

Application for Permission under Section 16 of The Town Planning Ordinance (Cap.131)
Proposed Temporary Place of Recreation, Sports or Culture (Hobby Farm) with Ancillary Facilities for a Period of 3
Years and Associated Filling of Land at Lots 1275 (Part), 1279 (Part), 1280, 1281 (Part), 1282 and 1284 (Part) in D.D. 96,
Ma Tso Lung, New Territories

Geotechnical Planning Review Report

Geotechnical Planning
Review Report for
Application for Permission under Section 16
of The Town Planning Ordinance (Cap.131)
Proposed Temporary Place of Recreation, Sports or
Culture (Hobby Farm) with Ancillary Facilities for a
Period of 3 Years and Associated Filling of Land at
Lots 1275 (Part), 1279 (Part), 1280, 1281 (Part), 1282
and 1284 (Part) in D.D. 96, Ma Tso Lung, New
Territories

Feb 2026

1. INTRODUCTION

C&H Consulting Co., Ltd was appointed to carry out Geotechnical Planning Review Report (GPRR) for the application for permission under Section 16 of the Town Planning Ordinance (Cap.131) for Proposed Temporary Place of Recreation, Sports or Culture (Hobby Farm) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land at Lots 1275 (Part), 1279 (Part), 1280, 1281 (Part), 1282 and 1284 (Part) in D.D. 96, Ma Tso Lung, New Territories.(hereafter collectively called "the Site")

This GPRR is based on desk study and review of available documentary information and proposed development plan. The geology and site conditions are described. Potential geotechnical constraints are identified in the assessment.

2. THE SITE AND NEARBY MAN-MADE SLOPE FEATURES

The site is a filling land (Approx. 0.2m to 0.5m higher than surrounding ground) at Ma Tso Lung Road, Ma Tso Lung, New Territories. (See Appendix F).

Site photos taken in December 2024 are presented in Appendix A (see Photos A to D). General view and close up view of the Site is shown on Photo A, B, C and D. The location plan and the aerial view of the Site is presented in Figures 1 and 2, respectively.

According to the available SIMAR reports retrieved from Lands Department and SIS records obtained from Geotechnical Engineering Office (GEO), there are 9 nos. of registered geotechnical features lies within or in the vicinity of the site (see Figure 3). The features and the responsible lot/party are tabulated below:

Feature No.	Sub-division	Owner/Department
2NE-D/C50	-	Lands Department
2NE-D/C51	-	Lands Department
2NE-D/C48	-	Lands Department
2NE-D/C49	-	Lands Department
2NE-D/CR53	-	Lands Department
2NE-D/CR75	-	Lands Department
2NE-D/CR76	-	Lands Department
2NE-D/CR 143	1	DD96 Lot 1275
	2	DD96 Lot 1283
	3	Water Supplies Department

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2NE-D/F17	1	DD96 Lot 1275
	2	DD96 LOT1274
	3	Lands Department

A copy of the SIMAR reports and slope records are enclosed in Appendix B and C, respectively. The location of the above captioned features is also presented in Figure 3

3. Desk Study

Desk study has been carried out to search and review the existing building records, previous ground investigation data and geotechnical study reports kept by the Geotechnical Information Unit (GIU) of Geotechnical Engineering Office (GEO) and the Buildings Department (BD).

3.1 Geotechnical Maps

The geology of the Site is shown on San Tin : Solid and Superficial Geology (1:20 000 map) (2022, Edition II), 1 map. The local geology of the Site is presented in Appendix E and described below.

3.1.1 Solid Geology

The 1:20,000 scale geological maps indicated that regional area around the Site is underlain by Holocene of the Fanling Formation in the age of Quaternary.

3.1.2 Superficial Geology

Superficial deposits based on Appendix E has been recorded as Alluvium and principal material is clay,slit,sand and gravel; well sorted to semi-sorted.

3.1.3 Structural Geology

No fault has been recorded within or in the vicinity of the Site. Several faults have been recorded on geological map to the northwest and northeast of the Site.

3.2 Enhanced Natural Terrain Landslide Inventory

In 1995, the GEO compiled the Natural Terrain Landslide Inventory (NTLI) from an interpretation of high-altitude (8,000ft and above) aerial photographs dated from 1945 to 1994 (King, 1999). In 2007, the GEO produced an Enhanced Natural Terrain

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Landslide Inventory (ENTLI) using low-altitude (8,000ft and below) aerial photographs to update the NTLI.

In accordance with GEO Report No. 138 (GEO, 2016), landslides are classed as either “Relict” or “Recent” , depending on their appearance in aerial photographs.

“Relict” landslides are defined as those where the main scarp is well-defined but vegetation has re-established on the scar on the earliest set of available aerial photographs. “Recent” landslides are defined as having occurred within the timespan of the aerial photograph coverage. These are typically identified as having a light tone on the aerial photographs and are bare of vegetation.

The ENTLI has no record of any relict landslides.

3.3 Relevant Previous Ground Investigation Works

No previous ground investigation has been taken place within the Site. The previous ground investigation reports adjacent to the site have been retrieved and summarized below:

GIU Report No,	GI Station Nos:	Report Title	GI Stations related to Feature No,
51471	CH1,CH2,CH3, CH4,CH5, CH6,SP1	Consultancy for the investigation, Design and Supervision of Slope and Retaining Wall Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long on Lot 1283 in DD96	2NE-D/CR 143

3.4 DH Orders

No DH Order relevant to the man-made features has been issued within or in the vicinity of the Site. But DH orders had been issued to 2NE-D/CR 143 (DH Orders No. : DH0073/NT/03/C) in 2003 and the improvement works of the slope has been completed in the same year.

Geotechnical Planning Review Report

4. Impacts of proposed works on existing slopes/retaining walls & Natural Hillsides

4.1 Feature No. 2NE-D/C50

According to the SIS record, the registered slope is 9m in height and 15m in length with slope gradient ranging at about 35 degree to the horizontal, which is located at north of the site from 100m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.2 Feature No. 2NE-D/C51

According to the SIS record, the registered slope is 6.5m in height and 36m in length with slope gradient ranging at about 43 degree to the horizontal, which is located at north of the site from 80m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.3 Feature No. 2NE-D/C53

According to the SIS record, the registered slope is 2m in height and 12m in length with slope gradient ranging at about 45 degree to the horizontal and 4m in height and 8m in length with slope gradient ranging at about 60 degree to the horizontal, which is located at north of the site from 50m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.4 Feature No. 2NE-D/C49

According to the SIS record, the registered slope is 3.3m in height and 28m in length with slope gradient ranging at about 70 degree to the horizontal, which is located at north of the site from 80m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

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4.5 Feature No. 2NE-D/CR48

According to the SIS record, the registered slope is 1.5m in height and 22m in length with slope gradient ranging at about 45 degree to the horizontal and the registered wall is vertical and 2.5m in height and 31m in length, which is located at north of the site from 50m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.6 Feature No. 2NE-D/CR75

According to the SIS record, the registered slope is 3m in height and 29m in length with slope gradient ranging at about 50 degree to the horizontal and the registered wall is vertical and 2.5m in height and 22m in length, which is located at northeast of the site from 100m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.7 Feature No. 2NE-D/CR76

According to the SIS record, the registered slope is 3m in height and 6m in length with slope gradient ranging at about 65 degree to the horizontal and the registered wall is vertical and 3.5m in height and 29m in length, which is located at northeast of the site from at least 100m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.8 Feature No. 2NE-D/CR143

According to the SIS record, the registered slope is 2.7m in height and 27m in length with slope gradient ranging at about 40 degree to the horizontal and the registered wall (face angle ranging from 40 to 52 degrees) is 2.5m in height and 40m in length, which is located at north of the site from 10m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

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According to topographic survey, the existing slope is around 2.53m in height (Crest at 10.04mPD, Toe at 7.53mPD) and slope gradient is around 40 degrees, which seems consistent as SIS record. As a result, the proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.9 Feature No. 2NE-D/F 17

According to the SIS record, the registered slope is 4m in height and 38m in length with slope gradient about 50 degree to the horizontal, which is located at north-east of the site from 15m. The proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

According to topographic survey, the existing slope is around 3.16 m in height (Crest at 8.93mPD, Toe at 5.77mPD) and slope gradient is around 50 degrees, which seems consistent as SIS record. As a result, the proposed development will not affect the geotechnical features. No further detailed of the slope and wall stability assessment shall be carried out (i.e. Geotechnical assessment report).

