be present.

ADT (Abandoned Disturbed Terrain), Type _____

NR does not meet GEO slope registration criteria _____ NE no longer exists _____

OTHER _____

2. SIFT Classification: from Guidelines for Phase 2 SIFT Version 3.1 and Addendum 5

Aerial Photograph Year and Number 1963 (Y10133 Y10134)

☐ Class A Fill feature considered to have similar circumstances to the Baguio landslide site.

Class B Fill feature considered to meet GEO criteria for slope registration but does not meet criteria A.

☐ B1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ B2 Have been formed or substantially modified after 30.6.78, studied to GEO Stage 2, or equivalent or to be Housing Dept. Feature.

Class C Cut feature considered to meet GEO criteria for slope registration.

☒ C1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ C2 Have been formed or substantially modified after 30.6.78

Formation/~~Modification~~ before or ~~after~~ 30.6.78 determined by :- } ☒ Confirmed by API FORMED PRE 1963 ☐ Assumed (Reason: _____)

3. Consequence: *(Modified B&P Assessment of Risk for A, B1 only. See Section 4 below for details.)*

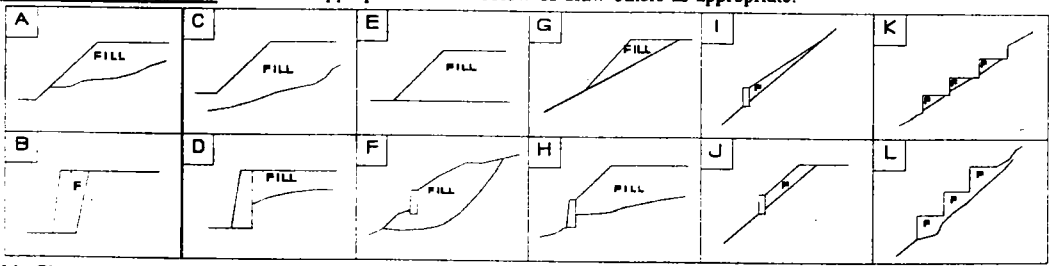
☐ Low ☐ Low to moderate ☐ Moderate ☐ Moderate to High ☐ High ☐ Very High

4. Modified B&P Assessment of Risk : (For Class A,B1 only)

4.1 Feature Dimensions

Estimated Slope Height _____m. Estimated Slope Length _____m. Estimated Slope Gradient _____°.
Estimated Retaining Wall Height _____m. Estimated Max. Fill Width _____m. Estimated Fill Thickness _____m.
Total Height of Feature _____m. Part of Larger Fill Body ? (Y / N)
Volume Calculation _____ Estimated Fill Volume _____m³.

4.2 Estimated critical section profile: circle the appropriate model below or draw others as appropriate.



4.3 Topographic Situation

Adjacent / Traversed : Drainage Line / Topographic Depression or Spurline / Planar Slope

Catchment area : (1=<100m², 2=100-500m², 3=500-1000m², 4=1000-10000m², 5= >10000m²)

To Fill Body _____ To Drainage Line (if Affected Structure located downstream) _____

Intervening Ground, feature to facility: Platform / Slope / Drainage Line . Natural / Cut / Fill . Vegetation (Y / N)

Debris Trail : Channelisation ; Spread ; Erosion and Entrainment ; Assumed to occur along debris trail

4.4 Facilities

Facility(ies) below feature. Bus Shelter (Y / N)

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility(ies) on slope/platform of feature: road / building / other _____

4.5 Consequences of Slope Failure / Remarks :

_____

_____

Compiled by D. K. THOMAS **API CONSULTANT/** 7 **dated** 18 FEBRUARY **1997**

TE15\SIFTFM44.V1

Agreement No.GEO 10/2000
Collection of Parameters for Additional Private Slopes
Requiring the Application of the
New Priority Classification System (NPCS)

CHECKING AND REVIEWING OF FEATURE RECORD

FEATURE NO.: 3NW-D/C46

CHECKING

Description	Checked by			
	Name	Post	Initial	Date
Background Information (form ES-F-02)	Peter K. H. Tsai	G.E.		
Field Observation	Peter K. H. Tsai	G.E.		19/3/01
Stage 1 Report	Peter K. H. Tsai	G.E.		
NPCS Record Sheets	Peter K. H. Tsai	G.E.		

REVIEW/VERIFICATION

Description	Reviewed by			
	Name	Post	Initial	Date
Background Information (form ES-F-02)	Alan W. L. Chan	G.E.	AC	20/3/01
Field Observation	Alan W. L. Chan	G.E.	AC	20/3/01
Stage 1 Report	Alan W. L. Chan	G.E.	AC	20/3/01
NPCS Record Sheets	Alan W. L. Chan	G.E.	AC	20/3/01

Description	Name	Initial	Date
Verification (by LGE)	Joseph Y. C. Lo	JL	21-03-2001

12468

SIRST - FIELD SHEET(FIELD OBSERVATION)

GENERAL

P11

Sift No: 3NW - 25B / S 30

Examples
15NE- 4C/S123
7SW-12A/S 6

Feature No: 3NW - D / C - 46

11SW-A/C -1013
7NE-B/FR- 5

Slope/Wall Location: SOUTH-EAST OF MAN UK PIN, NORTH DISTRICT
北區萬屋邊東南面

Toe Elevation: 26.0

Examples
Date: 30/ 1/97
8/12/96

Inspected/Checked date	Inspected by (TO)	Checked by	Consequence Category	Weather (past 48 hours to now)
17/03/01	CMC	KLL	○ 1-H ○ 2-L ● 3-N	● Mainly Fine ○ Some Rain ○ Heavy Rain

GENERAL — Complete this GENERAL section for ALL features

Nearest structure on critical consequence section 1

TOE Structure type	TOE distance (m)	TOE Struct Elevation (for Fill feature only)	CREST Structure type	CREST distance (m)
4A	0.0		5B	1.0

Road / FootPath Name (no. of lanes, AADT)

Road / FootPath Name (no. of lanes, AADT)

Service Conduit	water main	sewer drain	gas main	telecom cable	electricity	Other duct
Crest Size (mm)						
On Slope (mm)						

○ Reinforcement/supports (e.g. soil nail, buttress, propping, rock bolts/dowels)

Found to be
○ NE ○ AP
○ NR
○ WIP
○ U

Observation

Follow up notes

Follow Up
○ Yes ● No

41370

SIRST - FIELD SHEET(FIELD OBSERVATION)
SLOPE

Feature No: 3NW - D / C - 46

SLOPE This SLOPE section should be completed if the feature has a significant slope portion

● soil ○ rock ○ soil & rock

Cut Slope Soil Type: ● colluvium ○ d.volcanic ○ d.granite ○ other geology

Covering type and extent (% age)	Sealed	Vegetated	Bare soil/rock	Seal Type	Condition
Slope Face	0	90	10	○ chunam ○ shotcrete	○ poor ● fair ○ good
Beyond Crest	0				○ poor ● fair ○ good

Maximum Height(m)	Length(m)	Angle(deg)	Berms No.	Min width (m)
4.0	140.0	45	0	0.0

	Spacing(m)	Size(mm)	Condition	Flow
○ WeepHole	○ Occasional ○ 1.4-1.8	○ <30 ○ 51-80	○ Blocked	○ None ○ Major
○ Horiz. Drains	○ Random ○ <1.4	○ 31-50 ○ >80	○ Partially Blocked	○ Minor ○ With soil/muddy
● None	○ 1.9-2.5		○ Clear	

Channel Type	Size (mm) <100	101-150	151-200	201-250	251-300	>300	None	CND	condition severe cracks	crack	blocked	partially blocked	clear	flow dry	small	high	ponding
stepped	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
crest	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
berm	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
slope	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
toe	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○

Seepage

- ○ Heavy seepage at or above mid-ht or from several rock jt at one location
- ○ slight/mod. seepage at or above mid-height or from several rock jt at one location
- ○ heavy below mid-height or from isolated rock joints
- ○ slight/mod. below mid-height or from isolated rock joints
- ○ signs at slope or crest wall
- ● no sign

Water-carrying Services

- ○ potential leaky services and leakage signs
- ○ potential leaky services but no leakage sign
- ● no potential leaky service

Leakage Notes

Inferred Past Instability
- ○ Major
- ○ Minor
- ○ Multiple minor
- ● None

Sign of Distress
- ○ Severe
- ○ Minor
- ○ Reasonable
- ● None

Distress Location
- ○ near crest
- ○ midportion
- ○ toe

Distress Notes

30772

P.3

STAGE1 SOIL CUT, RETAINING WALL

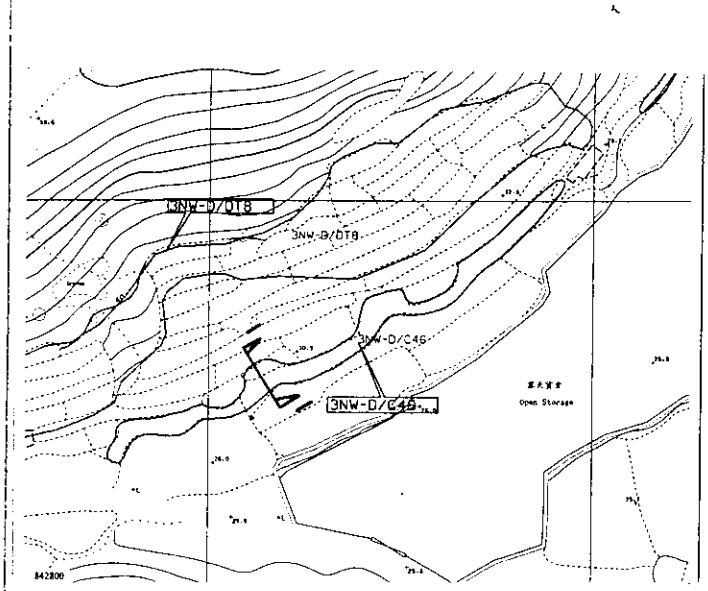
Feature No: 3NW - D/C - 46

Date Inspected: 17/03/01

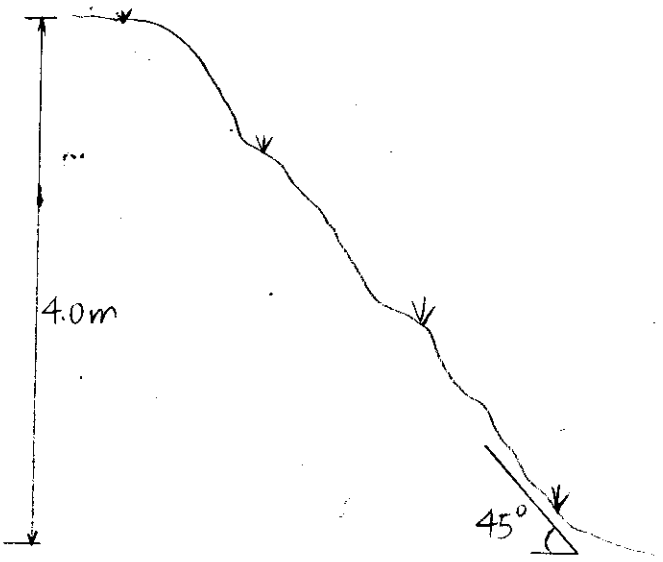
Inspected by (GE): KLL

Section: Critical consequence 1 (2)

Sketch Plan :



3NW-D/C46



SECTION 1-1

Critical Consequence Section	Consequence Category	Engineering Judgement	Overall Fail Possible (for Toe Wall only)	Weather (past 48 hours to now)
	○ 1-H ○ 2-L ● 3-N	○ EP ○ P ◉ U	○ Y ○ N	● Mainly Fine ○ Some Rain ○ Heavy Rain

Masonry Wall/ Masonry Facing	Masonry Notes	Non routine Maintenance Required	NRM Notes
○ Y ● N	-	○ Y ● N	

Emergency action Required	Action agency (NRM or Emergency)
○ Y ● N	○ Private(BD) ○ HyD ○ ASD ○ DLO ○ WSD ○ HD ○ Other

Action to initiate preventive works/study	Criterion A	Criterion D	Further Study	Other External Action	Check / Repair Service	Action By	Inspection Agency
	○ Y ● N	○ Y ● N	○		○	Repair Services Agency: ○ BD ○ WSD ○ DSD	MGS
	Action By: ○ BD(private) ○ Govt						

ES-FS-3 (18 Oct 1999)

37479

CUT SLOPE (NPCS)

Feature No: 3NW-D/C-46 | Date Inspected: 17/03/01 | Inspected by (GE): KLL

NEW PRIORITY CLASSIFICATION SYSTEM FOR SOIL AND ROCK CUT SLOPES (Note : For ROCK NPCS, complete P.7 also)

GEOMETRY

	Critical 1	Critical 2	Max. Ht. (if ΔH > 25%)
H_s (Soil part)	4.0 m	. m	. m
H_r (Rock part)	0.0 m	. m	. m
H_c (Crest wall)	0.0 m	. m	. m
H_r (Toe wall)	0.0 m	. m	. m
β (Upslope)	0		
θ (Slope part)	45		
α (Downslope)	0		

Toe of realistic slip surface within Hs: ○ YES ● NO | ○ YES ○ NO

Surcharge: 0 kPa | kPa

Weather (past 48 hours to now)
- ● Mainly Fine
- ○ Some Rain
- ○ Heavy Rain

POTENTIAL FOR WATER INGRESS

Drainage Provisions
- ○ Few / no channel - potential for convergent surface water flow above crest
- ● Few / no channels
- ○ Some channels but insufficient size or number
- ○ Adequate channels

Litholog
- ○ Typical Granite or Volcanics
- ○ Atypical Granite or Volcanics
- ● Others

This box is for Soil Cut only

NATURE OF SLOPE-FORMING MATERIAL

Adverse Geological Features
- ○ AO relict jt., intensely weather/alter seams, dykes
- ○ Present which may weaken mass strength
- ● None

Weighting Factor, W

Good	Uncertain A
Moderate	**Uncertain B**
	100
Poor	

CONSEQUENCE FACTOR

- ○ Large failure Volume (> 500 cubic metre) expected
- ○ buildings may collapse / covered in landslip, or mass transportation seriously affected
- ● None of the above or Conseq. Cat. 3

Soil Slope Failure Mode
- ○ Full-scale
- ○ Partial
- ● Minor

Nearest structure on critical consequence section 2	TOE Structure type	TOE distance (m)	TOE Struct Elevation (for Fill feature only)	CREST Structure type	CREST distance (m)
		.	.		.

(PREVIOUS HISTORY/DOCUMENTATION - BACKGROUND INFORMATION)

District Area	NE	SIFT No. 3NW-25B/53	SIFT Class C1	78 Catalogue Y / N		Reference No.	3NW-D/G 46
Coordinates: N 842863		E 837339	Nearest Rain. Stn. K14			Previous Feature No.	
Date of Construction & Subsequent Modification/Demolition		Original Constr'n Date : / / Pre 1963 Subsequent Modifications : / /				Aerial Photo Y1 0125-4/1963 (No./ year)	
Reference (File No., Folio No., Paper No., etc.)		Previous Instability	Date of Incident.	Incident No.	Ground Anchors		
Confirmed Past Instability :					LRDC		
○ Major	○ Full-ht fail	DB or DH			GCC		
○ Multi	○ Multi Part-ht or struct fail	PWDC	GC 4/1/2-3 f(19) R VI		DLC/BC		
○ Minor	○ Part-ht fail	L&WC			Disused Tunnels	Network Ref :	Location :
	○ or struct fail only	CLC			Piezometer data available?	N	
○ None	○ None	LA			Within MTR Protection Zone	Y / (N)	
					Ground Investigation GIU Cell Ref. :	3NW 25 B6	

Checked by GEO	Y / N Date : Ref. /Remarks :
Public/Private Developments File Reference	
Binnie & Partners (B&P) reports	Mid Levels Study Report B&P's Landslide Study Phase IIA / IIB/ IIC :
GEO Reports	
Information from LPMIS Database :	**Status as at (/ /)**
Other Reports	(None) / Pre-SIRST Field Sheet / SIRST Field Sheet / North Point Study / within Victoria Barrack Geotechnical Study area / Others (specify) :

DH Order?* Y / (N)

File Ref : | Date Recommended / / | Date served by BD / / | Order No.

Recommendation

Defaulted e.g. lapsed & works done by Govt. Y / N | Year Discharged (when the works become satisfactory, order compiled):

Advisory Letter?* Y / (N)

File Ref (DH/DB File) : | Date Recommended / / | Date issued by BD / /

Recommendation

Works Complete Y / N | Year of Completion

Maintenance responsibility :
(Private) / Government / Mixed Confirmed by LD : (Y) / N
Dept. Responsible : HyD / HD / DSD / WSD / TDD / Arch SD / AFD / USD /LD / RSD / CED Confirmed by LD: Y / N

Remarks :

Action
- [x] Field Sheet
- [x] Stage 1 Report
- [x] NPCS

Status
- [x] Formed pre 78 (before end 6/78)
- [ ] Formed post mid 78 (after end 6/78)
- [ ] Modified post mid 78 (after end 6/78)
- [ ] Feature removed
- [ ] Stabilised under LPM
- [ ] Checked by GEO/GCB
- [ ] Studied - report equivalent to GEO Stage 1
- [ ] Fill/ Undergone LPM Selection (88-91)
- [ ] Studied or being studied equivalent or above GEO Stage 2
- [ ] Being studied under LPM Programme
- [ ] DH Order recommended for overall stability study/ investigation
- [ ] Special request from _____ to collect NPCS parameters

Prepared By (TO) :

CMC
(CMCHUNG)
Date : 1-7-01

(KLL)GE
Date : 9/3/01

(see Notes on back page)

NOTES FOR FORM ES-F-02

1. Confirmed Past Instability refers to past instability with confirmed documentary evidence of its occurrence - Read the following :

   (a) Landslip Incident Reports & Landslip Cards (if Landslip Cards exists then incident is Major). If report /summary identified "Major" for slopes then the incident is Major. For other cases and for all wall failures, study incident report and sketch to determine, e.g. Multi-minor, full-ht fail, etc.