4.10 Existing features at site

There are no existing structures or features at the proposed site.

4.11 Site Formation Works

Filling works at site has been carried out and its formation level is higher than surrounding (from 0.2m to 0.5m) with max. 30 degrees gradient at side of the site. (See Appendix E) , which does not significantly affect existing structures and features.

4.12 Suspected unauthorized works

Regarding Section A-A, proposed site is located at toe of the slope within 30 degrees and 1.68m in height. According to TGN15, the shallow angle between unregistered slope and proposed site is 29.4 degrees, which is smaller than travel angle 30 degrees. As a result, the unregistered slope will not affect the proposed application even the

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slope collapse.

Regarding Section B-B, proposed site is located at the crest slope within 15.9 degrees and 0.91m in height. There are no proposed structure on proposed application and activities works/ material shortage will be carried out at slope crest offset 1m

Regarding Section C-C, proposed site is located at the crest slope within 27.1 degrees and 0.71m in height. There are no proposed structures on proposed application and activities works/ material shortage will be carried out at slope crest offset 1m.

4.13 Suspected unauthorized structures/concrete blocks

Regarding the topographic plan and Site Photo D2, concrete blocks were found and the concrete blocks do not face to our proposed application site and its function is staircase, which is not used for retaining soil. As a result, the blocks will not affect our proposed application even if the block fails in overturning/sliding. Besides, the hoarding will be erected to protect the application site.

5. CONCLUSION

Based on the above discussion, it can be concluded that the proposed development is feasible from geotechnical point of view. The construction is unlikely to post problems to the surrounding area under careful planning, proper execution and vigilant supervision.

FIGURES



— Site Boundary

Company:



Project:

Lots 1275 (Part),
1279 (Part), 1280,
1281 (Part), 1282
and 1284 (Part) in
D.D. 96,
Ma Tso Lung,
New Territories

Title:

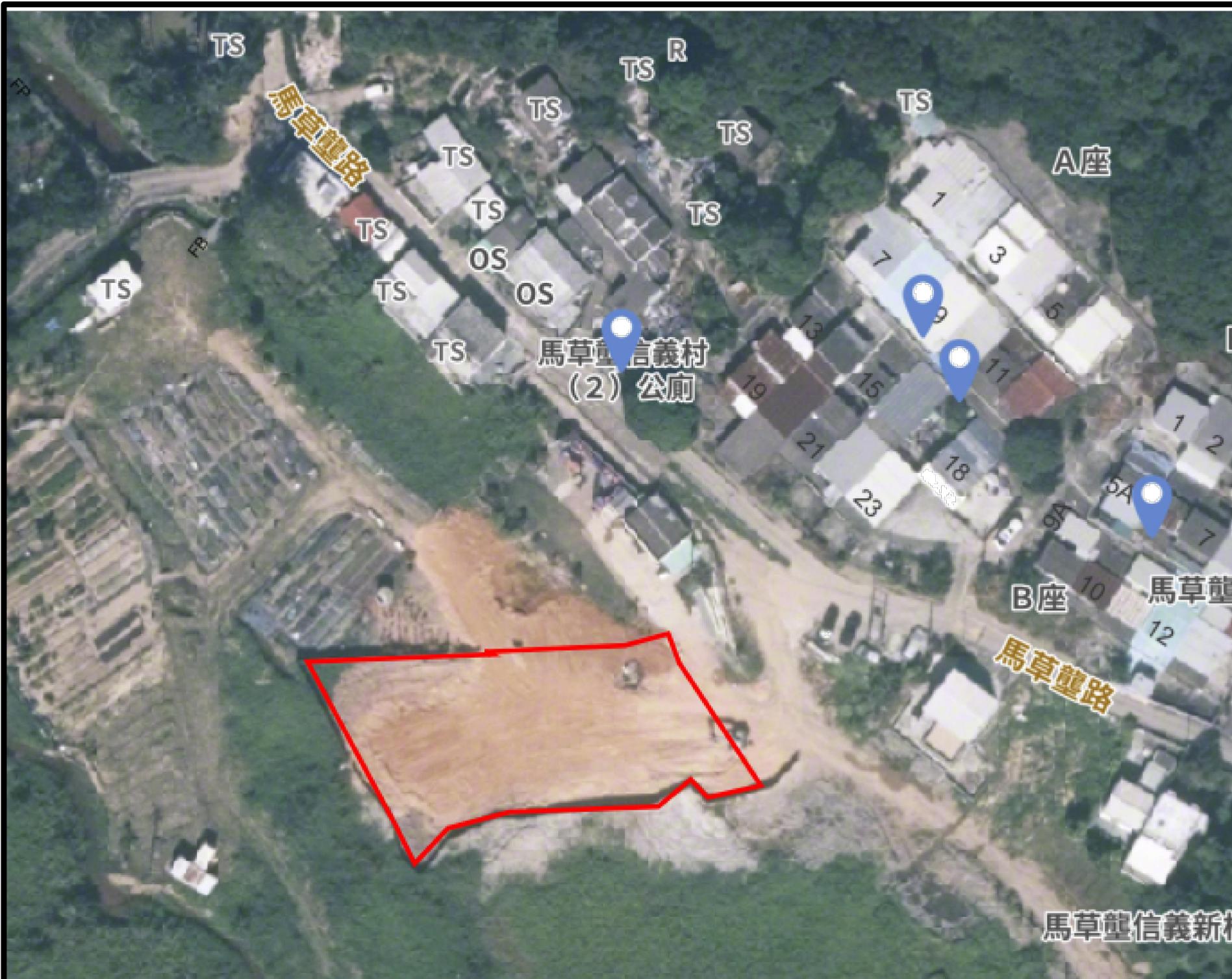
Site Location Plan

Dwg No:

File:

Fig.1

Date:
20 May 2025



— Site Boundary

Company:



Project:

Lots 1275 (Part),
1279 (Part), 1280,
1281 (Part), 1282
and 1284 (Part) in
D.D. 96,
Ma Tso Lung,
New Territories

Title:

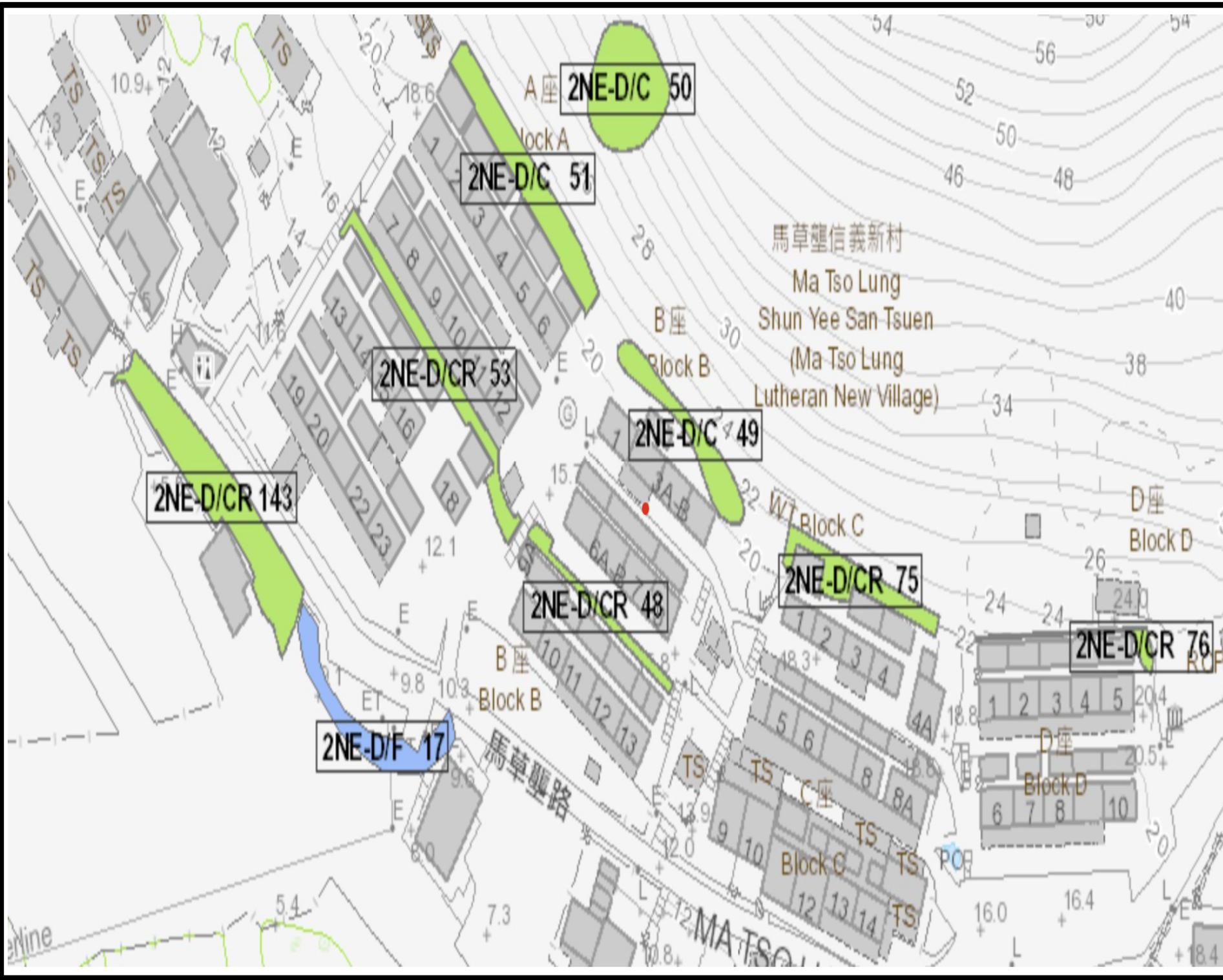
Aerial Photo

Dwg No:

File:

Fig.2

Date:
20 May 2025



— Site Boundary

Company:



Project:

Lots 1275 (Part), 1279 (Part), 1280, 1281 (Part), 1282 and 1284 (Part) in D.D. 96, Ma Tso Lung, New Territories

Title:

Registered Geotechnical Feature

Dwg No:

File:

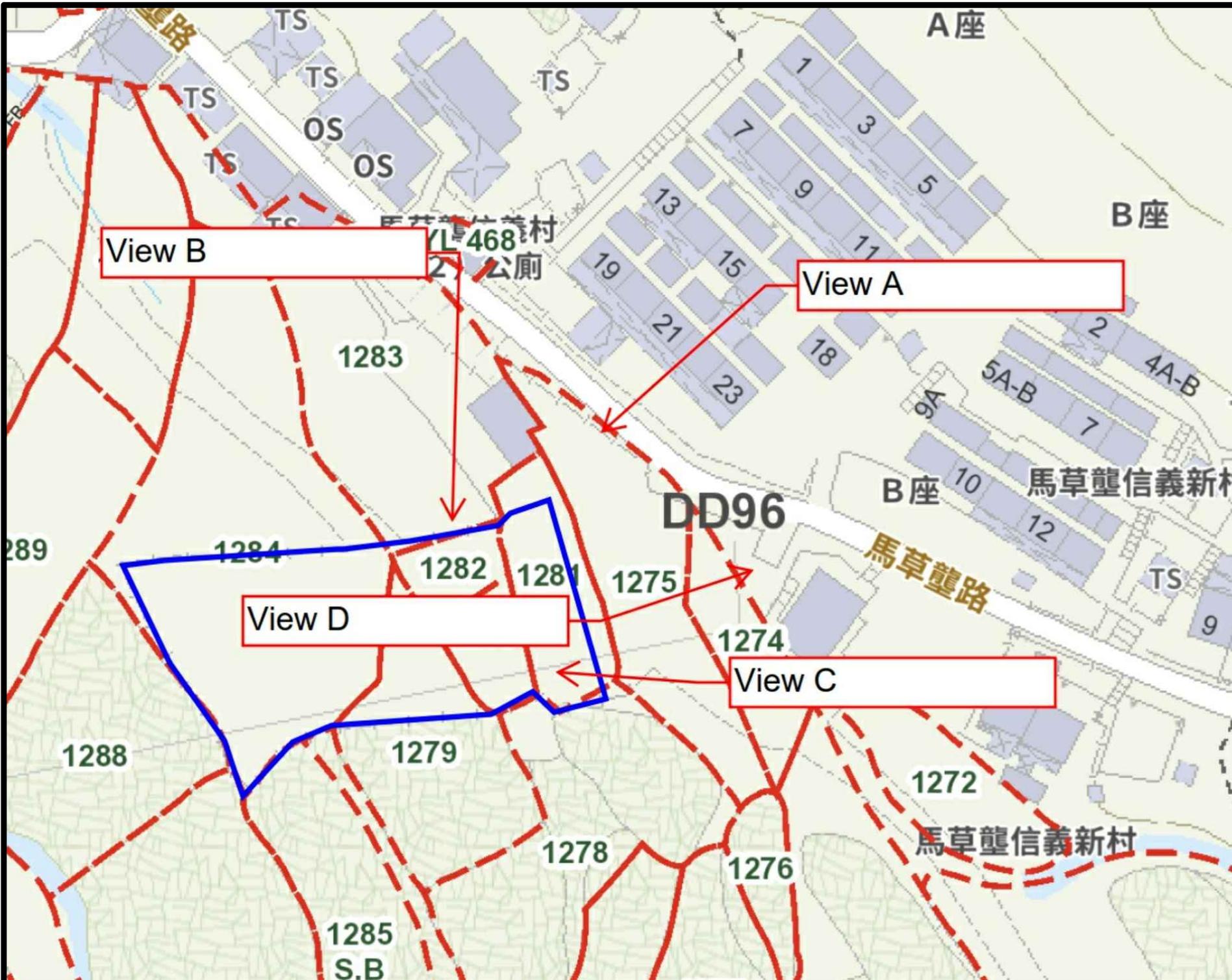
Fig.3

Date:

29 Dec 2024

Appendix A

Photographs



— Site Boundary

Company:



Project:

Lots 1275 (Part),
1279 (Part), 1280,
1281 (Part), 1282
and 1284 (Part) in
D.D. 96,
Ma Tso Lung,
New Territories

Title:
Eye Location Plan
and Lot index
Plan

Dwg No: File:

Fig.4

Date:
20 May 2025



VIEW A SITE VIEW



VIEW B SITE VIEW



VIEW C SITE VIEW



VIEW D1 Entrance of Site



Concrete Block (outside the northeastern corner of the Site within Lots 1275 and 1281 in D.D. 96)

VIEW D2 General View of Entrance of Site

Appendix B

SIMAR Record

Slope Maintenance Responsibility Report

(2NE-D/C50)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/C50	Sub-Division		Not Applicable
	Location	TO THE E OF T14521		
	Responsible Lot/Party	Lands Department	Maintenance Agent	Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