   (b) B & P Field Sheets

   (c) 1 : 5000 scale GAS Reports

SLOPE	WALL
Major - failure volume ≧ 50 cu m (unbulked) or ≧ 25 cu m & involving major portion of upslope area. (see Figure A3 of GEO Report No. 68 for definition for upslope area)	Full-ht failure - those involving overall wall ht (≧ 75% wall ht) & retained material
Minor - not major	Part-ht (< 75% wall ht) failure - those not involving full wall ht
"Multi" refers to more than one past instabilities	Structural failure - those of wall fabric only without movement of the retained material

2. Details of DH Order / Advisory Letter (eg. GEO's recommendation memo, BD's Order to owner... etc.) should be copied and enclosed in the feature file.

3. If feature requires Stage 1 Study, a NPCS would also be required to be performed at the same time.

4. If a Stage 1 is not required ONLY because of a previous Stage 1 or LPM selected (88-91), i.e. no Stage 2 or higher level study nor any of the other criteria for no Stage 1 is satisfied, then a NPCS is still needed. Circle the 'Just NPCS' selection to indicate this.

5. If feature is Class A, no site inspection required, in 'Remarks' write "Class A Feature - (referred to LI Div. / GEO)".

FEATURE REGISTRATION FORM

Printed : 03-MAR-2001 11:48 AM

BACKGROUND INFORMATION AND RELATED DOCUMENTS

Feature Ref. No. : 3NW-D/C 46

Location	OFF ROAD TO MAN UK BIN VILLAGE, SHA TAU KOK ROAD,-WO HANG		**GIU Cell Ref.** 3NW25B6
Map Sheet Ref.	3NW-25B (1:1 000) 3NW-D (1:5 000)	**Coordinates** **Easting** 837339	**Northing** 842863
Aerial Photos	**No.** Y10133 Y10134 **Year** 1963 1963	**Raingauge Station** Sha Tau Kok Police Station **Data Collected on** 26-MAY-1997	**Sift Class :** C1
Construction History	Pre- 1963 - Constructed		
Prescriptive Measure	**Works Type**	**Department**	**Completion Date**
Related Reports/Files or Documents	**File/Report** **Reference No.** PWDC GC 4/1/2-3 f (19) Pt. VI	**File/Report** **Reference No.**	
DH-Order	**None** (To be confirmed with Buildings Department)		
Advisory Letter	**None** (To be confirmed with Buildings Department)		
Remarks			

Maintenance Responsibility : **Maintenance Type :** PPRIMIX **No. of Sub-division :** 5 (To be confirmed with Lands Department)

Follow-up Actions Responsibility Parties : DD38 Lot226 DD38 Lot237 DD38 Lot235 DD38 Lot236 DD38 Lot254

GEOTECHNICAL ENGINEERING OFFICE - CIVIL ENGINEERING DEPARTMENT

PHASE 2 SYSTEMATIC INSPECTION OF FEATURES IN THE TERRITORY (SIFT 2 Version 4.5)

Version 4.5 (1.12.

SIFT No: 3NW-25B/S 30 GEO Reg. No: _____ Grid Ref. : See - Table 4 in SIFT Report

Location: CENTRE EASTERN SECTION OF MAP

1. Registration Criteria from GEO Circular 7/93:

R greater than 3m high. F or FR greater than 5m high.
F or FR less than 5m high which pose a direct risk to life in the event of failure. } Part of Larger Fill Body (Y / N)
C or CR greater than 3m high.

WC (Work Complete)
WIP (Work In Progress) } Date: _____, registerable features may be present.

ADT (Abandoned Disturbed Terrain), Type _____

NR does not meet GEO slope registration criteria _____ NE no longer exists _____

OTHER _____

2. SIFT Classification: from Guidelines for Phase 2 SIFT Version 3.1 and Addendum 5

Aerial Photograph Year and Number 1963 (Y 10133 Y10134)

☐ Class A Fill feature considered to have similar circumstances to the Baguio landslide site.

Class B Fill feature considered to meet GEO criteria for slope registration but does not meet criteria A.

☐ B1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ B2 Have been formed or substantially modified after 30.6.78, studied to GEO Stage 2, or equivalent or to be Housing Dept. Feature.

Class C Cut feature considered to meet GEO criteria for slope registration.

☒ C1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ C2 Have been formed or substantially modified after 30.6.78

Formation/~~Modification~~ before or after 30.6.78 determined by :- } ☒ Confirmed by API FORMED PRE 1963 ☐ Assumed (Reason: _____)

3. Consequence: *(Modified B&P Assessment of Risk for A, B1 only. See Section 4 below for details.)*

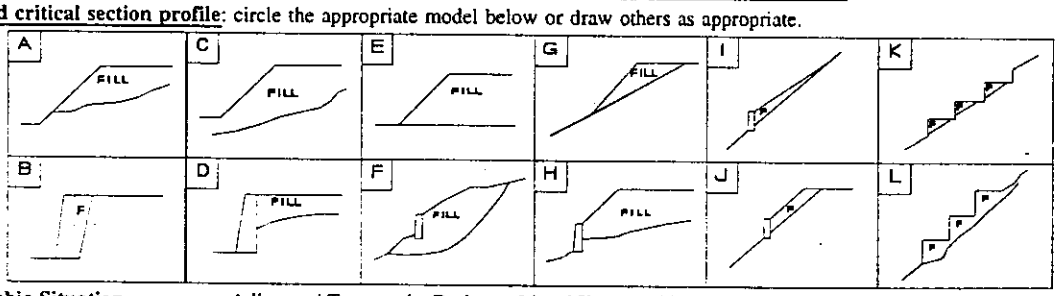
☐ Low ☐ Low to moderate ☐ Moderate ☐ Moderate to High ☐ High ☐ Very High

4. Modified B&P Assessment of Risk : (For Class A,B1 only)

4.1 Feature Dimensions

Estimated Slope Height _____m. Estimated Slope Length _____m. Estimated Slope Gradient _____°.
Estimated Retaining Wall Height _____m. Estimated Max. Fill Width _____m. Estimated Fill Thickness _____m.
Total Height of Feature _____m. Part of Larger Fill Body ? (Y / N)
Volume Calculation _____ Estimated Fill Volume _____m³.

4.2 Estimated critical section profile: circle the appropriate model below or draw others as appropriate.



4.3 Topographic Situation

Adjacent / Traversed : Drainage Line / Topographic Depression or Spurline / Planar Slope

Catchment area : (1=<100m², 2=100-500m², 3=500-1000m², 4=1000-10000m², 5= >10000m²)

To Fill Body _____ To Drainage Line (if Affected Structure located downstream) _____

Intervening Ground, feature to facility: Platform / Slope / Drainage Line . Natural / Cut / Fill . Vegetation (Y / N)

Debris Trail : Channelisation ; Spread ; Erosion and Entrainment ; Assumed to occur along debris trail

4.4 Facilities

Facility(ies) below feature. Bus Shelter (Y / N)

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility(ies) on slope/platform of feature: road / building / other _____

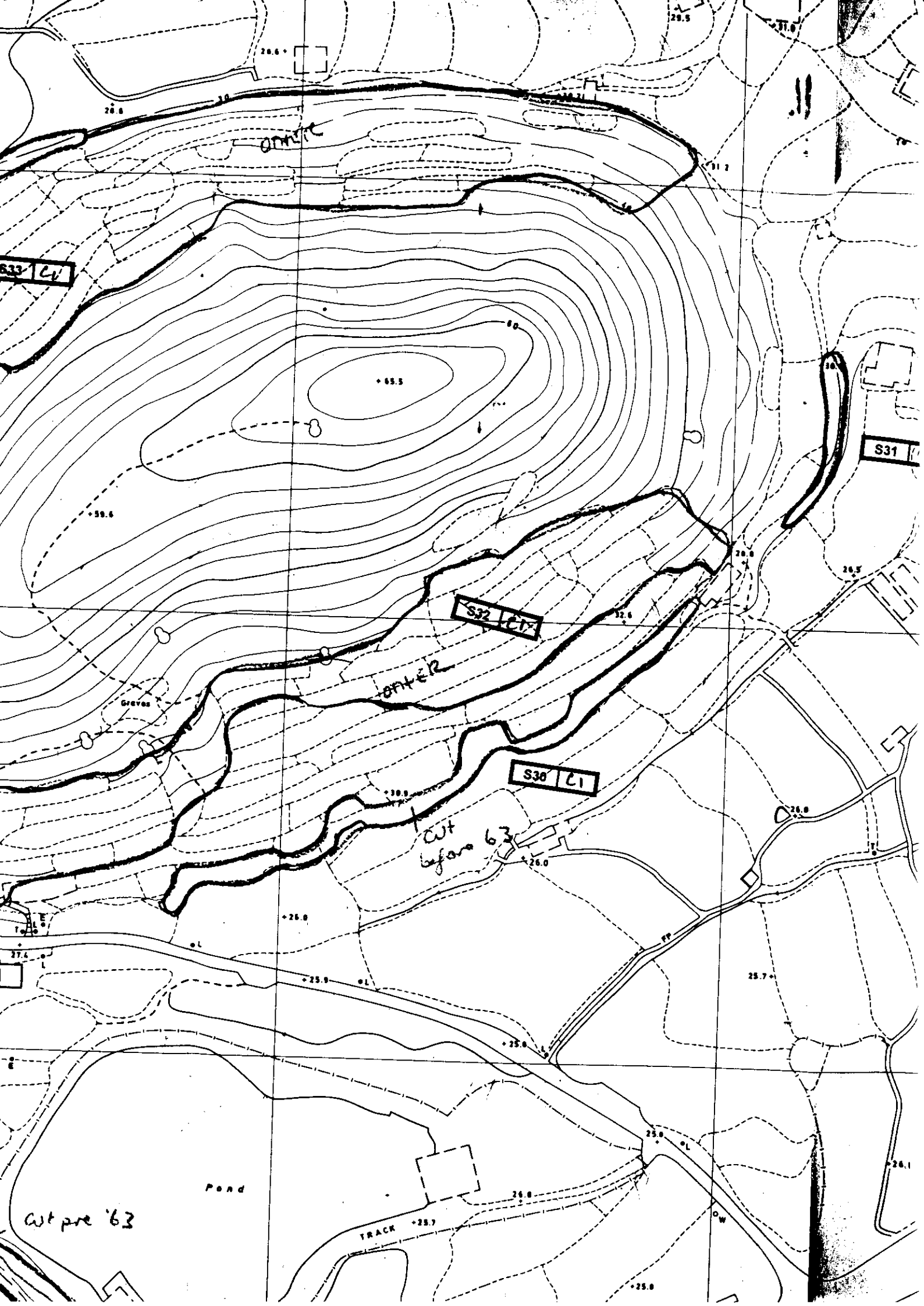
4.5 Consequences of Slope Failure / Remarks :

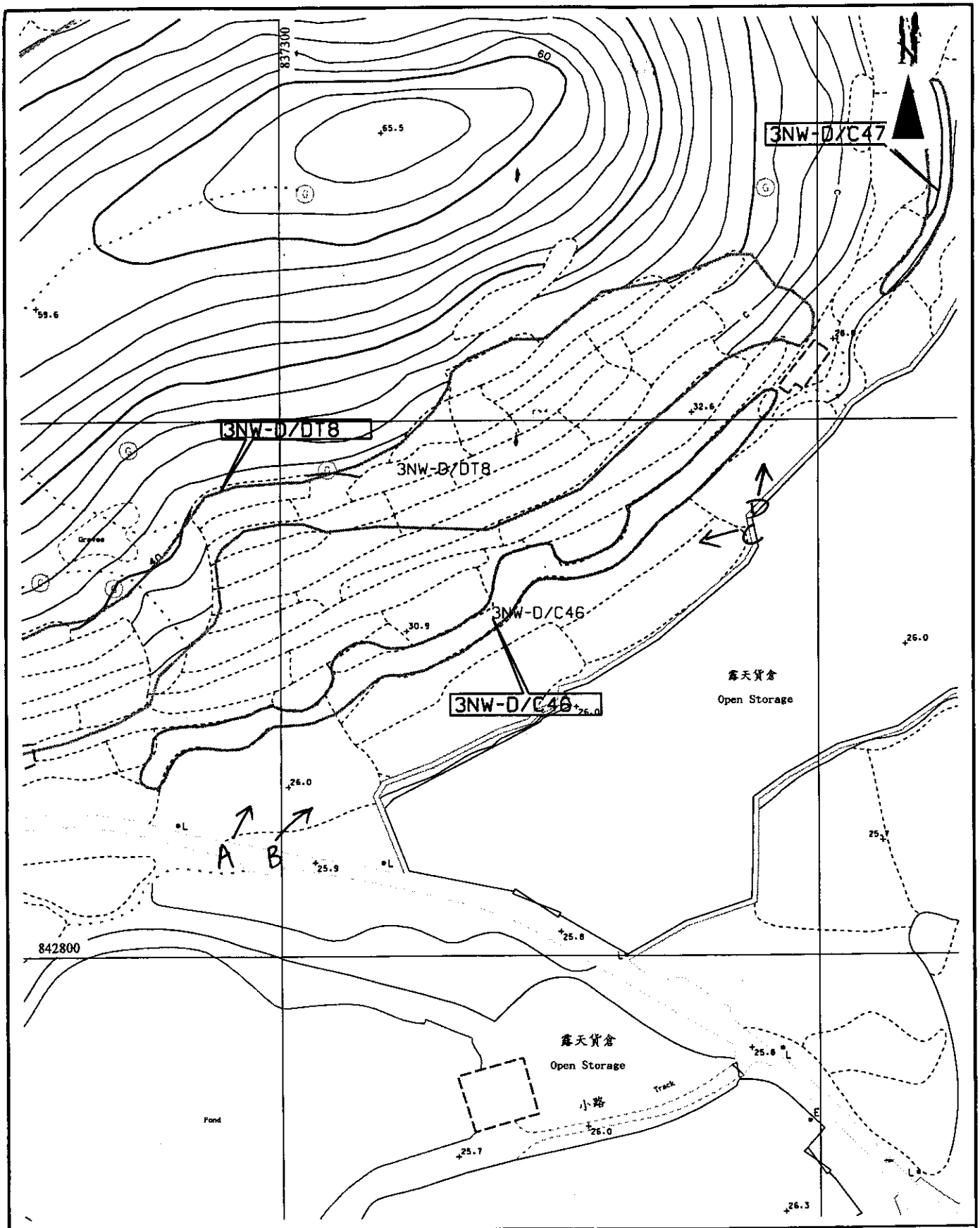
_____

_____

Compiled by D. K. THOMAS **API CONSULTANT/** 7 **dated** 18 FEBRUARY **1997**

TE15\SIFTFM44.V1


S33 C1
S32 C1
S31
S30 C1
Graves
Pond
TRACK
cut pre '63
cut before 63



Geotechnical Engineering Office	Slope Location Plan

Slope No:3NW-D/C46

Scale:1: 1000

Easting: 837339

Northing: 842863

Slope / Wall Ref. No. : 3NW-D/C 46



3NW-D/C 46 GENERAL VIEW (VIEW A) *3NW-DC46a*



3NW-D/C 46 GENERAL VIEW (VIEW B) *3NW-DC46b*



3NW-D/C 46 GENERAL VIEW (VIEW C) *3NW-DC46c*



3NW-D/C 46 GENEEAL VIEW (VIEW D) *3NW-DC46d*

BASIC INFORMATION

Location:	400M DUE EAST OF MAN UK BIN VILLAGE, SHA TAU KOK ROAD-WO HANG, NORTH
Registration Date:	24-10-1997
Ranking Score (NPRS):	0 (Notional)
Date of Formation:	pre-1977
Date of Construction/ Modification:	
Data Source:	SIRST
Approximate Coordinates:	Easting : 837423 Northing : 842942

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest:	Horticulture garden
Distance of Facility from Crest (m):	1.5
Facility at Toe:	Cottage, licensed and squatter area
Distance of Facility from Toe (m):	1.5
Consequence-to-life Category:	1
Remarks:	N/A

SLOPE PART

(1) Max. Height (m): 4 Length (m): 45 Average Angle (deg): 40

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 1	Private Feature	Party: DD38 LOT277	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 15-05-2008
(2) Sub Div.: 2	Private Feature	Party: DD38 LOT257	Agent: N/A	Land Cat.: 1	Reason Code: 1	MR Endorsement Date: 15-05-2008

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection:	30-05-1997
Data Source:	SIRST
Slope Part Drainage:	N/A
Wall Part Drainage:	N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 10 Vegetated: 90 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Rock Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): N/A Spacing (m): N/A

WALL PART

N/A

SERVICES

(1) Utilities Type: Water Main Size(mm): 50 Location: On crest Remark: N/A

CHECKING STATUS INFORMATION

N/A

BACKGROUND INFORMATION

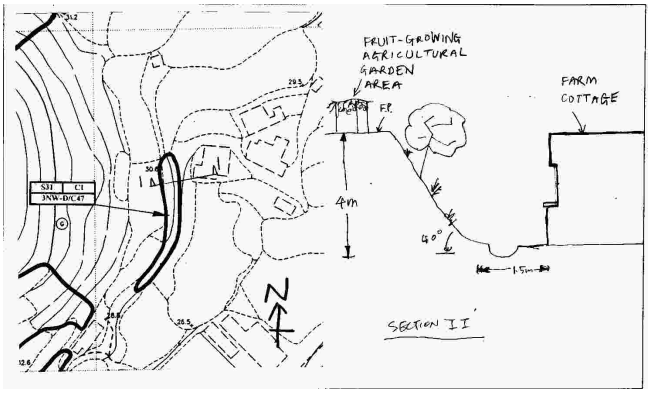
GIU Cell Ref.:	3NW25B6
Map Sheet Reference (1:1000):	3NW-25B
Aerial Photos:	Y10133 (1963), Y10134 (1963)
Nearest Rainguage Station (Station Number):	Cheung Chi House, Cheung Wah Estate(N05)
Data Collected On:	30-05-1997
Date of Construction, Subsequent Modification and Demolition:	Modification: Constructed Before: 1963 After: N/A
Related Reports/Files or Documents:	File/Report: PWDC Ref. No.: GC 4/1/2-3 f (19) pt VI
Remarks:	N/A
Follow Up Actions:	N/A
DH-Order (To Be Confirmed with Buildings Department):	None
Advisory Letter (To Be Confirmed with Buildings Department):	None
LPMIS:	Agreement No.: CE48/2006 Report No.: S2R269/2007

ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 21/11/2025)

STAGE 1 STUDY REPORT

Inspected On:	30-05-1997
Weather:	Some Rain
District:	ME



Section No:	1-1
Height(m):	H1 : 4 , H2 : 0
Type of Toe Facility:	Cottage, licensed and squatter area
Distance from Toe(m):	1.5
Type of Crest Facility:	Horticulture garden
Distance from Crest(m):	1.5
Consequence Category:	1
Engineering Judgement:	U
Section No:	2-2
Type of Toe Facility:	N/A
Distance from Toe(m):	0
Type of Crest Facility:	N/A
Distance from Crest(m):	0
Consequence Category:	1
Engineering Judgement:	U
Sign of Seepage:	Slope : Signs of seepage Wall : N/A
Criterion A satisfied:	N
Sign of Distress:	Slope : Reasonable (mid-portion) Wall : N/A
Criterion D satisfied:	N
Non-routine maintenance required:	N
Note:	N/A
Masonry wall/Masonry facing:	N
Note:	N/A
Consequence category (for critical section):	1
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D:	N/A
Action By:	N/A
Further Study:	N
Action By:	N/A

OTHER EXTERNAL ACTION

Check / repair Services:	N
Action By:	N/A
Non-routine Maintenance:	N
Action By:	N/A

eLPMIS

LPM/LPMit Details Report

LPM Study Feature No.:	3NW-D/C 47
Location:	400M DUE EAST OF MAN UK BIN VILLAGE, SHA TAU KOK ROAD - WO HANG, NORTH
District Council:	North
Maintenance Responsibility (At the Time of Selection):	Private
Responsible Party for Maintenance of Government Portion:	N/A
Private Lot No.:	DD38 LOT257,DD38 LOT277

LPM/LPMit Study

Agreement No.:	CE48/2006
Study Type:	Stage 2 Study
Consultant:	Halcrow China Ltd.
GEO Managing Section / Engineer:	SS / SS2
Study Status:	Study completed
Design Approach:	N/A
Option Assessment Accepted:	N/A
Study Report No.:	S2R269/2007
Programme / Actual Commencement:	21-09-2007
Programme / Actual Completion:	26-03-2010
Report Recommendation (For Stage 2 Study):	No action required
District Check Status:	Checked
Checking Certificate No.:	N/A
GEO Engineer's Remarks:	N/A

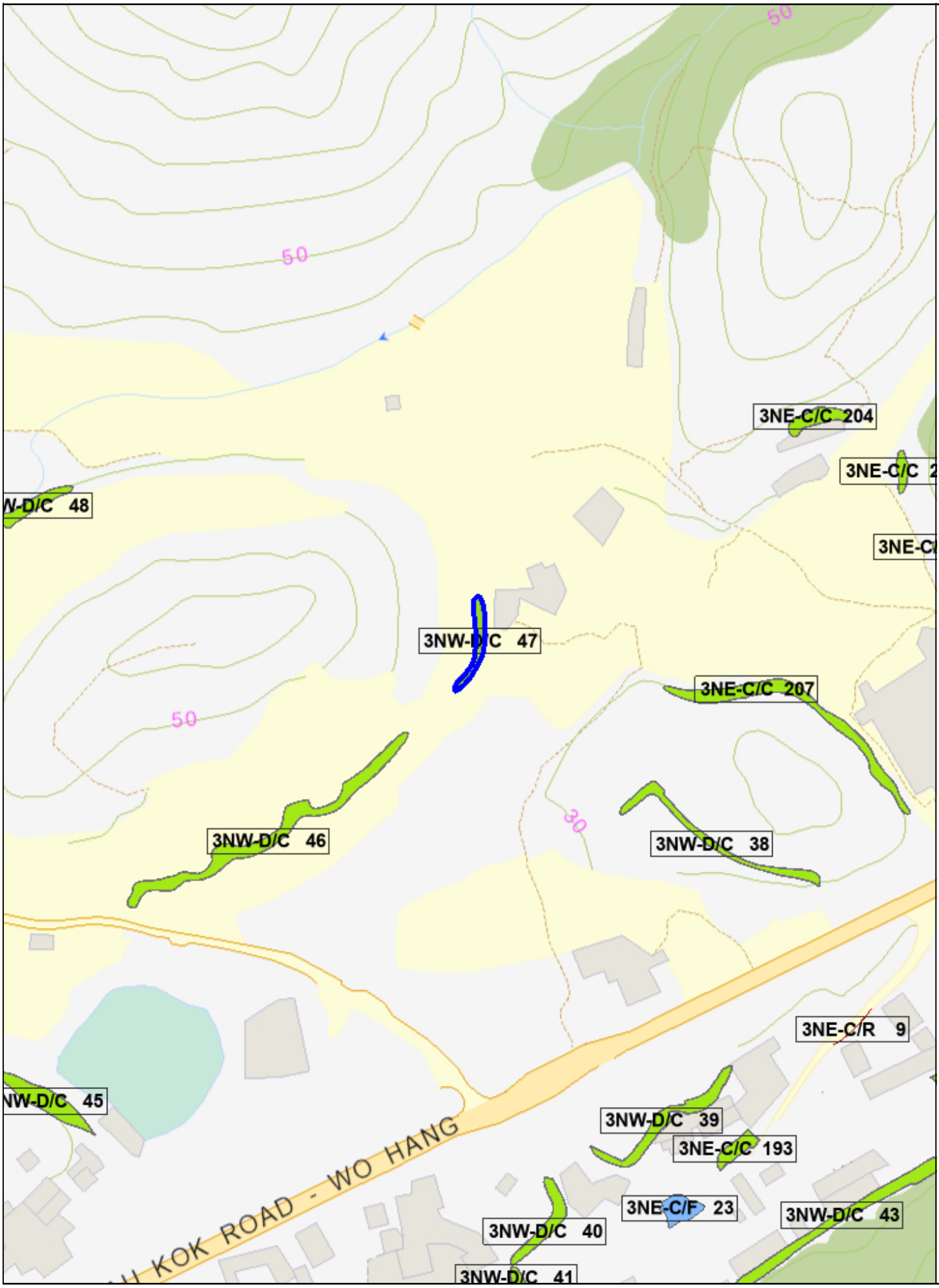
LPM/LPMit Works

Works Contract No.:	N/A
GEO Managing Section / Engineer:	N/A / N/A

Contractor:	N/A
Progress Status:	N/A
Reason of Study Termination / Works Deletion (If Necessary):	N/A
Forecast Commencement Date:	N/A
Forecast Completion Date:	N/A
Completion Cert. Issued:	N/A
Site Handed Over to Maintenance Department on:	N/A
Estimated Cost for Upgrading (HK$M):	N/A
Maintenance Manual No.:	N/A
Actual Works:	N/A
No. of Tree Felled:	N/A
No. of Tree Planted (Incl. Transplant):	N/A
% Bare of Slope Surfacing:	N/A
% Vegetated of Slope Surfacing:	N/A
% Shotcrete of Slope Surfacing:	N/A
Other Hard Surface of Slope Surfacing:	N/A

PHOTO




50
50
50
30
3NE-C/C 204
3NE-C/C 2
3NE-C/
W-D/C 48
3NW-D/C 47
3NE-C/C 207
3NW-D/C 46
3NW-D/C 38
3NE-C/R 9
NW-D/C 45
3NW-D/C 39
3NE-C/C 193
3NE-C/F 23
3NW-D/C 43
3NW-D/C 40
3NW-D/C 41
H KOK ROAD - WO HANG

Slope Maintenance Responsibility Report (3NW-D/C47)	**ESTATE MANAGEMENT SECTION** **LANDS DEPARTMENT**

List of Slope Maintenance Responsibility Area(s)

1	**3NW-D/C47**		**Sub-Division**	1
	Location	PARTLY WITHIN DD38 LOT277 & LOT257		
	Responsible Lot/Party	DD38 LOT277	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		

2	**3NW-D/C47**		**Sub-Division**	2
	Location	PARTLY WITHIN DD38 LOT277 & LOT257		
	Responsible Lot/Party	DD38 LOT257	**Maintenance Agent**	Not Applicable
	Remarks	Not Applicable		

- End of Report -

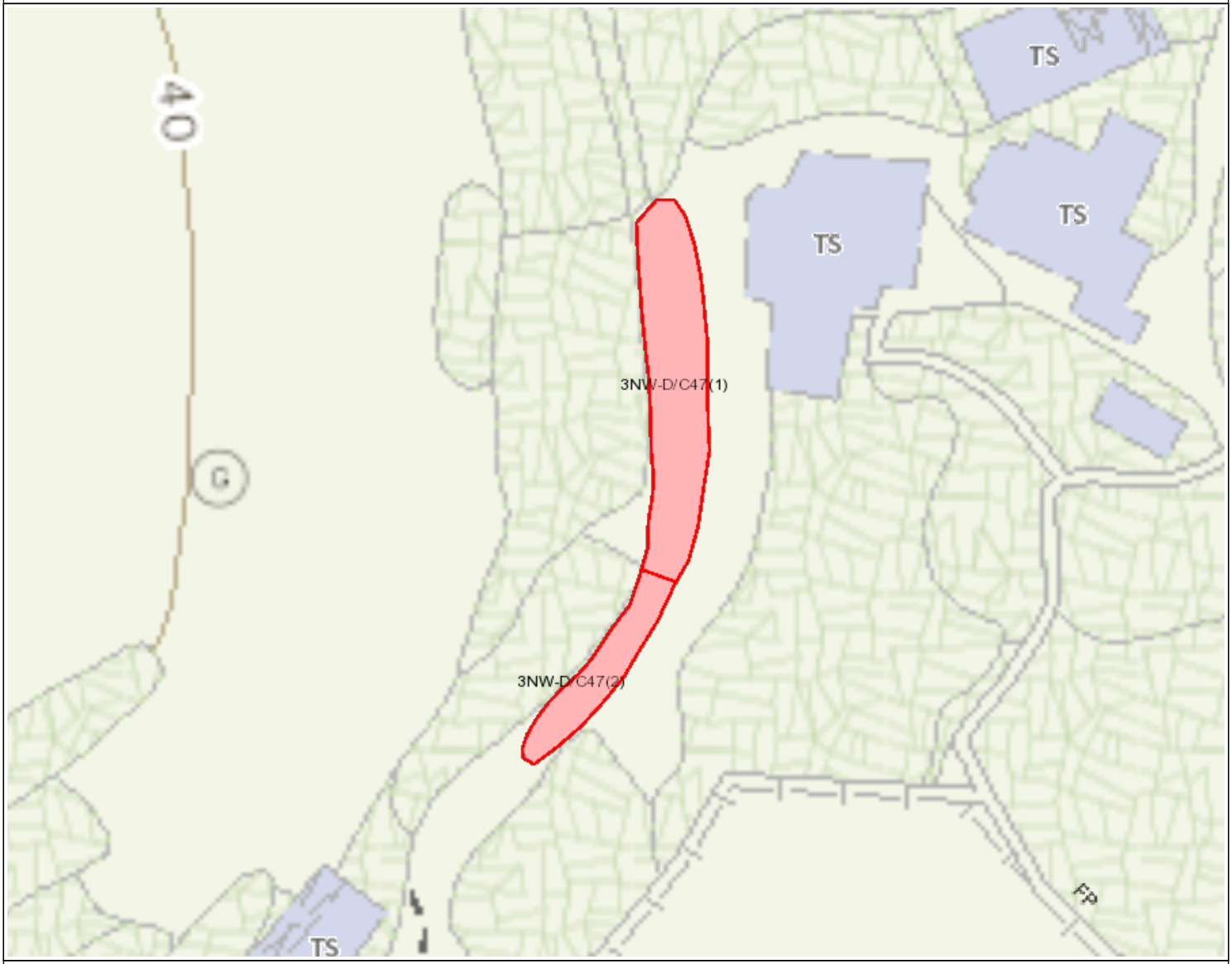
Notes:

(i) The location plan in Annex is for identification purposes of slope(s) only.

(ii) The slope(s) as listed in the Slope Maintenance Responsibility Report may not be shown on the location plan in Annex.

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Location Plan



Legend

- Slope Area(s)
- Search Location
- Slope(s) Maintained by Government
- Slope(s) Maintained by Private Party/Parties
- Slope(s) Maintained by Government and Private Party/Parties

ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

This Plan is **NOT TO SCALE** and intended for **IDENTIFICATION** only. All information shown on this plan **MUST** be verified by field survey.

Printed on: 31/08/2026

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PHASE 2 SYSTEMATIC INSPECTION OF FEATURES IN THE TERRITORY (SIFT 2 Version 4.5)

SIFT No: 3NW-25B/S 31 GEO Reg. No: _____ Grid Ref. : See - Table 4 in SIFT Report

Location: CENTRE EASTERN SECTION OF MAP.

1. Registration Criteria from GEO Circular 7/93:

R greater than 3m high. F or FR greater than 5m high.

F or FR less than 5m high which pose a direct risk to life in the event of failure. } Part of Larger Fill Body (Y / N)

(C) or CR greater than 3m high.

WC (Work Complete)
WIP (Work In Progress) } Date: _____, registerable features may be present.

ADT (Abandoned Disturbed Terrain), Type _____

NR does not meet GEO slope registration criteria _____ NE no longer exists _____

OTHER _____

2. SIFT Classification: from Guidelines for Phase 2 SIFT Version 3.1 and Addendum 5

Aerial Photograph Year and Number 1963 10133 10134

☐ Class A Fill feature considered to have similar circumstances to the Baguio landslide site.

Class B Fill feature considered to meet GEO criteria for slope registration but does not meet criteria A.

☐ B1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ B2 Have been formed or substantially modified after 30.6.78, studied to GEO Stage 2, or equivalent or to be Housing Dept. Feature.

Class C Cut feature considered to meet GEO criteria for slope registration.

☒ C1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ C2 Have been formed or substantially modified after 30.6.78

Formation/~~Modification~~ before or ~~after~~ 30.6.78 determined by :-
☒ Confirmed by API FORMED PRE 1963
☐ Assumed (Reason: _____)

3. Consequence: *(Modified B&P Assessment of Risk for A, B1 only. See Section 4 below for details.)*

☐ Low ☐ Low to moderate ☐ Moderate ☐ Moderate to High ☐ High ☐ Very High

4. Modified B&P Assessment of Risk : (For Class A,B1 only)

4.1 Feature Dimensions

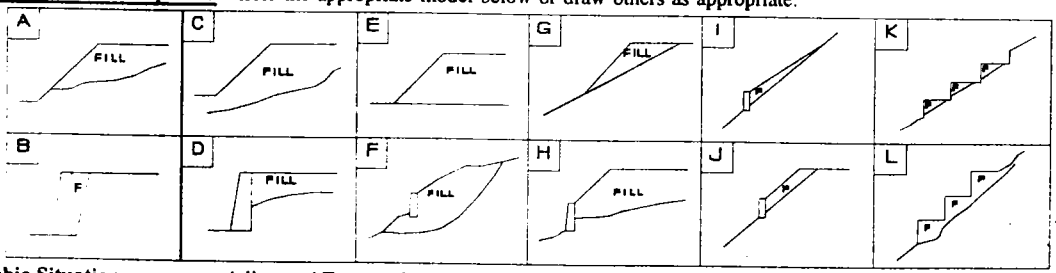
Estimated Slope Height _____m. Estimated Slope Length _____m. Estimated Slope Gradient _____°.

Estimated Retaining Wall Height _____m. Estimated Max. Fill Width _____m. Estimated Fill Thickness _____m.

Total Height of Feature _____m. Part of Larger Fill Body ? (Y / N)

Volume Calculation _____ Estimated Fill Volume _____m³.