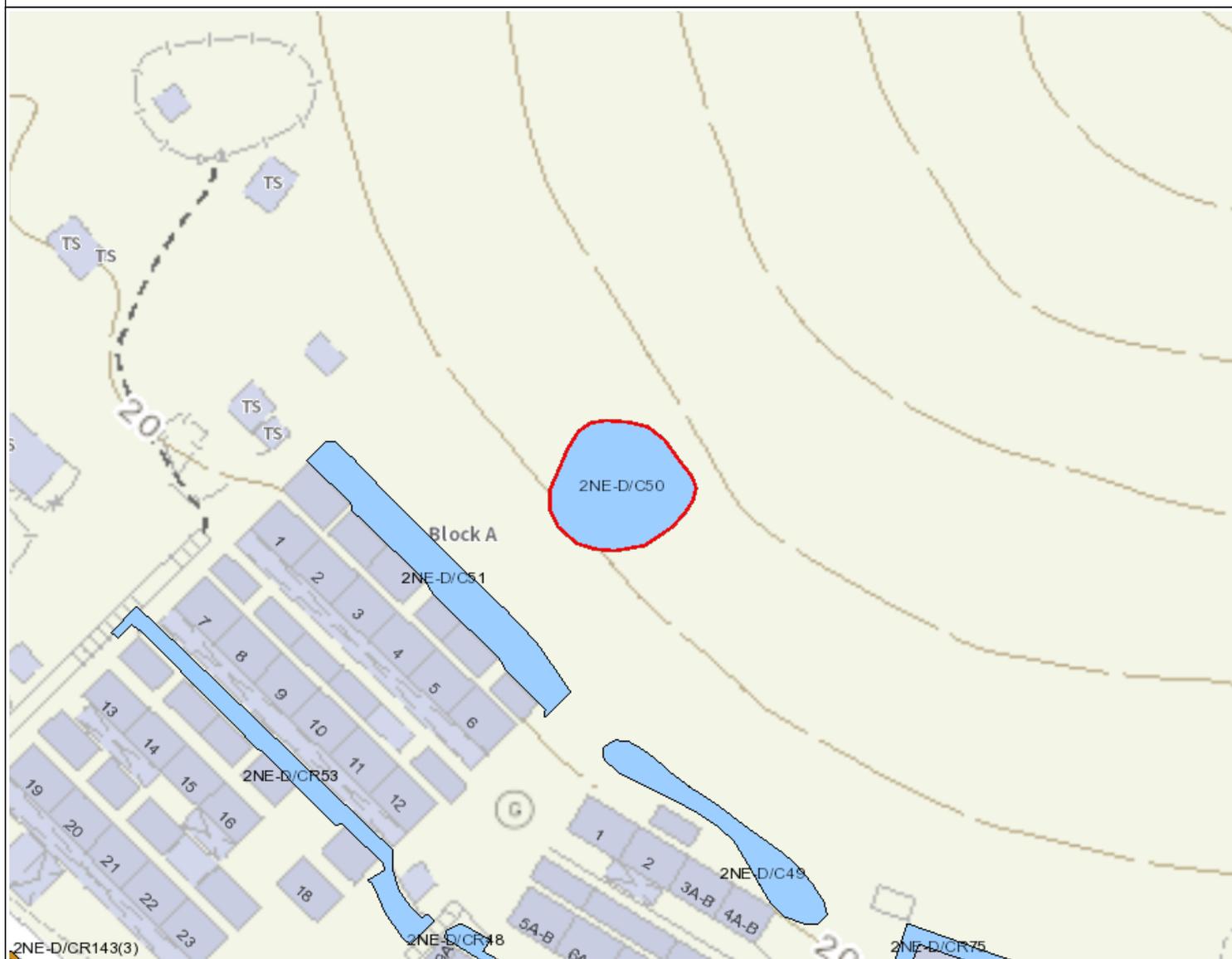
Notes:

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- (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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Search Criteria: 2NE-D/C50

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



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Slope Maintenance Responsibility Report

(2NE-D/C51)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/C51	Sub-Division	Not Applicable
	Location	Wholly within unallocated Government land adjoining CLP T14520, CLP T14521, CLP T14526, CLP T14979, GLL T17648 and GLL T17671, Shun Yee San Tsuen, Ma Tso Lung	
	Responsible Lot/Party	Lands Department	Maintenance Agent Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.	

- End of Report -

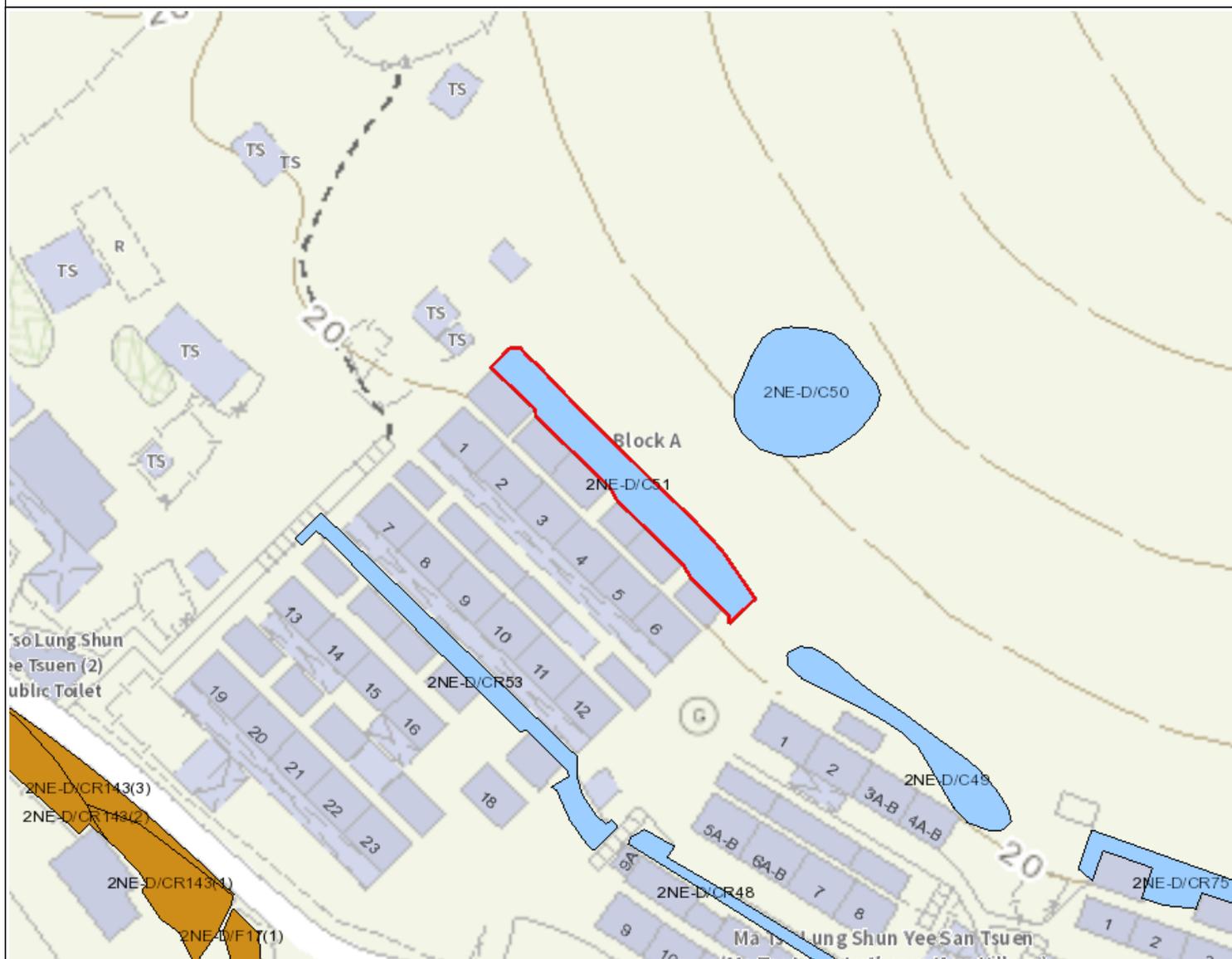
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Search Criteria: 2NE-D/C51

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



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Slope Maintenance Responsibility Report

(2NE-D/C49)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/C49	Sub-Division	Not Applicable
	Location	PARTLY IN GL, ADJOINING N8760 NEAR SPOT LEVEL 16.1	
	Responsible Lot/Party	Lands Department	Maintenance Agent Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.	

- End of Report -

Notes:

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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
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Slope Maintenance Responsibility Report

(2NE-D/CR48)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR48	Sub-Division		Not Applicable
	Location	ON GOVERNMENT LAND ADJOINING T11030, T6339, T9575 AND LICENCE 837		
	Responsible Lot/Party	Lands Department	Maintenance Agent	Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

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Search Criteria: 2NE-D/CR48

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



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Slope Maintenance Responsibility Report

(2NE-D/C49)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/C49	Sub-Division	Not Applicable
	Location	PARTLY IN GL, ADJOINING N8760 NEAR SPOT LEVEL 16.1	
	Responsible Lot/Party	Lands Department	Maintenance Agent Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.	

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



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Slope Maintenance Responsibility Report

(2NE-D/CR53)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR53	Sub-Division		Not Applicable
	Location	GOVERNMENT LAND ADJOINING GLL T14525, GLL T18859 , GLL T18943 AND GLL T6331, MA TSO LUNG ROAD		
	Responsible Lot/Party	Lands Department	Maintenance Agent	Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

Notes:

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- (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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Search Criteria: 2NE-D/CR53

Slope Maintenance Responsibility Report

(2NE-D/CR75)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR75	Sub-Division	Not Applicable
	Location	Partly within GLL T19523 and partly on Government land	
	Responsible Lot/Party	Lands Department	Maintenance Agent Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.	

- End of Report -

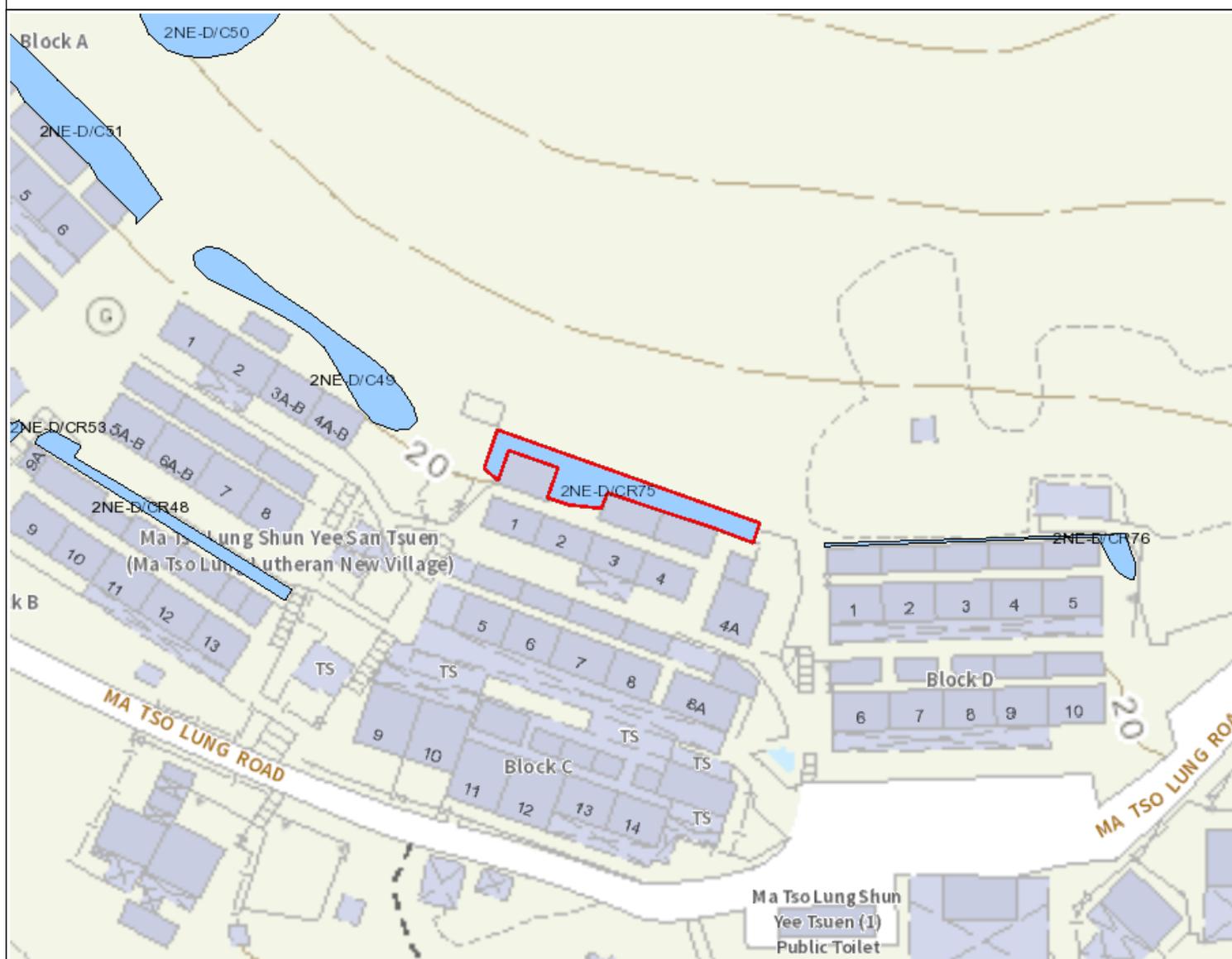
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Search Criteria: 2NE-D/CR75

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**

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Slope Maintenance Responsibility Report

(2NE-D/CR76)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR76	Sub-Division		Not Applicable
	Location	WITHIN GLL T19210 AND ADJOINING GLL N030821, GLL T15357, GLL T17642 AND GLL T17649 IN DD96, MA TSO LUNG SHUN YEE SAN TSUEN, YUEN LONG		
	Responsible Lot/Party	Lands Department	Maintenance Agent	Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

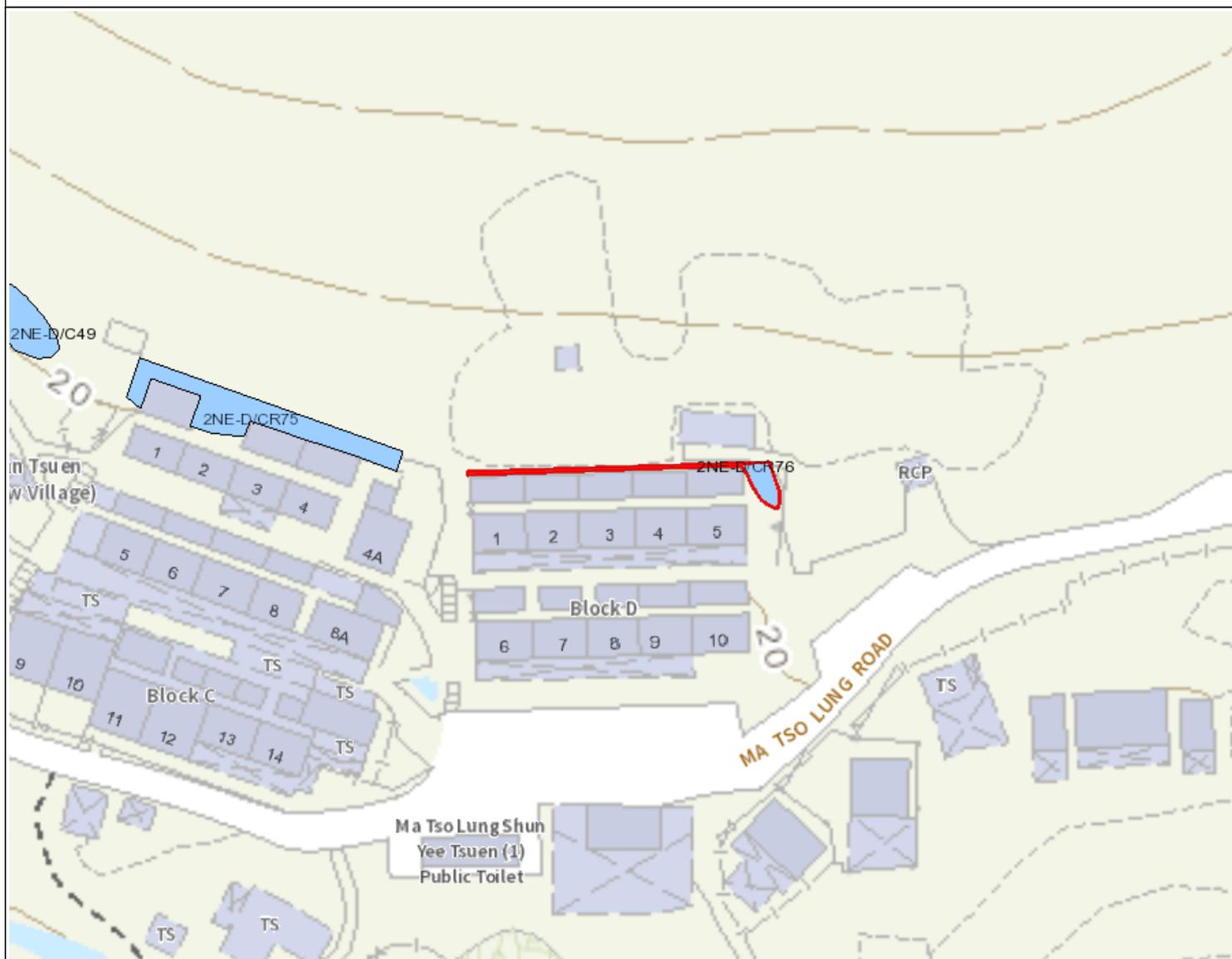
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Search Criteria: 2NE-D/CR76

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

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Slope Maintenance Responsibility Report

(2NE-D/CR143)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR143	Sub-Division	1	
	Location	Partly within DD96 LOTS 1275 and 1283, and partly on unallocated Government land adjoining GLA-TYL 2181		
	Responsible Lot/Party	DD96 LOT1275	Maintenance Agent	Not Applicable
	Remarks	Not Applicable		

- End of Report -

Notes:

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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**

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Slope Maintenance Responsibility Report

(2NE-D/CR143)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR143	Sub-Division	2	
	Location	Partly within DD96 LOTS 1275 and 1283, and partly on unallocated Government land adjoining GLA-TYL 2181		
	Responsible Lot/Party	DD96 LOT1283	Maintenance Agent	Not Applicable
	Remarks	Not Applicable		