4.2 Estimated critical section profile: circle the appropriate model below or draw others as appropriate.



4.3 Topographic Situation

Adjacent / Traversed : Drainage Line / Topographic Depression or Spurline / Planar Slope

Catchment area : (1=<100m², 2=100-500m², 3=500-1000m², 4=1000-10000m², 5= >10000m²)

To Fill Body _____ To Drainage Line (if Affected Structure located downstream) _____

Intervening Ground, feature to facility: Platform / Slope / Drainage Line . Natural / Cut / Fill . Vegetation (Y / N)

Debris Trail : Channelisation ; Spread ; Erosion and Entrainment ; Assumed to occur along debris trail

4.4 Facilities

Facility(ies) below feature. Bus Shelter (Y / N)

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility(ies) on slope/platform of feature: road / building / other _____

4.5 Consequences of Slope Failure / Remarks :

_____

_____

Compiled by D. K. THOMAS **API CONSULTANT/** 7 **dated** 18 FEBRUARY **1997**

TE15:SIFTFM44.V1

MTL

12468

SIRST - FIELD SHEET(FIELD OBSERVATION)

GENERAL

Sift No: 3NW-25B/S31

Examples
15NE- 4C/S123
7SW-12A/S 6

Feature No: 3NW-D/C-147

11SW-A/C -1013
7NE-B/FR- 5

Slope/Wall Location: 400m DUE EAST OF MAN UK BIN VILLAGE, SHA TAU KOK ROAD-WO HANG, NORTH

Toe Elevation: 26.5

Examples
Date: 30/ 1/97
8/12/96

Inspected/Checked date	Inspected by (TO)	Checked by	Consequence Category	Weather (past 48 hours to now)
30 / 5 / 97	KCC	EJS	● 1-H ○ 2-L ○ 3-N	○ Mainly Fine ● Some Rain ○ Heavy Rain

GENERAL **Complete this GENERAL section for ALL features**

Nearest structure on critical consequence section 1

TOE Structure type	TOE distance (m)	TOE Struct Elevation (for Fill feature only)	CREST Structure type	CREST distance (m)
1N	1.5		3D	1.5

Road / FootPath Name (no. of lanes, AADT)

Road / FootPath Name (no. of lanes, AADT)

Service Conduit	water main	sewer drain	gas main	telecom cable	electricity	Other duct
Crest Size (mm)	50					
On Slope (mm)						

○ Reinforcement/supports (e.g. soil nail, buttress, propping, rock bolts/dowels)

Found to be

○ NE ○ AP
○ NR
○ WIP
○ U

Observation

Follow up notes

Follow Up

○ Yes ● No

41370

SIRST - FIELD SHEET(FIELD OBSERVATION)

SLOPE

Feature No: 3NW - D / C - 47

SLOPE **This SLOPE section should be completed if the feature has a significant slope portion**

○ soil ● rock ○ soil & rock

Cut Slope Soil Type: ○ colluvium ● d.volcanic ○ d.granite ○ other geology

Covering type and extent (% age)	Sealed	Vegetated	Bare soil/rock	Seal Type	Condition
Slope Face	0	90	10	○ chunam ○ shotcrete	○ poor ● fair ○ good
Beyond Crest	0				○ poor ● fair ○ good

Maximum Height(m)	Length(m)	Angle(deg)	Berms No.	Min width (m)
4.0	45.0	40	0	.

	Spacing(m)	Size(mm)	Condition	Flow
○ WeepHole	○ Occasional ○ 1.4-1.8	○ < 30 ○ 51-80	○ Blocked	○ None ○ Major
○ Horiz. Drains	○ Random ○ <1.4	○ 31-50 ○ > 80	○ Partially Blocked	○ Minor ○ With soil/muddy
● None	○ 1.9-2.5		○ Clear	

Uchannel Type	Size (mm)								condition					flow			
	<100	101-150	151-200	201-250	251-300	>300	None	CND	severe cracks	crack	blocked	partially blocked	clear	dry	small	high	ponding
stepped	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
crest	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
berm	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
slope	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
toe	○	○	○	○	○	●	○	○	○	○	○	●	○	●	○	○	○

Seepage

- ○ Heavy seepage at or above mid-ht or from several rock jt at one location
- ○ slight/mod. seepage at or above mid-height or from several rock jt at one location
- ○ heavy below mid-height or from isolated rock joints
- ○ slight/mod. below mid-height or from isolated rock joints
- ● signs at slope or crest wall
- ○ no sign

Water-carrying Services

- ○ potential leaky services and leakage signs
- ● potential leaky services but no leakage sign
- ○ no potential leaky service

Leakage Notes

Inferred Past Instability

- ○ Major
- ○ Minor
- ○ Multiple minor
- ● None

Sign of Distress

- ○ Severe
- ○ Minor
- ● Reasonable
- ○ None

Distress Location

- ○ near crest
- ● midportion
- ○ toe

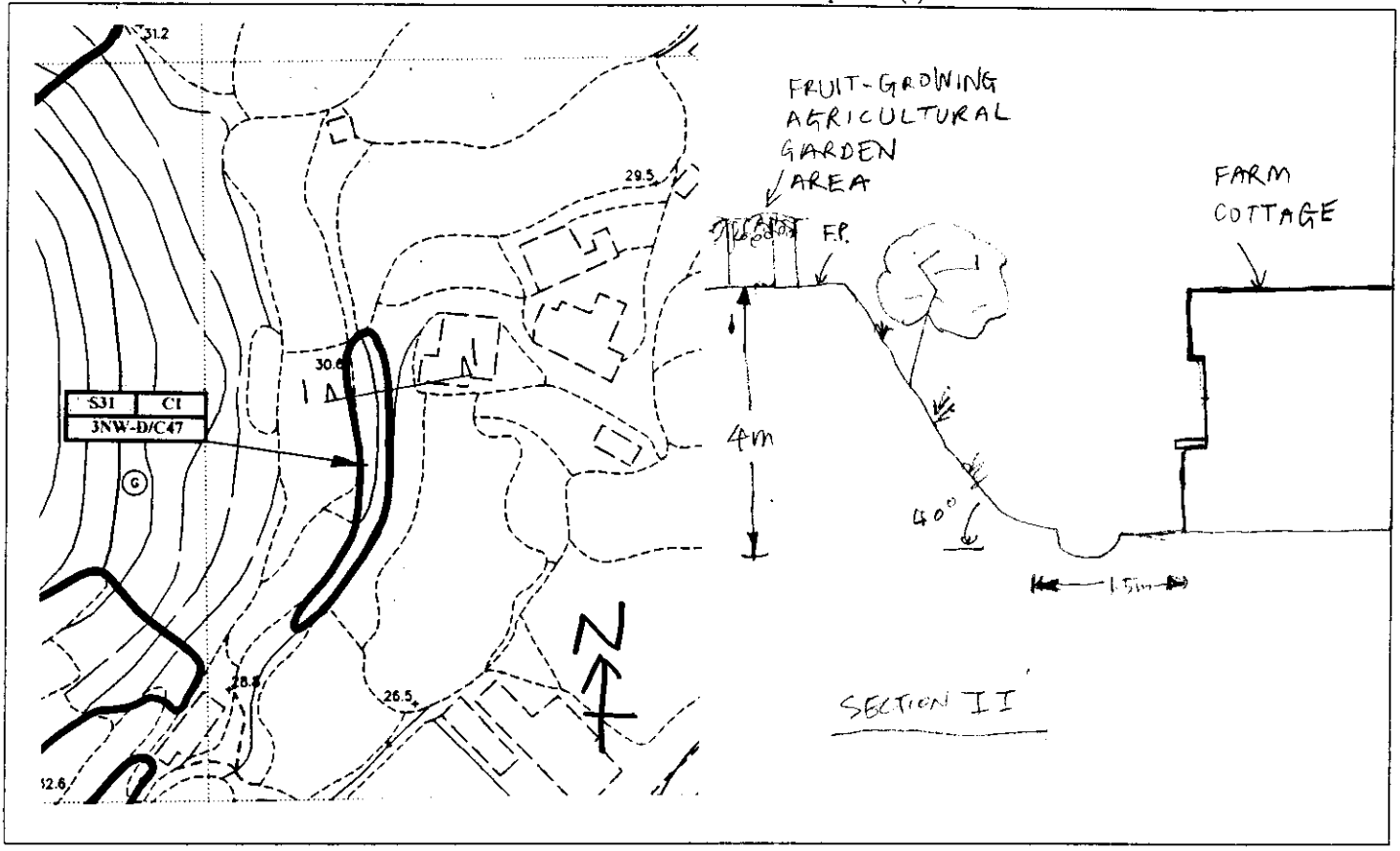
Distress Notes

30772

STAGE1 SOIL CUT, RETAINING WALL

Feature No: 3NW-D/C-47 | Date Inspected: 30/5/97 | Inspected by (GE): GJS

Sketch Plan : Section: Critical consequence 1 (2)



Critical Consequence Section	Consequence Category	Engineering Judgement	Overall Fail Possible (for Toe Wall only)	Weather (past 48 hours to now)
	● 1-H ○ 2-L ○ 3-N	○ HP ○ P ● U	○ Y ○ N	○ Mainly Fine ● Some Rain ○ Heavy Rain

Masonry Wall/ Masonry Facing	Masonry Notes	Non routine Maintenance Required	NRM Notes
○ Y ● N		○ Y ● N	

Emergency action Required ○ Y ● N

Action agency (NRM or Emergency) ○ Private(BD) ○ HyD ○ ASD ○ DLO ○ WSD ○ HD ○ Other

Action to initiate preventive works/study	Criterion A	Criterion D	Further Study	Other External Action	Check / Repair Service	Action By	Inspection Agency
	○ Y ● N	○ Y ● N	○		○	Repair Services Agency: ○ BD ○ WSD ○ DSD	M G S
	Action By: ○ BD(private) ○ Govt		Action By: ○ Govt ○ BD				

Recommendation agreed : W S LAU

Post : LGE/ES-MGS **Date :** 18 JUL 1997

37479

CUT SLOPE (NPCS)

Feature No: 3NW-D/C-47

Date Inspected: 30/5/97

Inspected by (GE): EJS

NEW PRIORITY CLASSIFICATION SYSTEM FOR SOIL AND ROCK CUT SLOPES (Note : For ROCK NPCS, complete P.7 also)

GEOMETRY

	Critical 1	Critical 2	Max. Ht. (if ΔH > 25%)
H_s (Soil part)	4.0 m	m	m
H_r (Rock part)	0.0 m	m	m
H_c (Crest wall)	0.0 m	m	m
H_f (Toe wall)	0.0 m	m	m
β (Upslope)	5		
θ (Slope part)	40		
α (Downslope)	0		
Toe of realistic slip surface within Hs	● YES ○ NO	○ YES ○ NO	
Surcharge	5 kPa	kPa	

Weather (past 48 hours to now)

- ○ Mainly Fine
- ● Some Rain
- ○ Heavy Rain

POTENTIAL FOR WATER INGRESS

Drainage Provisions

- ○ Few / no channel + potential for convergent surface water flow above crest
- ○ Few / no channels
- ◐ Some channels but insufficient size or number
- ○ Adequate channels

Litholog

- ◐ Typical Granite or Volcanics
- ○ Atypical Granite or Volcanics
- ○ Others

This box is for Soil Cut only

NATURE OF SLOPE-FORMING MATERIAL

Adverse Geological Features

- ○ AO relict jt., intensely weather/alter seams, dykes
- ○ Present which may weaken mass strength
- ◐ None

Weighting Factor, W

Good	Uncertain A
Moderate	**Uncertain B**
150	
Poor	

CONSEQUENCE FACTOR

- ○ Large failure Volume (> 500 cubic metre) expected
- ● buildings may collapse / covered in landslip, or mass transportation seriously affected
- ○ None of the above or Conseq. Cat. 3

Soil Slope Failure Mode

- ○ Full-scale
- ◐ Partial
- ○ Minor

Nearest structure on critical consequence section 2	TOE Structure type	TOE distance (m)	TOE Struct Elevation (for Fill feature only)	CREST Structure type	CREST distance (m)
		.	.		- .

SIRST

(PREVIOUS HISTORY /DOCUMENTATION -BACKGROUND INFORMATION)

GE Area: ME	SIFT No.: 3NW-25B/S31	SIFT Class: C1	78 Catalog: N	Reference No.: 3NW-D/C47	
Coordinates: N 842946 E 837422		Nearest Rain Stn: R24		Previous Feature No.:	
Date of Construction & Subsequent Modification / Demolition	Original Const'n Date: / / Pre 1963	Subsequent Modifications / Demolition: / /		Aerial Photo (No. / year): Y10133-4/1963	
Reference (File No., Folio No., Paper No., etc)	Previous Instability:	Date of Incident:	Incident No.:	Ground Anchors:	
Confirmed Past Instability: ○ Major ○ Multi Minor ○ Minor ○ None / ○ Full-ht fail ○ Multi part-ht or struc fail ○ Part-ht fail ○ struct fail only ○ None	DB or DH:			LROC:	
	PWDC: GC 4/1/2-3P(19) Pt II			GCC:	
	LWC:			DLC / BC:	
	CLC:			Disused Tunnels:	Network Rail: Location:
	LA:			Piezometer data available ?: N	
				Within MTR Protection Zone: N / Y	
				Ground Investigation - GIU Cell Ref.: 3NW25B6	
Public / Private Developments File Reference	File Ref:				
Binnie & Partners reports	Mid Levels Study Report B&P's Landslide Study Phase IIA / IIB / IIC ;				
GEO Reports					
LPM Works					
Other Reports	(None) / Pre-SIRST Field Sheet / North Point Study / within Victoria Barrack Geotechnical Study area / Others (specify):				

D-Notice? * (N / Y) File Ref (DH/CB File): Date Recommended / / Date served (BD issue da / / Order No.

Recommendation

Defaulted eg. served 6 weeks after by date N / Y → Year Discharged: (when the works became satisfactory, order complied)

Advisory Letter? * (N / Y) File Ref (DH/CB File): Date Recommended / / Date served (BD issue date): / /

Recommendation

Works Complete N / Y → Year of Completion

Status as at(/ /)

Information from Design Div's Database:

Maintenance responsibility:

Private / Government / Mixed Confirmed by DLO: Y / N

Dept Responsible: HyD / HD / DSO / WSD / TDO / Arch SD / AFD / USD / DLO / RSD / CED Confirmed by DLO: Y / N

Remarks:

Feature require Stage 1 and NPCS ? (Y) / N → if N, due to:

- Formed/modified post mid 78 (after end 6/78) [Assumed / Confirmed]
- Feature removed
- Stabilised under LPM
- Checked by GEO/GCS
- Studied- report equiv to GEO Stage 1 → if only these, just NPCS
- Fill / Undergone LPM Selection (86-91)
- Studied or being studied equiv or above GEO Stage 2
- Being studied under LPM Programme
- D Notice recommended for overall stability study/investigation

Pr: KBC Date: 26.5.97 Checked: KCC Date: 26.5.97

NOTES:

1. Confirmed Past Instability refers to past instability with confirmed documentary evidence of its occurrence - Read a) Landslip Incident Reports & Landslip Cards (if Landslip Card exists → Major; Report/summary identified "Major" for slopes → Major. Org. A1 show locations of fill failure. For other cases and for all wall failures, study report and sketch to determine; eg. multi-minor, full-ht fail, etc.
   b) B&P Fieldsheets
   c) 1:2500 GAS Reports

SLOPE	WALL
Major - failure volume >= 50 cu m (undrained), or >= 25 cu m & involving major portion of upslope area	Full-ht failure - those involving overall wall ht (>= 75% wall ht) & retained material
Minor - not major (upslope area refers to that within a horiz dist = half of the max. possible failure ht)	Part-ht (< 75% wall ht) failure - those not involving full wall ht
	Structural failure - those of wall facing only without movement of the retained material

2. More D-Notice / Advisory Letter information may exist on additional page.
3. If feature requires SIRST Stage 1 Study, a NPCS would also be required to be performed at the same time.
4. If a SIRST Stage 1 is not required ONLY because of a previous Stage 1 or LPM selec (86-91), ie. no Stage 2 or higher level study nor any of the other criteria for no Stage 1 is satisfied, then a NPCS is still req. Circle the "Just NPCS " selection to indicate this.
5. If SIFT Class A, no site inspection required; in 'Remarks' write (SIFT Class A - Design / GEO responsible for all site inspection)

CL / SIRST-Single 12/96/96 Page 1/1

SIRST Field Sheet Background Information - sources: Design Div. databases and SIRST search.

PHASE 2 SYSTEMATIC INSPECTION OF FEATURES IN THE TERRITORY (SIFT 2 Version 4.5)

SIFT No: 3NW-25B/S 31 GEO Reg. No: _____ Grid Ref. : See - Table 4 in SIFT Report

Location: CENTRE EASTERN SECTION OF MAP

1. Registration Criteria from GEO Circular 7/93:

R greater than 3m high. F or FR greater than 5m high. } Part of Larger Fill Body (Y / N)

F or FR less than 5m high which pose a direct risk to life in the event of failure. } Part of Larger Fill Body (Y / N)

(C) or CR greater than 3m high.

WC (Work Complete) }
WIP (Work In Progress) } Date: _____, registerable features may be present.

ADT (Abandoned Disturbed Terrain), Type _____

NR does not meet GEO slope registration criteria _____ NE no longer exists _____

OTHER _____

2. SIFT Classification: from Guidelines for Phase 2 SIFT Version 3.1 and Addendum 5

Aerial Photograph Year and Number 1963 4 10133 4 10134

☐ Class A Fill feature considered to have similar circumstances to the Baguio landslide site.

Class B Fill feature considered to meet GEO criteria for slope registration but does not meet criteria A.

☐ B1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ B2 Have been formed or substantially modified after 30.6.78, studied to GEO Stage 2, or equivalent or to be Housing Dept. Feature.

Class C Cut feature considered to meet GEO criteria for slope registration.

☒ C1 Have been formed or substantially modified before 30.6.78 or to have been illegally formed after 30.6.78.

☐ C2 Have been formed or substantially modified after 30.6.78

Formation/~~Modification~~ before or ~~after~~ 30.6.78 determined by :- } ☒ Confirmed by API FORMED PRE 1963 ☐ Assumed (Reason: _____)

3. Consequence: *(Modified B&P Assessment of Risk for A, B1 only. See Section 4 below for details.)*

☐ Low ☐ Low to moderate ☐ Moderate ☐ Moderate to High ☐ High ☐ Very High

4. Modified B&P Assessment of Risk : (For Class A,B1 only)

4.1 Feature Dimensions

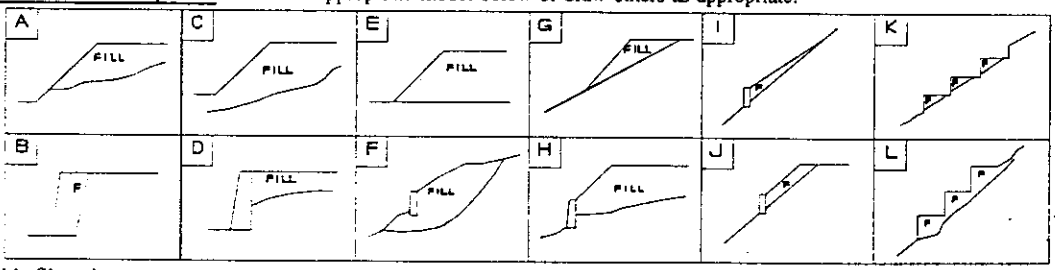
Estimated Slope Height _____m. Estimated Slope Length _____m. Estimated Slope Gradient _____°.

Estimated Retaining Wall Height _____m. Estimated Max. Fill Width _____m. Estimated Fill Thickness _____m.

Total Height of Feature _____m. Part of Larger Fill Body ? (Y / N)

Volume Calculation _____ Estimated Fill Volume _____m^3.

4.2 Estimated critical section profile: circle the appropriate model below or draw others as appropriate.



4.3 Topographic Situation

Adjacent / Traversed : Drainage Line / Topographic Depression or Spurline / Planar Slope

Catchment area : (1=<100m^2, 2=100-500m^2, 3=500-1000m^2, 4=1000-10000m^2, 5= >10000m^2)

To Fill Body _____ To Drainage Line (if Affected Structure located downstream) _____

Intervening Ground, feature to facility: Platform / Slope / Drainage Line . Natural / Cut / Fill . Vegetation (Y / N)

Debris Trail : Channelisation ; Spread ; Erosion and Entrainment ; Assumed to occur along debris trail

4.4 Facilities

Facility(ies) below feature. Bus Shelter (Y / N)

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

Facility _____; Distance, Plan _____m, Vertical _____m, Angle _____°

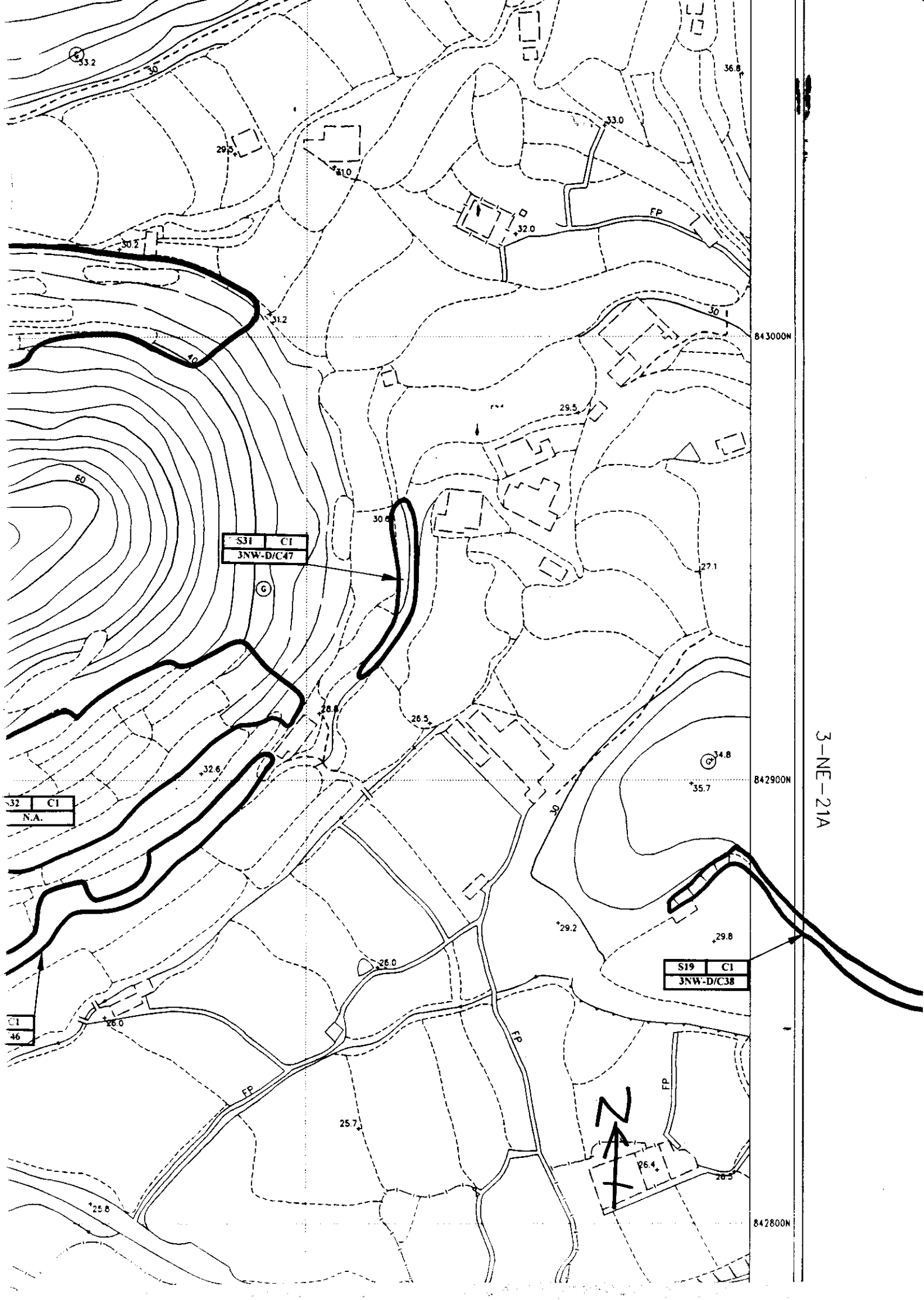
Facility(ies) on slope/platform of feature: road / building / other _____

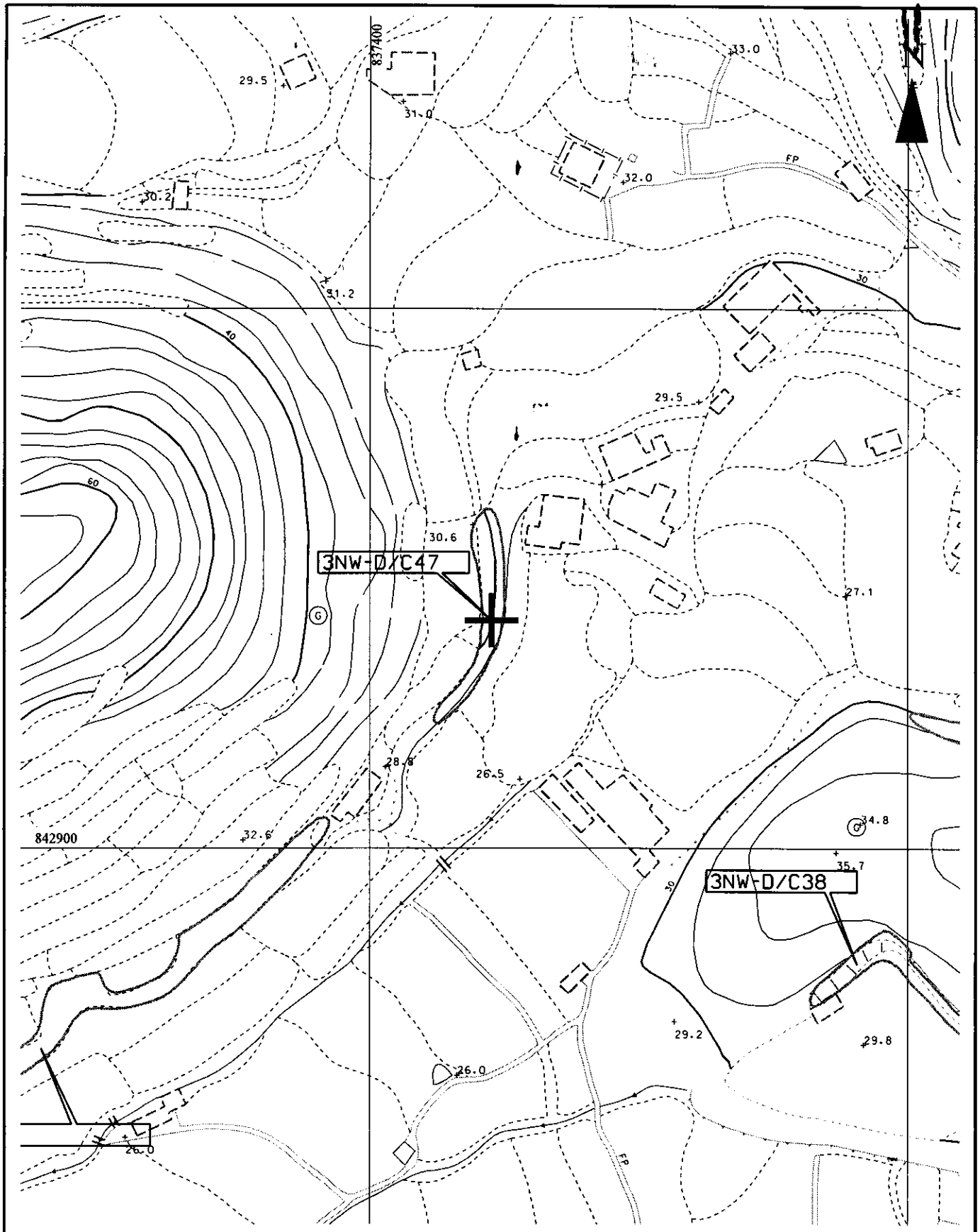
4.5 Consequences of Slope Failure / Remarks :

_____

_____

Compiled by D. K. THOMAS **API CONSULTANT/** 7 **dated** 18 FEBRUARY **1997**


S31 C1
3NW-D/C47
S19 C1
3NW-D/C38
843000N
842900N
842800N
FP
N
3-NE-21A

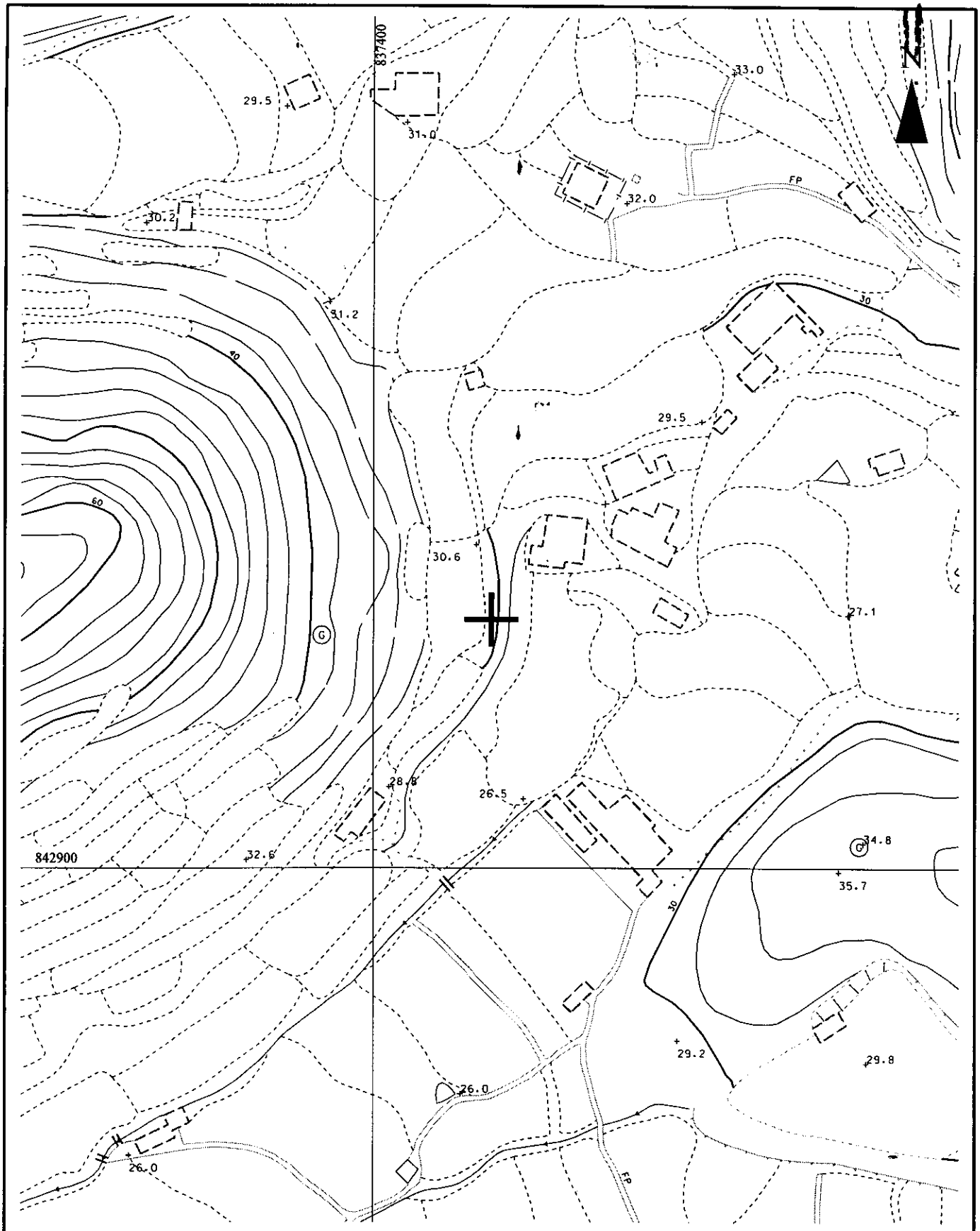


Geotechnical Engineering Office | Slope Location Plan

Slope No.: 3NW-D/C 47 Easting : 837422.671 Northing : 842942.223

Sift Ref. No.: 3NW-25B/S 31 Easting : 837422 Northing : 842946

Scale 1:1000 Date Print : 23- 4-1998 Map Modification Date : 16- 4- 1998 Page 1 of 2



Geotechnical Engineering Office

Slope Location Plan (Old Plan)

3NW-D/C 47 not exist on this survey plan.

Sift Ref. No.: 3NW-25B/S 31 Easting : 837422 Northing : 842946

Scale 1:1000 Date Print : 23- 4-1998 Map Modification Date : 11- 3- 1998 Page 2 of 2

MS97/0819/C4
Negative No. _____ Taken on 30/5/97 Slope/Wall Ref. No. 3NW-D/C47



3NW-D/C47

INVESTIGATION ON SLOPES AND RETAINING WALLS

GEOTECHNICAL ENGINEERING OFFICE
CIVIL ENGINEERING DEPARTMENT

STAGE 2 STUDY REPORT **S2R 269/2007**

FEATURE NO. 3NW-D/C47
DD38 Lot277 & DD38 Lot257
400m DUE EAST OF MAN UK PIN VILLAGE
SHA TAU KOK ROAD
WO HANG

HALCROW CHINA LTD

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August 2008
Slope Safety Division GEO

horticulture garden with a 450mm width footpath in between (Plates 3 & 5). A cottage was located at 1.6m away from the toe of the northern feature (Plate 2) whereas an open area was located at the toe of the southern portion of the feature (Plate 4). There was a 550mm half-round channel running along the toe of the northern portion of feature. Two water pipes were also found on the slope surface of the northern portion of the feature and no signs of leakage were observed. No signs of seepage or distress (the failure scar as mentioned in Section 2.1.1 could not be observed on site as the feature was covered with heavily vegetation) were noted during the site inspection.

3 GEOTECHNICAL ASSESSMENT

3.1 Topography

Two Sections 1-1 and 2-2 are selected for the overall stability analysis of the feature. The locations of these sections are shown in Figure 1.

Section 1-1 represents the critical section of the Sub-Division No.1 of the feature solely maintained by DD38 Lot277. This section has a slope height of about 3.5m with a slope angle of 40° (Figure 2).

Section 2-2 represents the critical section of the Sub-Division No.2 of the feature solely maintained by DD38 Lot257. This section has a slope height of about 3m with a slope angle of 40° (Figure 3).

3.2 Geology and Geological Model

Based on the Geological Map enclosed in Appendix G and the site observation, the feature is mainly composed of colluvium. The inferred geological models for Sections 1-1 & 2-2 are shown in Figures 2 & 3.

3.3 Groundwater Condition

No groundwater monitoring records exist for the study feature and no signs of seepage were observed on site. However, the groundwater table for Sections 1-1 & 2-2 were assumed at one-third of the slope height to account for 1 in 10 years return period of rainfall.

3.4 Parameters for Analysis

In the absence of any relevant soil laboratory test data for the study feature, the slope materials was inspected on site with a geological hammer and the soil was found to be medium dense to dense. After a prudent judgement, a shear strength parameters of $c' = 4$ kPa and $\phi' = 34^{\circ}$ is adopted for colluvium by making reference to the Table 8 of Geoguide 1. In view of the minor failure occurred in 1998 as presented in the API report, a lower set of soil parameters of $c' = 3$ kPa & $\phi' = 33^{\circ}$ for colluvium is used for the purpose of sensitivity analysis. The summary of soil parameters used for the stability analysis of the study feature are tabulated below:

Soil Material		Shear Strength Parameters		Bulk Unit Weight	Remarks
		c' (kPa)	ϕ' (°)	γ (kN/m^3)	
Colluvium	Case 1	4	34	19	Adopted
	Case 2	3	33	19	Lower set

3.5 Stability Analysis

Slope stability analyses were carried out for Sections 1-1 and 2-2 based on the inferred geological model, groundwater conditions and shear strength parameters as discussed in Sections 3.2 to 3.4. A surcharge of 5 kPa was applied at the crest of the feature to represent the loading of the footpath and horticulture garden. The Morgenstern-Price Method in SLOPE/W Version 6.2 (BD reference No. G0138) was used for the stability analysis. The calculated Factor of Safety (FOS) are tabulated below:

Section	Slip Surface No.	FOS	
		Case 1	Case 2
1-1	1	1.530	1.327
	2	1.436	1.282
	3	1.500	1.358

Section	Slip Surface No.	FOS	
		Case 1	Case 2
2-2	1	1.663	1.417
	2	1.488	1.308
	3	1.504	1.348

The computer outputs for the stability analyses of Section 1-1 and Section 2-2 are enclosed in Appendix H. The results of the stability analyses for Section 1-1 and Section 2-2 are summarized in Figure 2 and Figure 3 respectively.

3.6 Consequence-to-life

The consequence-to-life in the event of failure has been assessed in accordance with Table 3 of WBTC No. 13/99. The feature has been assessed as Category 1 as failure of the feature would affect the cottage at the toe.