- End of Report -

Notes:

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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



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Slope Maintenance Responsibility Report

(2NE-D/CR143)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/CR143	Sub-Division	3
Location	Partly within DD96 LOTS 1275 and 1283, and partly on unallocated Government land adjoining GLA-TYL 2181		
Responsible Lot/Party	Water Supplies Department	Maintenance Agent	Water Supplies Department
Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

Notes:

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Location Plan



Legend

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- Search Location
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- Slope(s) Maintained by Private Party/Parties
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Slope Maintenance Responsibility Report

(2NE-D/F17)



**ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT**

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/F17	Sub-Division	1	
	Location	Partly within GLL Y9944, DD96 LOT 1274 and 1275, and partly on Government land		
	Responsible Lot/Party	DD96 LOT1275	Maintenance Agent	Not Applicable
	Remarks	Not Applicable		

- End of Report -

Notes:

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Location Plan



Legend

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- - - - Search Location
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ESTATE MANAGEMENT SECTION
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Slope Maintenance Responsibility Report

(2NE-D/F17)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/F17	Sub-Division	2
	Location	Partly within GLL Y9944, DD96 LOT 1274 and 1275, and partly on Government land	
	Responsible Lot/Party	DD96 LOT1274	Maintenance Agent Not Applicable
	Remarks	Not Applicable	

- End of Report -

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Location Plan



Legend

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



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Slope Maintenance Responsibility Report

(2NE-D/F17)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	2NE-D/F17	Sub-Division		3
	Location	Partly within GLL Y9944, DD96 LOT 1274 and 1275, and partly on Government land		
	Responsible Lot/Party	Lands Department	Maintenance Agent	Lands Department
	Remarks	For enquiries about the maintenance of this slope / sub-division of the slope, please contact the Maintenance Agent directly.		

- End of Report -

Notes:

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Location Plan



Legend

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



**ESTATE MANAGEMENT SECTION
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Appendix C

Slope Records Retrieved from CEDD

BASIC INFORMATION

Location: North of Ma Tso Lung, Shun Yee San Tsuen
Date of Formation: pre-1977
Date of Construction/ Modification: N/A
Approximate Coordinates: Easting : 828114 Northing : 842655

CONSEQUENCE-TO-LIFE CATEGORY

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

SLOPE PART

(1) Max. Height (m): 9 Length (m): 15 Average Angle (deg): 35

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-08-2001
Data Source: EI(Lands D)
Slope Part Drainage: N/A
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil 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

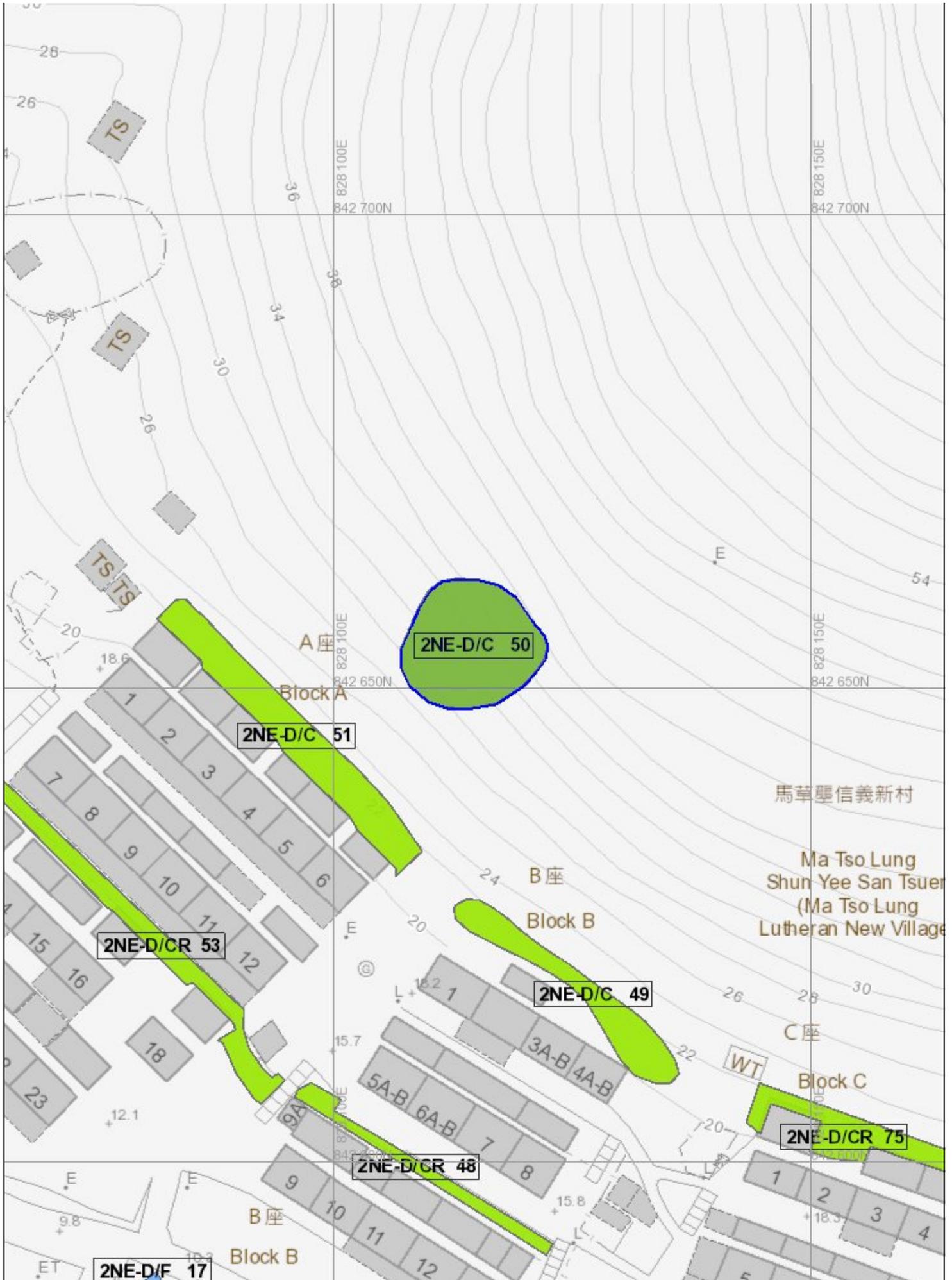


SERVICES

N/A

PHOTO





BASIC INFORMATION

Location: Ma Tso Lung Shum Yee San Tsuen
Date of Formation: pre-1977
Date of Construction/ Modification: N/A
Approximate Coordinates: Easting : 828096 Northing : 842645

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 6.5 Length (m): 36 Average Angle (deg): 43

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 10-09-2019
Data Source: EI(Lands D)
Slope Part Drainage: (1) Position: On slope Size(mm): 300
(2) Position: Toe Size(mm): 225
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 40 Spacing (m): 1

WALL PART

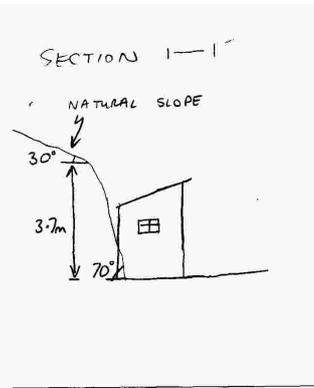
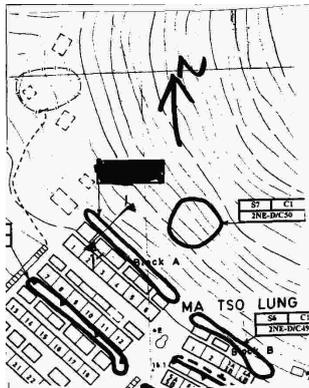
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): N/A
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Undeveloped green belt
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: P
 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: P
 Sign of Seepage: Slope : No signs of seepage
 Wall : N/A
 Criterion A satisfied: N
 Sign of Distress: Slope : Minor (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