4 DISCUSSION OF CALCULATED FACTORS OF SAFETY (FOS)

The consequence-to-life of the feature has been assessed as Category 1. In accordance with Criterion F as stated in GEO circular No. 24, the FOS calculated from a stability

Based on the stability analysis of Section 1-1, the calculated minimum FOS for the adopted set of parameters is 1.436, which is above the required value of 1.2.

Based on the stability analysis of Section 2-2, the calculated minimum FOS for the adopted set of parameters is 1.488, which is above the required value of 1.2.

5 CONCLUSIONS & RECOMMENDATIONS

5.1 Portion maintained by Lot No. DD38 Lot 277 (Sub-division No. 1)

The Sub-division No.1 of the feature does not satisfy the requirements for the service of a Dangerous Hillside (DH) Order in accordance with GEO Circular No. 24, therefore no statutory action is recommended.

5.2 Portion maintained by Lot No. DD28 Lot 257 (Sub-division No. 2)

The Sub-division No.2 of the feature does not satisfy the requirements for the service of a DH Order in accordance with GEO Circular No. 24, therefore no statutory action is recommended.

6 REFERENCES

Geotechnical Engineering Office (1994). Phase 2 Systematic Inspection of Features in the Territory (Phase 2 SIFT) Study.

Geotechnical Engineering Office (1984). Geotechnical Manual for Slopes. (Second Edition)

Geotechnical Engineering Office (1993). Geoguide 1 : Guide to Retaining Wall Design.

GEO Circular No. 24. Dangerous Hillside Orders and Advisory Letters.

Work Bureau Technical Circular No. 13/99. Geotechnical Manual for Slopes - Guidance on Interpretation and Updating.

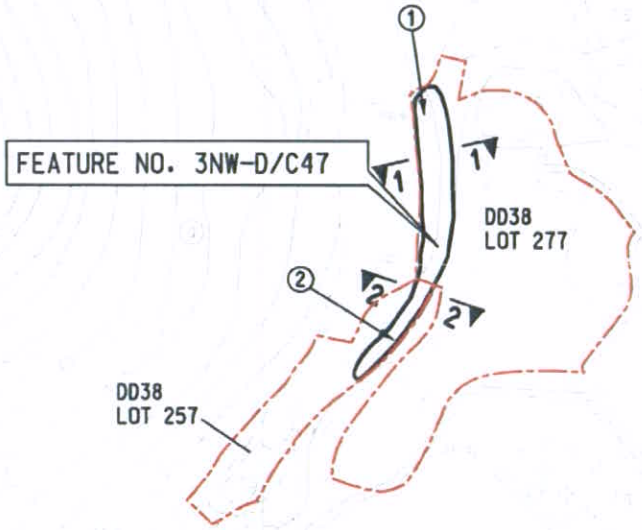
LOT NO.: DD38 LOT257 & DD38 LOT277	LOCATION : 400m DUE EAST OF MAN UK PIN VILLAGE, SHA TAU KOK ROAD, WO HANG

FEATURE NO. 3NW-D/C47

837400 E

837500 E

843000 N



842900 N

LEGEND:

- FEATURE BOUNDARY
- LOT BOUNDARY
- ① SUB-DIVISION NO.
- 1 1 GEOLOGICAL SECTION

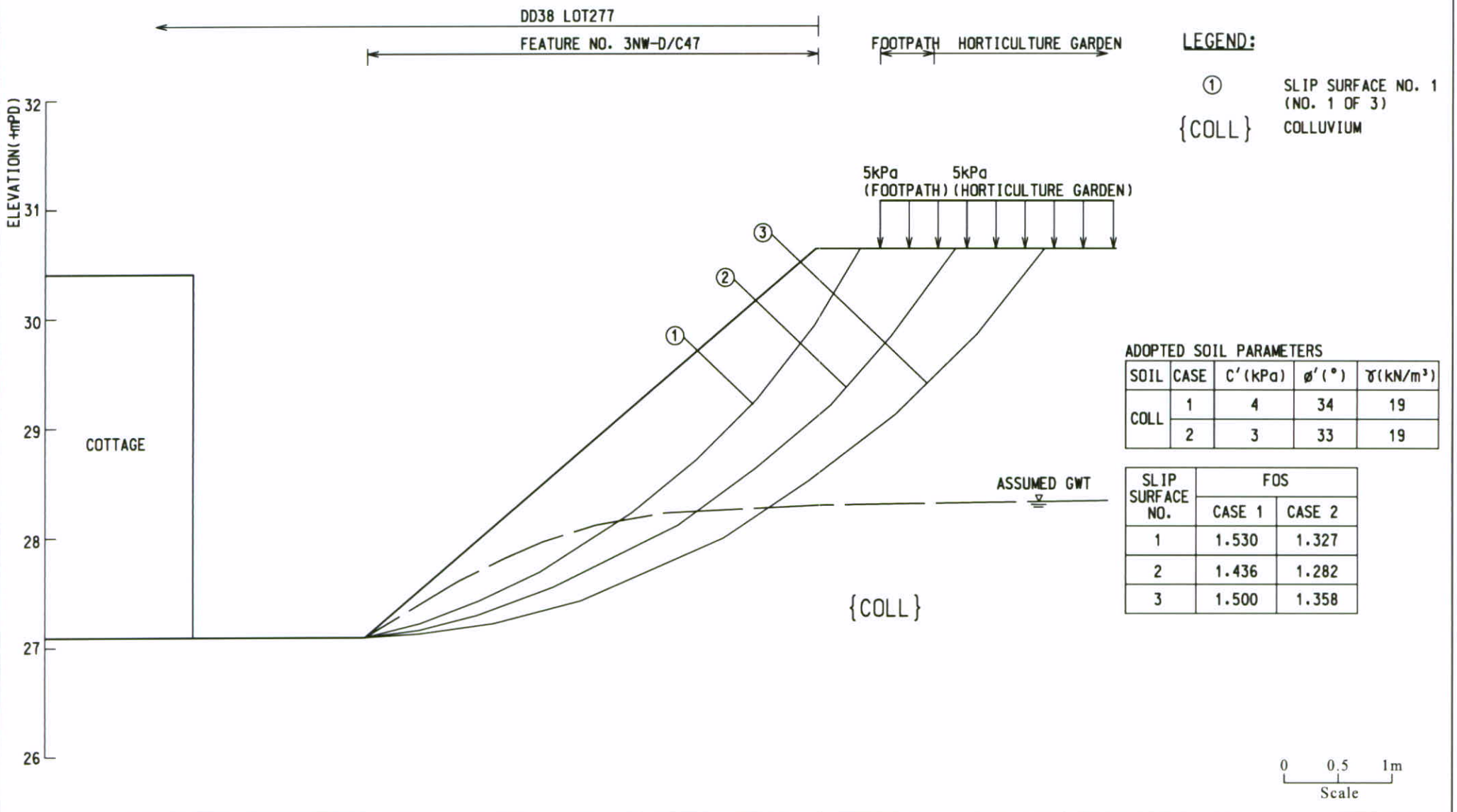
0 5 10 15 m
Scale

o:\geo\TOSSK\5\tog2_Study\3NW-DC47\3NW-DC47_FIG1_S2.dgn

pn11pf

Civil Engineering and Development Department Geotechnical Engineering Office	Agreement No. CE48 / 2006 (GE) 10-Year Extended LPM Project Phase 7, Package K Stability Studies of Private Slopes in Hong Kong Island and New Territories – Investigation	Halcrow	
		Scale 1:1000	Date NOV. 07
LOCATION PLAN AND LOCATIONS OF GEOLOGICAL SECTIONS		Figure No. 1	

LOT NO.: DD38 LOT257 & DD38 LOT277	LOCATION : 400m DUE EAST OF MAN UK PIN VILLAGE, SHA TAU KOK ROAD, WO HANG	FEATURE NO. 3NW-D/C47



ADOPTED SOIL PARAMETERS

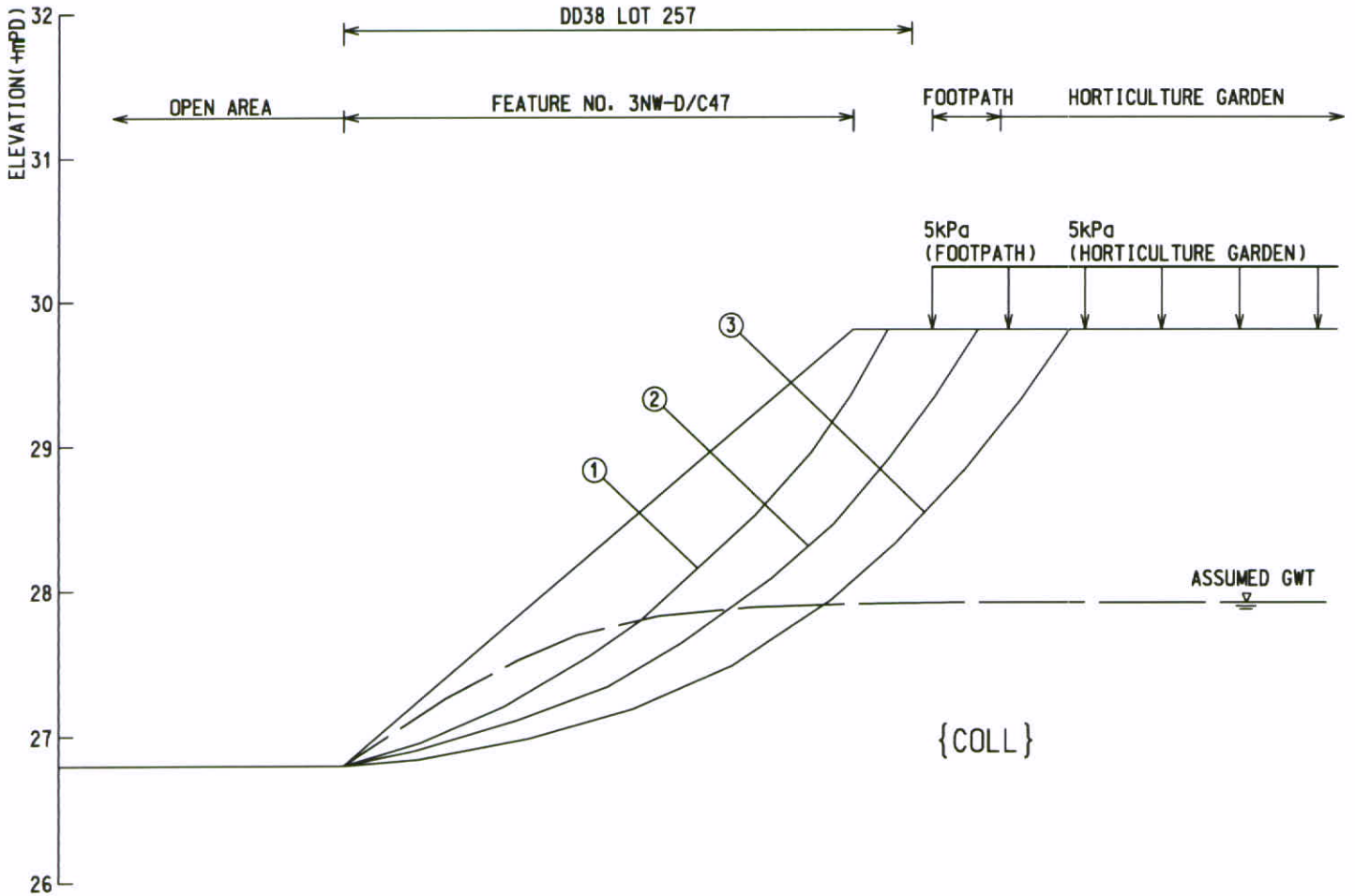
SOIL	CASE	C'(kPa)	ø'(°)	ϑ(kN/m³)
COLL	1	4	34	19
	2	3	33	19

SLIP SURFACE NO.	FOS	
	CASE 1	CASE 2
1	1.530	1.327
2	1.436	1.282
3	1.500	1.358

Civil Engineering and Development Department Geotechnical Engineering Office	Agreement No. CE48 / 2006 (GE) 10-Year Extended LPM Project Phase 7, Package K Stability Studies of Private Slopes in Hong Kong Island and New Territories – Investigation	STABILITY ANALYSIS OF SECTION 1 – 1	Halcrow		
			Scale 1:50	Date NOV. 07	Figure No. 2

KH_Yau E:*geo*TQSSSK*Stage2_Study*3NW-DC47*3NW-DC47_FIG2_S2.dgn

LOT NO.: DD38 LOT257 & DD38 LOT277	LOCATION : 400m DUE EAST OF MAN UK PIN VILLAGE, SHA TAU KOK ROAD, WO HANG	FEATURE NO. 3NW-D/C47



LEGEND:

① SLIP SURFACE NO. 1 (NO. 1 OF 3)

{COLL} COLLUVIUM

ADOPTED SOIL PARAMETERS

SOIL	CASE	C'(kPa)	ø'(°)	γ(kN/m³)
COLL	1	4	34	19
	2	3	33	19

SLIP SURFACE NO.	FOS	
	CASE 1	CASE 2
1	1.663	1.417
2	1.488	1.308
3	1.504	1.348

0 0.5 1m
Scale

Civil Engineering and Development Department Geotechnical Engineering Office	Agreement No. CE48 / 2006 (GE) 10-Year Extended LPM Project Phase 7, Package K Stability Studies of Private Slopes in Hong Kong Island and New Territories – Investigation	STABILITY ANALYSIS OF SECTION 2-2	Halcrow		
			Scale 1:50	Date NOV. 07	Figure No. 3

KH_Yau E:\geo\TQSSSK\Stage2_Study\3NW-DC47\3NW-DC47_FIG3_S2.dgn

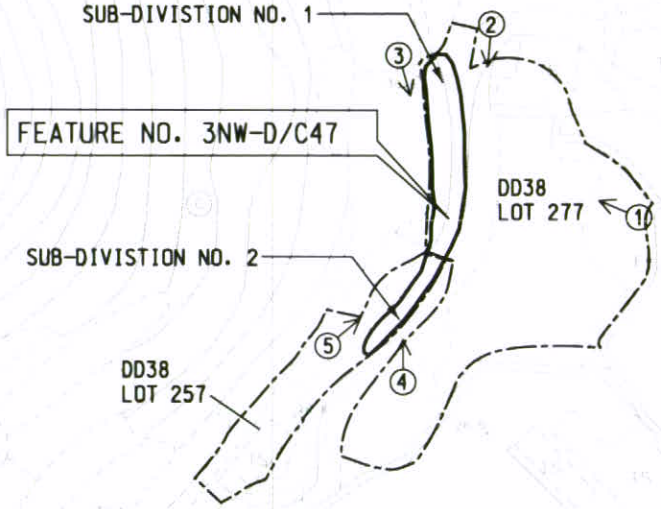
LOT NO.: DD38 LOT257 & DD38 LOT277	LOCATION : 400m DUE EAST OF MAN UK PIN VILLAGE, SHA TAU KOK ROAD, WO HANG

FEATURE NO. 3NW-D/C47

837400 E

837500 E

843000 N



842900 N

LEGEND:

FEATURE BOUNDARY

LOT BOUNDARY

① DIRECTION OF PLATES TAKEN WITH PLATE NO.

0 5 10 15 m
Scale

Civil Engineering and Development Department
Geotechnical Engineering Office

Agreement No. CE48 / 2006 (GE)
10-Year Extended LPM Project
Phase 7, Package K
Stability Studies of Private Slopes
in Hong Kong Island and New Territories
– Investigation

Halcrow

Scale 1:1000 | Date NOV. 07

DIRECTION OF PLATES

Figure No. PH01

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phillpF

FEATURE NO. 3NW-D/C47



AGREEMENT NO. CE 48/2006 (GE) 10-YEAR EXTENDED LPM PROJECT, PHASE 7, PACKAGE K	GENERAL VIEW OF THE FEATURE	Halcrow Plate 1

FEATURE NO. 3NW-D/C47



AGREEMENT NO. CE 48/2006 (GE) 10-YEAR EXTENDED LPM PROJECT, PHASE 7, PACKAGE K	Halcrow
GENERAL VIEW OF NORTHERN PORTION OF THE FEATURE	Plate 2

FEATURE NO. 3NW-D/C47



AGREEMENT NO. CE 48/2006 (GE) 10-YEAR EXTENDED LPM PROJECT, PHASE 7, PACKAGE K	Halcrow
CREST VIEW OF THE NORTHERN PORTION OF FEATURE	Plate 3

FEATURE NO. 3NW-D/C47



AGREEMENT NO. CE 48/2006 (GE) 10-YEAR EXTENDED LPM PROJECT, PHASE 7, PACKAGE K	Halcrow
GENERAL VIEW OF THE SOUTHERN PORTION OF FEATURE	Plate 4