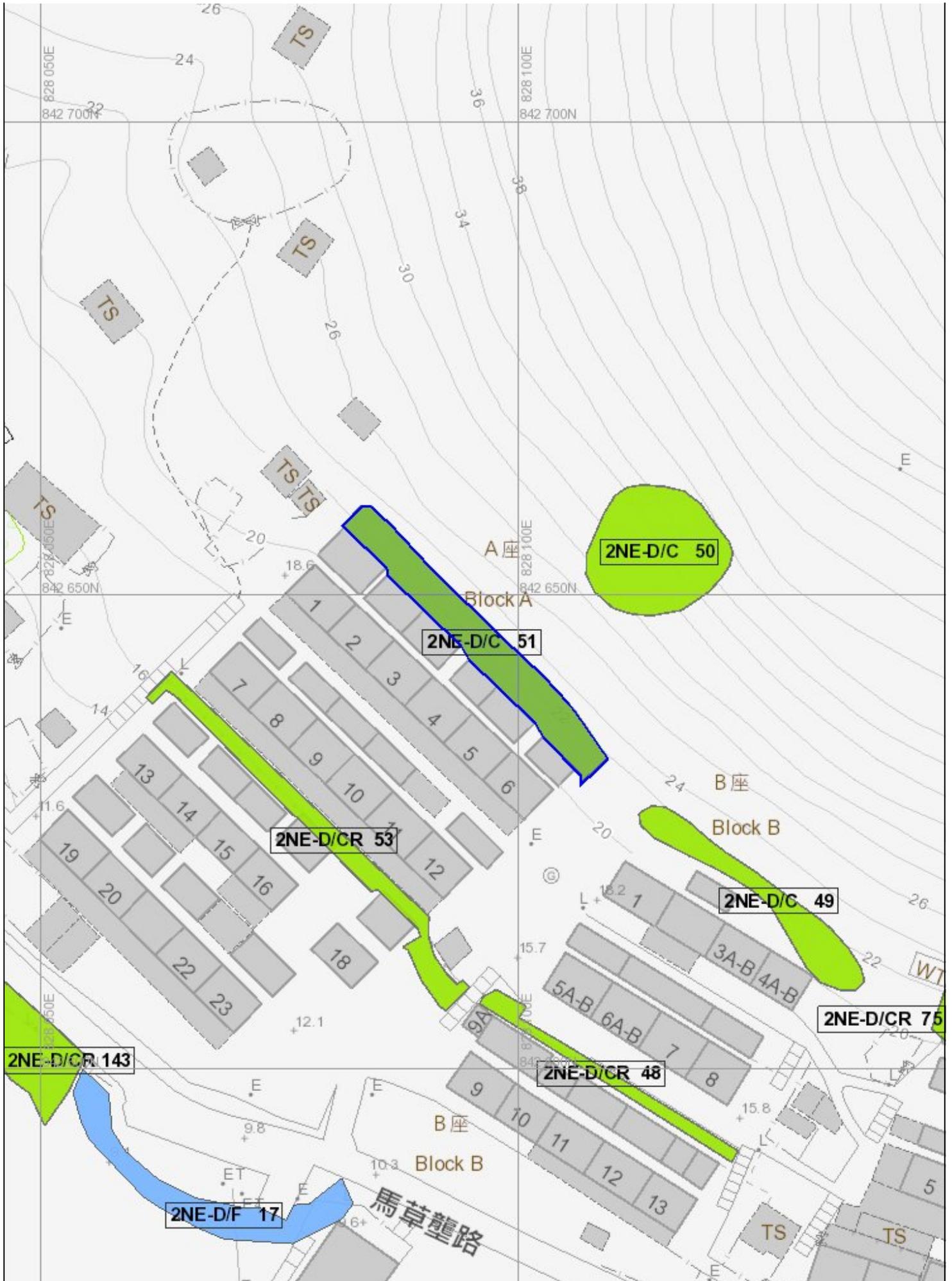
Criterion A / Criterion D: N/A
Action By: N/A
Further Study: Y
Action By: Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: Block B, Ma Tso Lung Shun Yee San Tsuen, Ma Tso Lung
Date of Formation: pre-1977
Date of Construction/ Modification: N/A
Approximate Coordinates: Easting : 828126 Northing : 842619

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3.3 Length (m): 28 Average Angle (deg): 70

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-05-2019
Data Source: Project Office
Slope Part Drainage: N/A
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 100 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 40 Spacing (m): 1.5

WALL PART

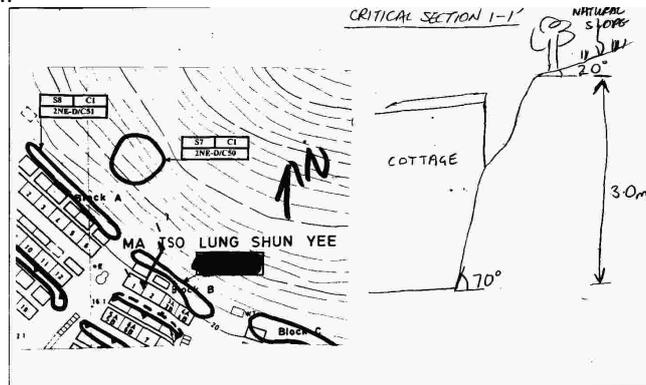
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): N/A
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Undeveloped green belt
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: P
 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: P
 Sign of Seepage: Slope : Signs of seepage
 Wall : N/A
 Criterion A satisfied: N
 Sign of Distress: Slope : Minor (near crest, mid-portion, at toe)
 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

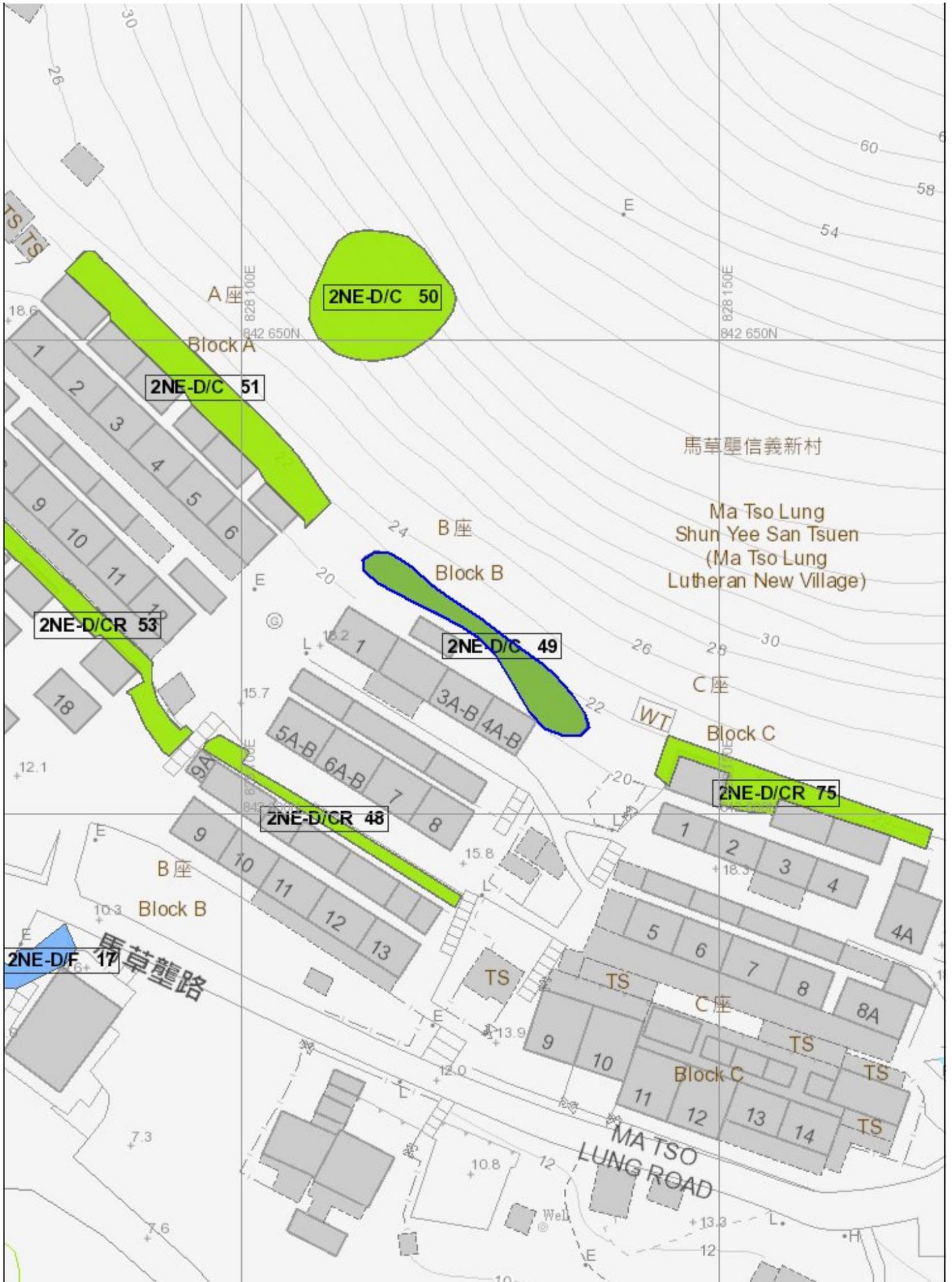
Criterion A / Criterion D: N/A
Action By: N/A
Further Study: Y
Action By: Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: To the North of House 9-13, Ma Tso Lung Road, Lo Wu
Date of Formation: pre-1977
Date of Construction/ Modification: 23-04-2009
Approximate Coordinates: Easting : 828102 Northing : 842603