FEATURE NO. 3NW-D/C47

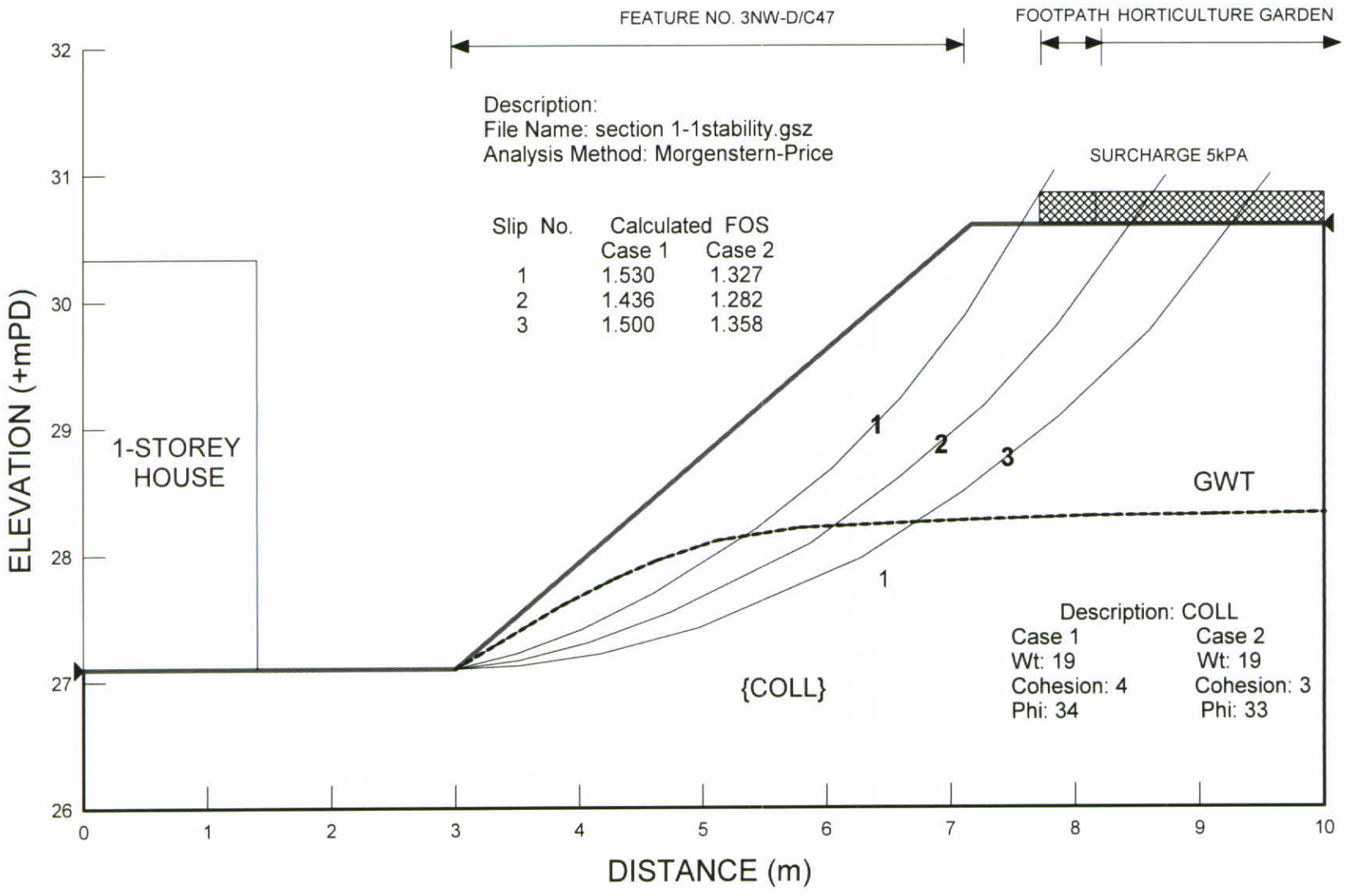


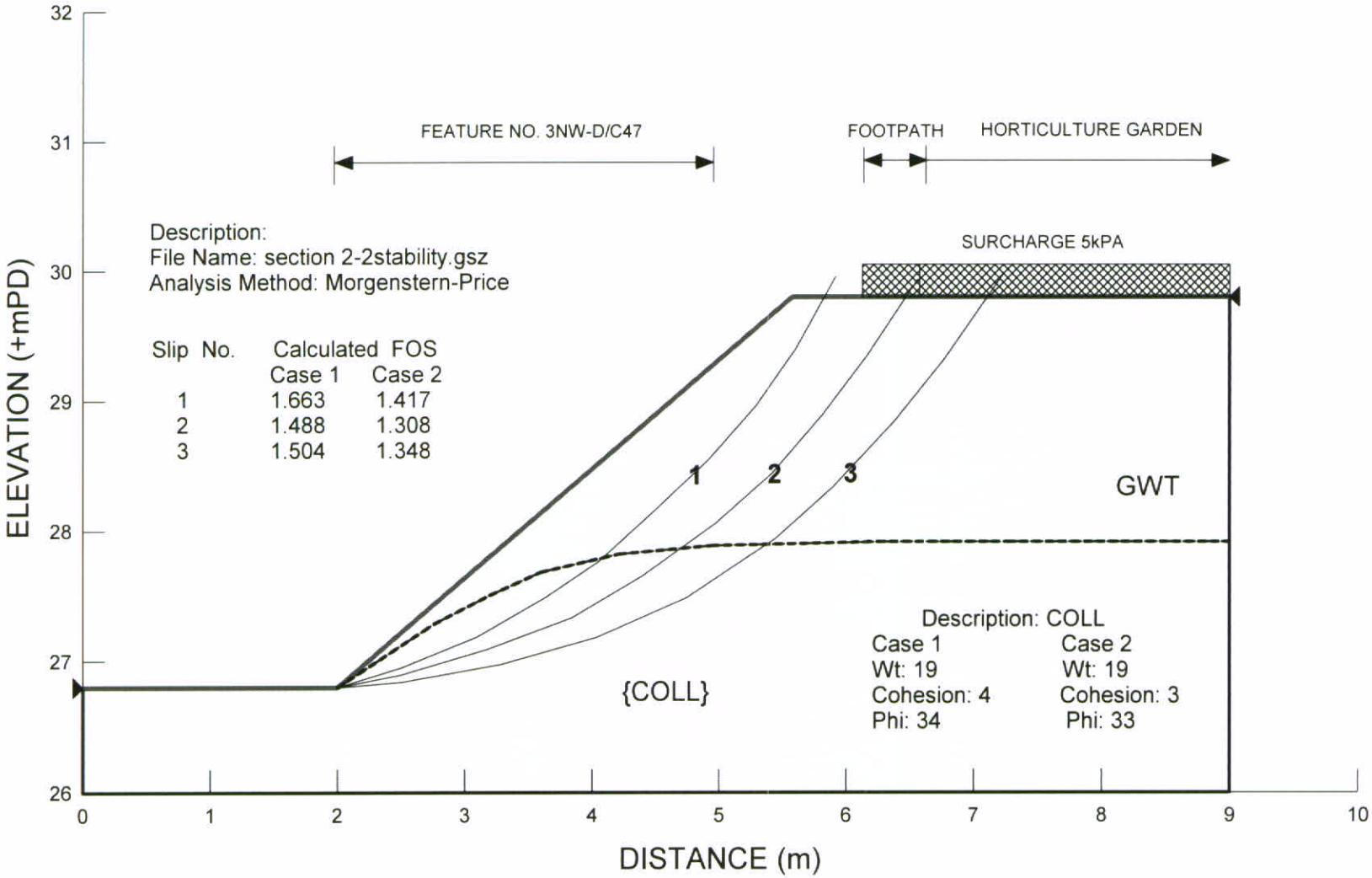
AGREEMENT NO. CE 48/2006 (GE)
10-YEAR EXTENDED LPM PROJECT, PHASE 7, PACKAGE K

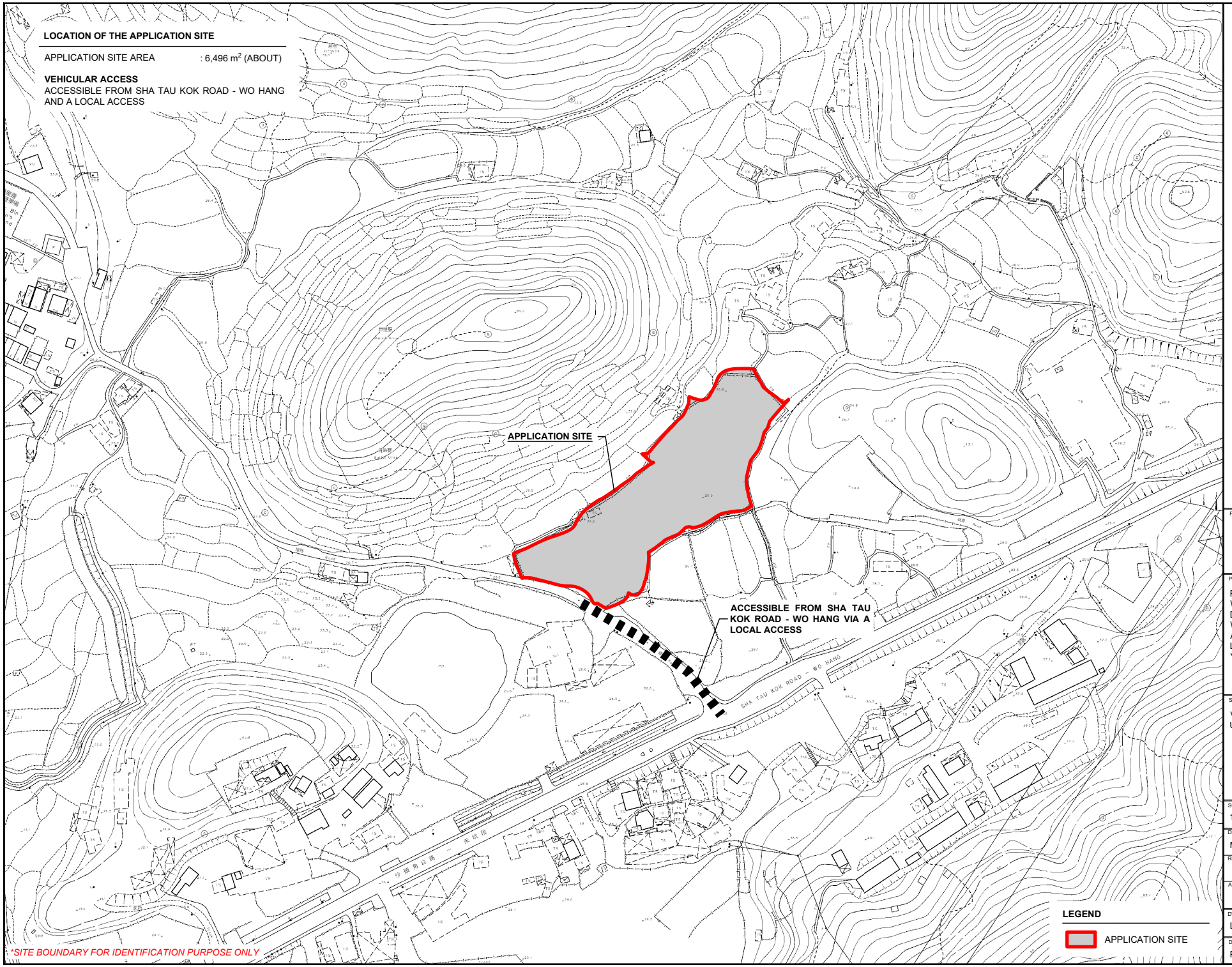
Halcrow

CREST VIEW OF THE SOUTHERN PORTION OF FEATURE

Plate 5


FEATURE NO. 3NW-D/C47
FOOTPATH HORTICULTURE GARDEN
Description:
File Name: section 1-1stability.gsz
Analysis Method: Morgenstern-Price
SURCHARGE 5kPA
Slip No. Calculated FOS
Case 1 Case 2
1 1.530 1.327
2 1.436 1.282
3 1.500 1.358
1-STOREY HOUSE
1
2
3
GWT
1
{COLL}
Description: COLL
Case 1
Wt: 19
Cohesion: 4
Phi: 34
Case 2
Wt: 19
Cohesion: 3
Phi: 33
ELEVATION (+mPD)
DISTANCE (m)
32
31
30
29
28
27
26
0
1
2
3
4
5
6
7
8
9
10


FEATURE NO. 3NW-D/C47
FOOTPATH
HORTICULTURE GARDEN
SURCHARGE 5kPA
Description:
File Name: section 2-2stability.gsz
Analysis Method: Morgenstern-Price
Slip No. Calculated FOS
Case 1 Case 2
1 1.663 1.417
2 1.488 1.308
3 1.504 1.348
1
2
3
GWT
{COLL}
Description: COLL
Case 1
Wt: 19
Cohesion: 4
Phi: 34
Case 2
Wt: 19
Cohesion: 3
Phi: 33
ELEVATION (+mPD)
DISTANCE (m)
32
31
30
29
28
27
26
0
1
2
3
4
5
6
7
8
9
10



NORTH

W E

S

PLANNING CONSULTANT

R-RICHES PLANNING LIMITED

PROJECT

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

SITE LOCATION

VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

SCALE

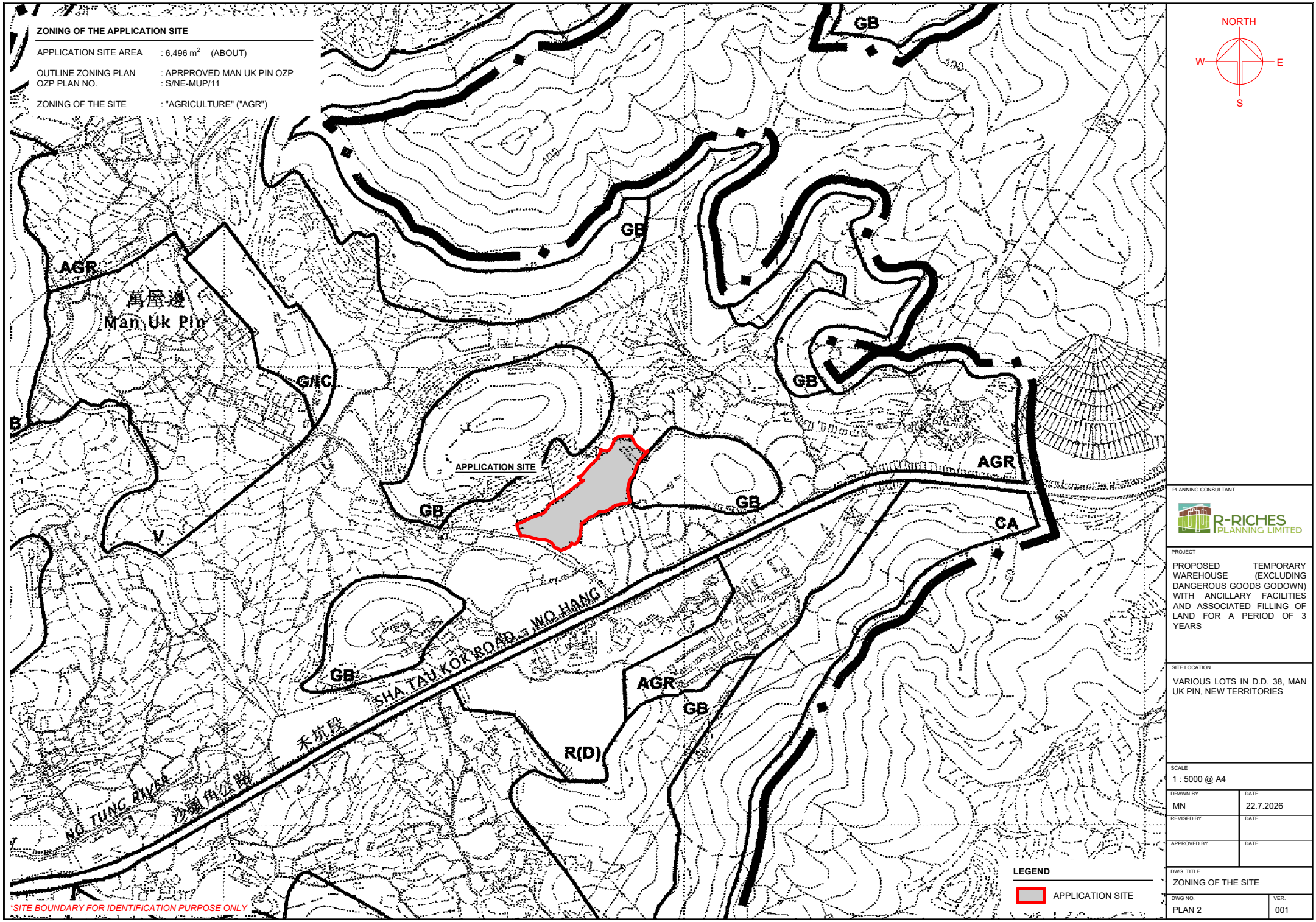
1 : 2500 @ A4

DRAWN BY	DATE
MN	22.7.2026
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE

LOCATION PLAN

DWG NO.	VER.
PLAN 1	001



PLANNING CONSULTANT

R-RICHES PLANNING LIMITED

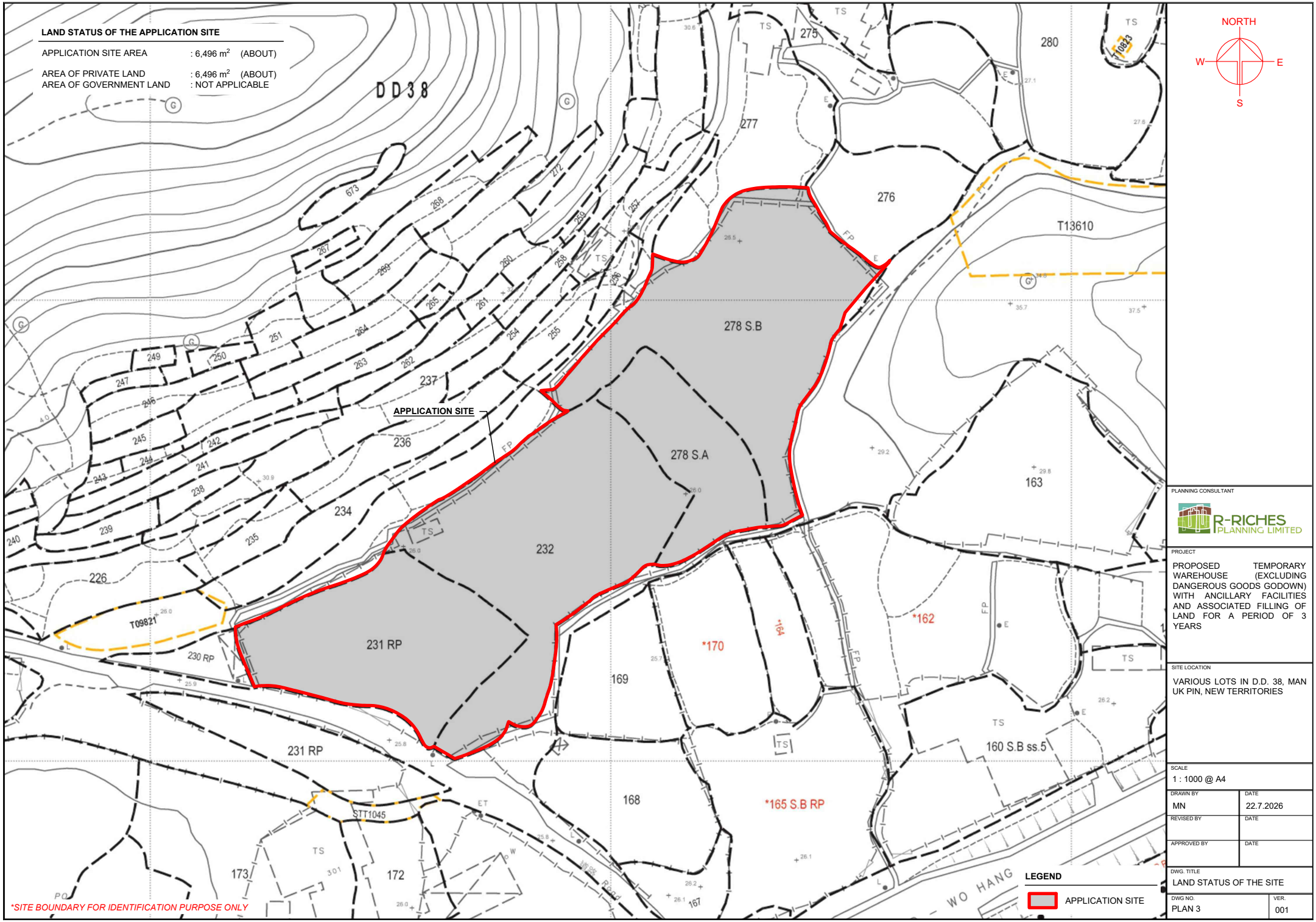
PROJECT

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

SITE LOCATION

VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

SCALE	1 : 5000 @ A4
DRAWN BY	MN
DATE	22.7.2026
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	ZONING OF THE SITE
DWG NO.	PLAN 2
VER.	001



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

SITE LOCATION

VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

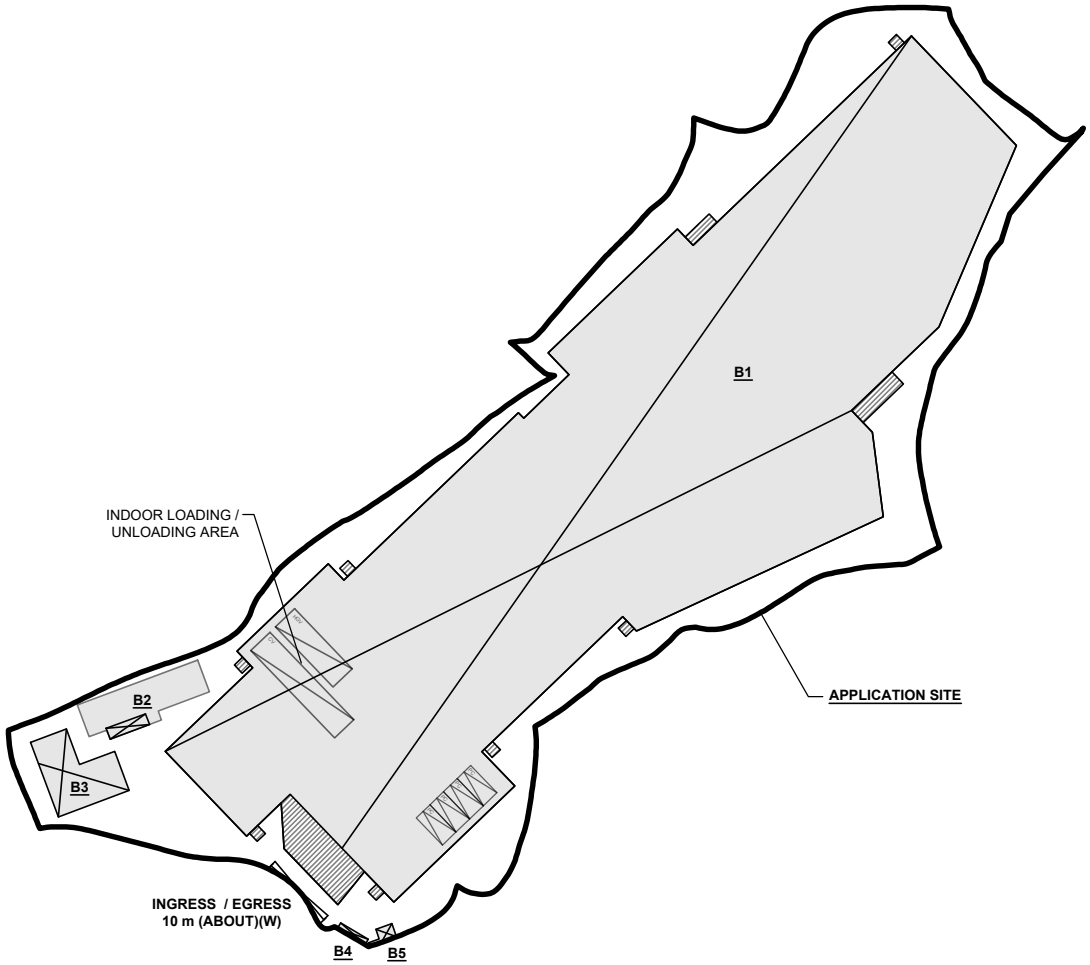
SCALE	1 : 1000 @ A4
DRAWN BY	MN
DATE	22.7.2026
REVISED BY	
DATE	
APPROVED BY	
DATE	
DWG. TITLE	LAND STATUS OF THE SITE
DWG NO.	PLAN 3
VER.	001

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 6,496 m^2	(ABOUT)
COVERED AREA	: 4,617 m^2	(ABOUT)
UNCOVERED AREA	: 1,879 m^2	(ABOUT)
PLOT RATIO	: 0.72	(ABOUT)
SITE COVERAGE	: 71 %	(ABOUT)
NO. OF STRUCTURE	: 5	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 4,695 m^2	(ABOUT)
TOTAL GFA	: 4,695 m^2	(ABOUT)
BUILDING HEIGHT	: 3 m - 16 m	(ABOUT)
NO. OF STOREY	: 1 - 2	

STRUCTURE	USE	COVERED AREA	GROSS FLOOR AREA	BUILDING HEIGHT
B1	WAREHOUSE (EXCL. D.G.G.*), OFFICE	4,519 m^2 (ABOUT)	4,519 m^2 (ABOUT)	16 m (ABOUT)(1-STOREY)
B2	FIRE SERVICE WATER TANK AND PUMP ROOM#	8 m^2 (ABOUT)	86 m^2 (ABOUT)	3.5 m (ABOUT)(2-STOREY)
B3	WASHROOM AND PUMP ROOM	81 m^2 (ABOUT)	81 m^2 (ABOUT)	3.5 m (ABOUT)(1-STOREY)
B4	METER ROOM	4 m^2 (ABOUT)	4 m^2 (ABOUT)	3 m (ABOUT)(1-STOREY)
B5	FIRE SERVICE CONTROL ROOM	5 m^2 (ABOUT)	5 m^2 (ABOUT)	3 m (ABOUT)(1-STOREY)
	TOTAL	**4,617 m^2 (ABOUT)**	**4,695 m^2 (ABOUT)**	

**D.G.G. - DANGEROUS GOODS GODOWN*
#PORTION OF STRUCTURE B2 IS UNDERGROUND (8 m^2 AT-GRADE STAIRCASE+ 78 m^2 UNDERGROUND FS WATER TANK AND PUMP ROOM)



PARKING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 4
DIMENSION OF PARKING SPACE	: 5 m (L) x 2.5 m (W)

LOADING / UNLOADING PROVISIONS

NO. OF L/UL SPACE FOR HEAVY GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 11 m (L) x 3.5 m (W)
NO. OF L/UL SPACE FOR CONTAINER VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 16 m (L) x 3.5 m (W)

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY*

LEGEND

- APPLICATION SITE
- STRUCTURE (AT GRADE)
- STRUCTURE (RAIN SHELTER)
- STRUCTURE (UNDERGROUND)
- PARKING SPACE (PC)
- LOADING / UNLOADING SPACE (HGV)
- LOADING / UNLOADING SPACE (CV)
- INGRESS / EGRESS

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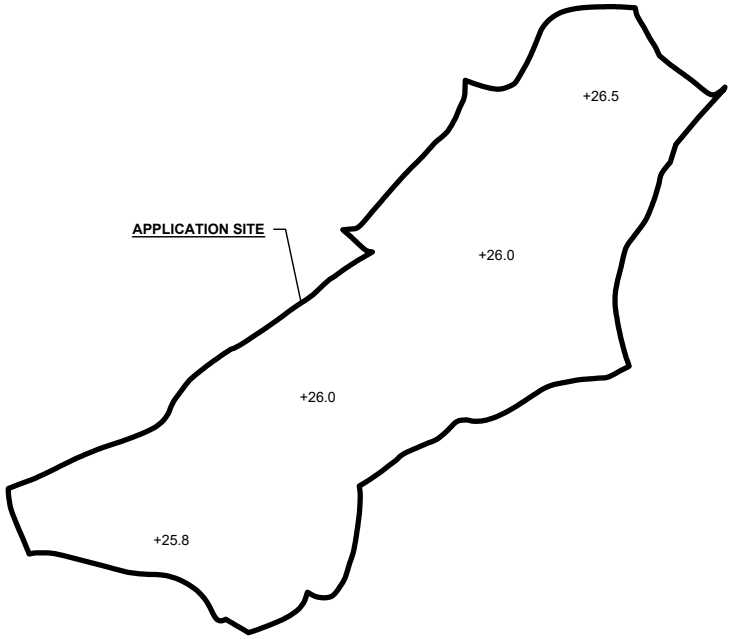
PROJECT
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS

SITE LOCATION
VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

SCALE	1 : 1000 @ A4
DRAWN BY	MN
DATE	7.9.2026
REVISED BY	CC
DATE	29.10.2026
APPROVED BY	
DATE	
DWG. TITLE	LAYOUT PLAN
DWG NO.	PLAN 4
VER.	001

EXISTING CONDITION OF THE APPLICATION SITE

APPLICATION SITE AREA	: 6,496 m^2	(ABOUT)
EXISTING SOILED GROUND AREA	: 6,496 m^2	(ABOUT)
EXISTING SITE LEVELS	: +25.8 mPD TO +26.5 mPD	(ABOUT)



LEGEND

APPLICATION SITE

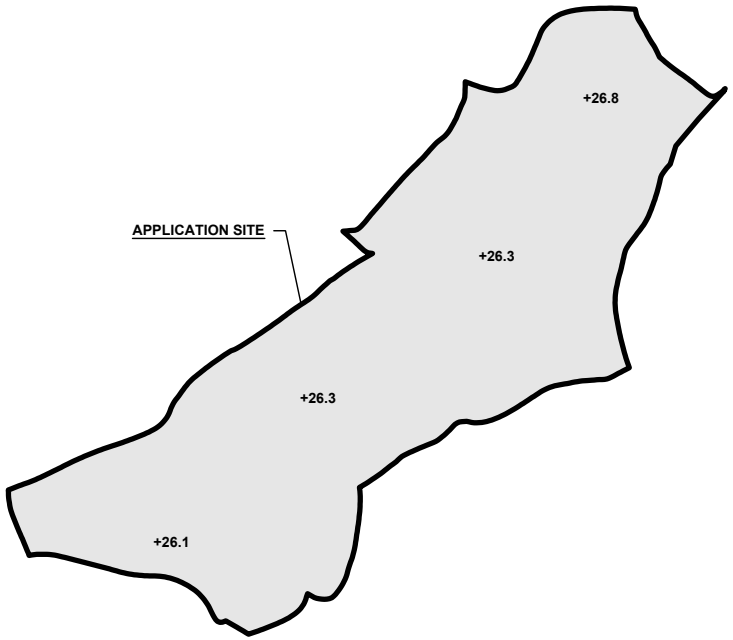
+25.8 EXISTING SITE LEVEL

**SITE LEVELS ARE FOR ILLUSTRATION PURPOSE ONLY*

**SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY*

PROPOSED FILLING OF LAND AREA

APPLICATION SITE AREA	: 6,496 m^2	(ABOUT)
PROPOSED FILLING AREA	: 6,496 m^2	(ABOUT)
DEPTH OF LAND FILLING	: NOT MORE THAN 0.3 m	
PROPOSED SITE LEVELS	: +26.1 mPD TO +26.8 mPD	(ABOUT)
MATERIAL OF LAND FILLING	: CONCRETE	
USE	: SITE FORMATION OF STRUCTURES, PARKING AND LOADING / UNLOADING SPACE AND CIRCULATION AREA	

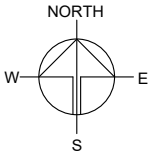


LEGEND

APPLICATION SITE

PROPOSED LAND FILLING AREA

+26.1 PROPOSED SITE LEVEL



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SITE LOCATION

VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

SCALE

1 : 1500 @ A4

DRAWN BY	DATE
MN	8.9.2026
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE

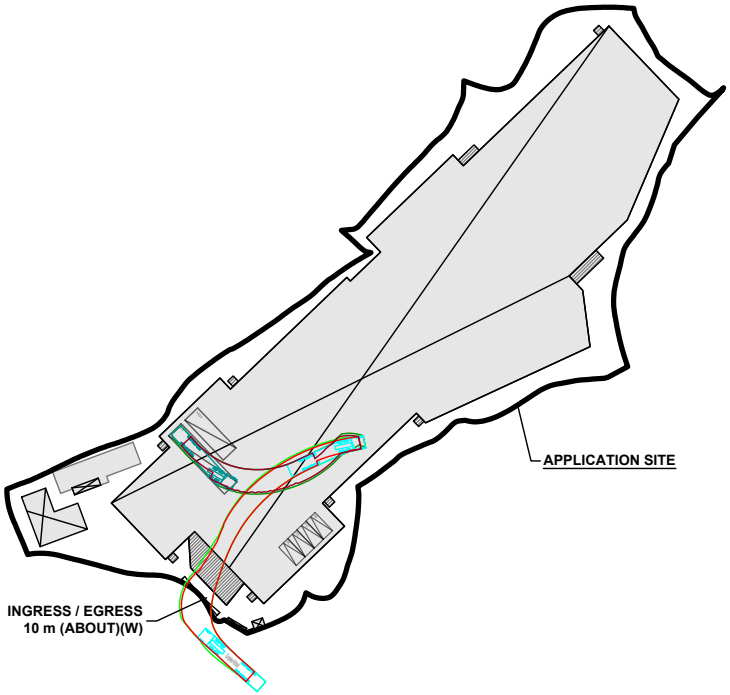
FILLING OF LAND AREA

DWG NO.	VER.
PLAN 5	001

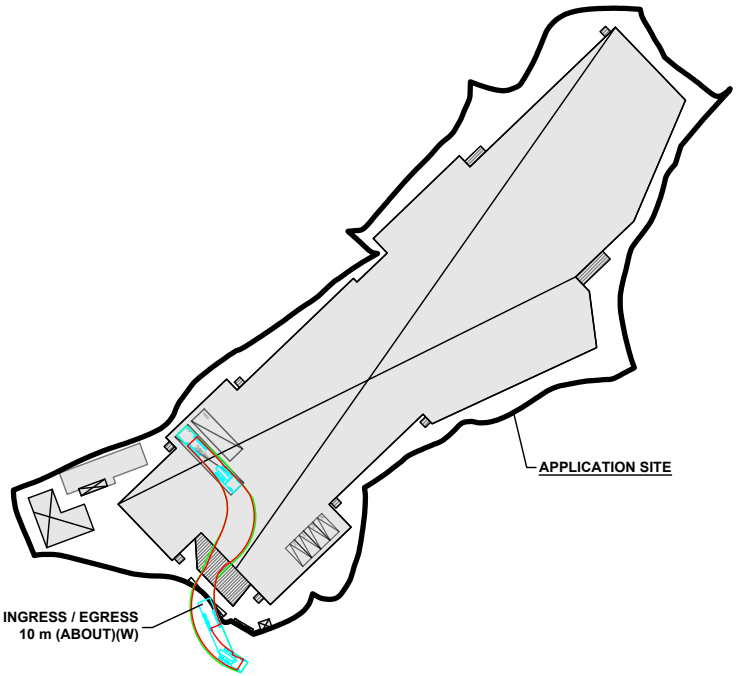
SWEPT PATH ANALYSIS

TYPE OF VEHICLE : CONTAINER VEHICLE
DIMENSION OF VEHICLE : 2.5 m (W) X 16 m (L)

SWEPT PATHS GENERATED BY AUTODESK VEHICLE TRACKING



FROM THE SHA TAU KOK ROAD - WO HANG TO THE SITE



FROM THE SITE TO SHA TAU KOK ROAD - WO HANG

LEGEND

- APPLICATION SITE
- STRUCTURE (AT GRADE)
- STRUCTURE (RAIN SHELTER)
- STRUCTURE (UNDERGROUND)
- PARKING SPACE (PC)
- LOADING / UNLOADING SPACE (HGV)
- LOADING / UNLOADING SPACE (CV)
- INGRESS / EGRESS
- CONTAINER VEHICLE
- SWEPT PATH ANALYSIS

*SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

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

SITE LOCATION
VARIOUS LOTS IN D.D. 38, MAN UK PIN, NEW TERRITORIES

SCALE
1 : 1500 @ A4

DRAWN BY	DATE
MN	7.9.2026
CHECKED BY	DATE
APPROVED BY	DATE

DWG. TITLE
SWEPT PATH ANALYSIS

DWG NO.	VER.
PLAN 6	001