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cottage, licensed and squatter area
Distance of Facility from Crest (m): 3.5
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 1.5 Length (m): 22 Average Angle (deg): 45

WALL PART

(1) Max. Height (m): 2.5 Length (m): 31 Face Angle (deg): 90

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-04-2009
Data Source: Project Office
Slope Part Drainage: N/A
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 75 Spacing (m): 1.5

WALL PART

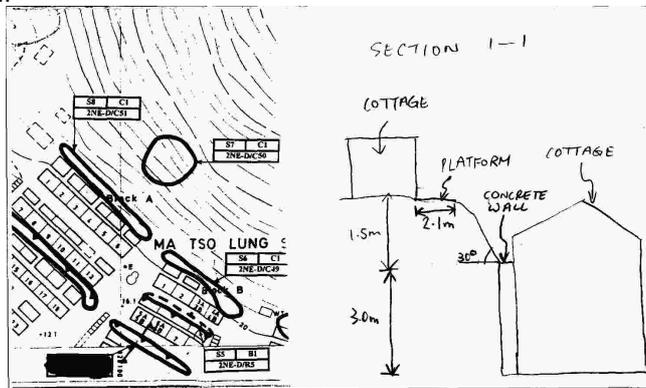
Wall Part (1)
 Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): N/A Spacing (m): N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): H1 : 5 , H2 : 3
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Cottage, licensed and squatter area
 Distance from Crest (m): 3.5
 Consequence Category: 1
 Engineering Judgement: P
 Section No: 2-2
 Type of Toe Facility: N/A
 Distance from Toe (m): N/A
 Type of Crest Facility: N/A
 Distance from Crest (m): N/A
 Consequence Category: 1
 Engineering Judgement: P
 Sign of Seepage: Slope : No signs of seepage
 Wall : Signs of seepage
 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): 1
Observations: N/A
Emergency Action Required: N
Action By: N/A

ACTION TO INITIATE PREVENTIVE WORKS

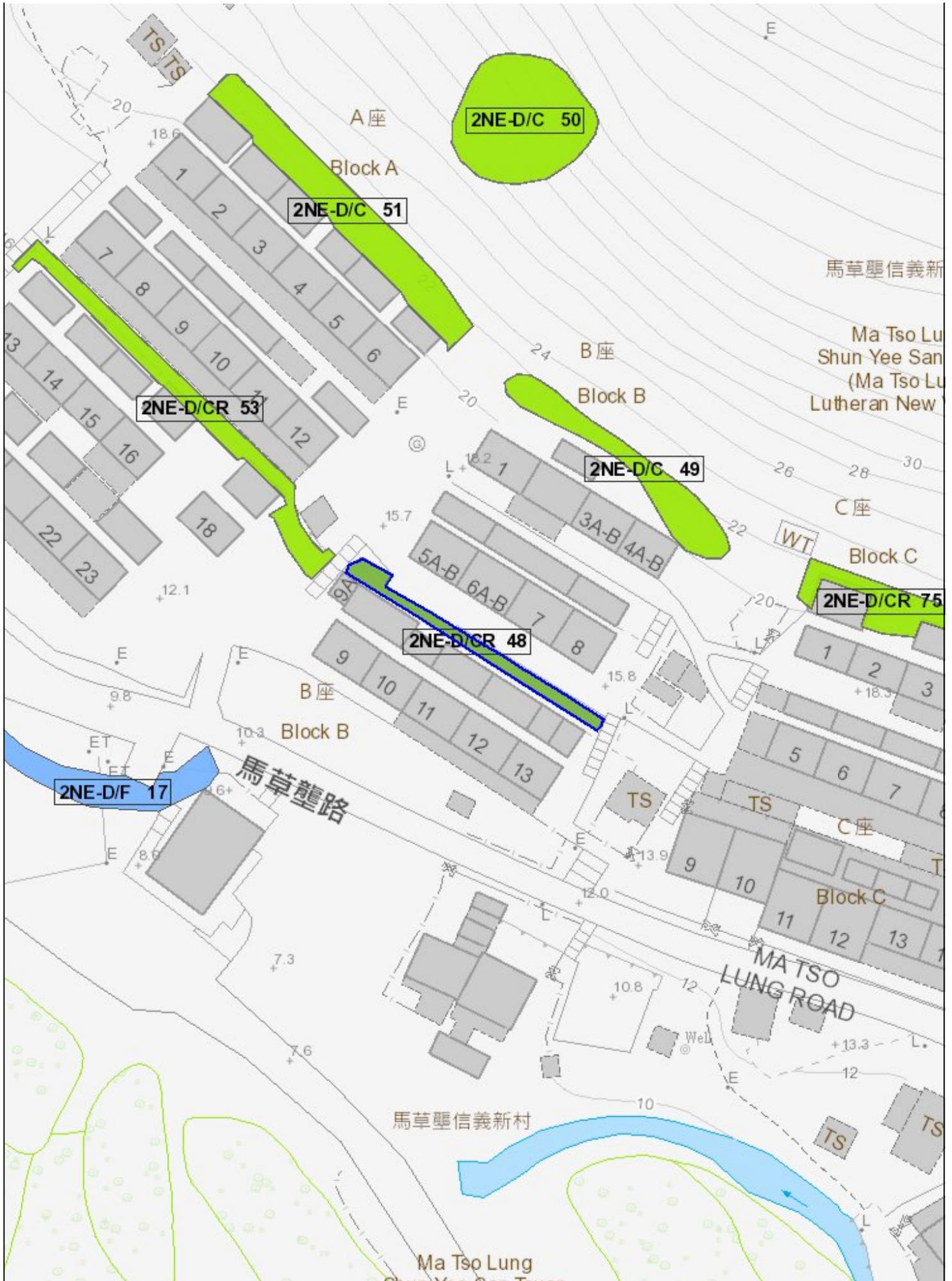
Criterion A / Criterion D: N/A
Action By: N/A
Further Study: Y
Action By: Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: Block B, Ma Tso Lung Shun Yee San Tsuen, Ma Tso Lung
Date of Formation: pre-1977
Date of Construction/ Modification: N/A
Approximate Coordinates: Easting : 828126 Northing : 842619

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3.3 Length (m): 28 Average Angle (deg): 70

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-05-2019
Data Source: Project Office
Slope Part Drainage: N/A
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 100 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 40 Spacing (m): 1.5

WALL PART

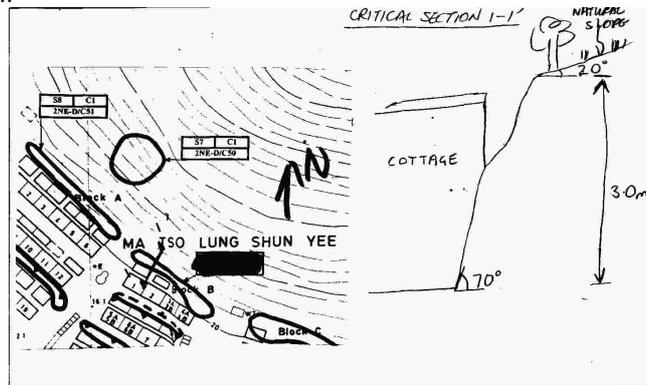
N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): N/A
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Undeveloped green belt
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: P
 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: P
 Sign of Seepage: Slope : Signs of seepage
 Wall : N/A
 Criterion A satisfied: N
 Sign of Distress: Slope : Minor (near crest, mid-portion, at toe)
 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

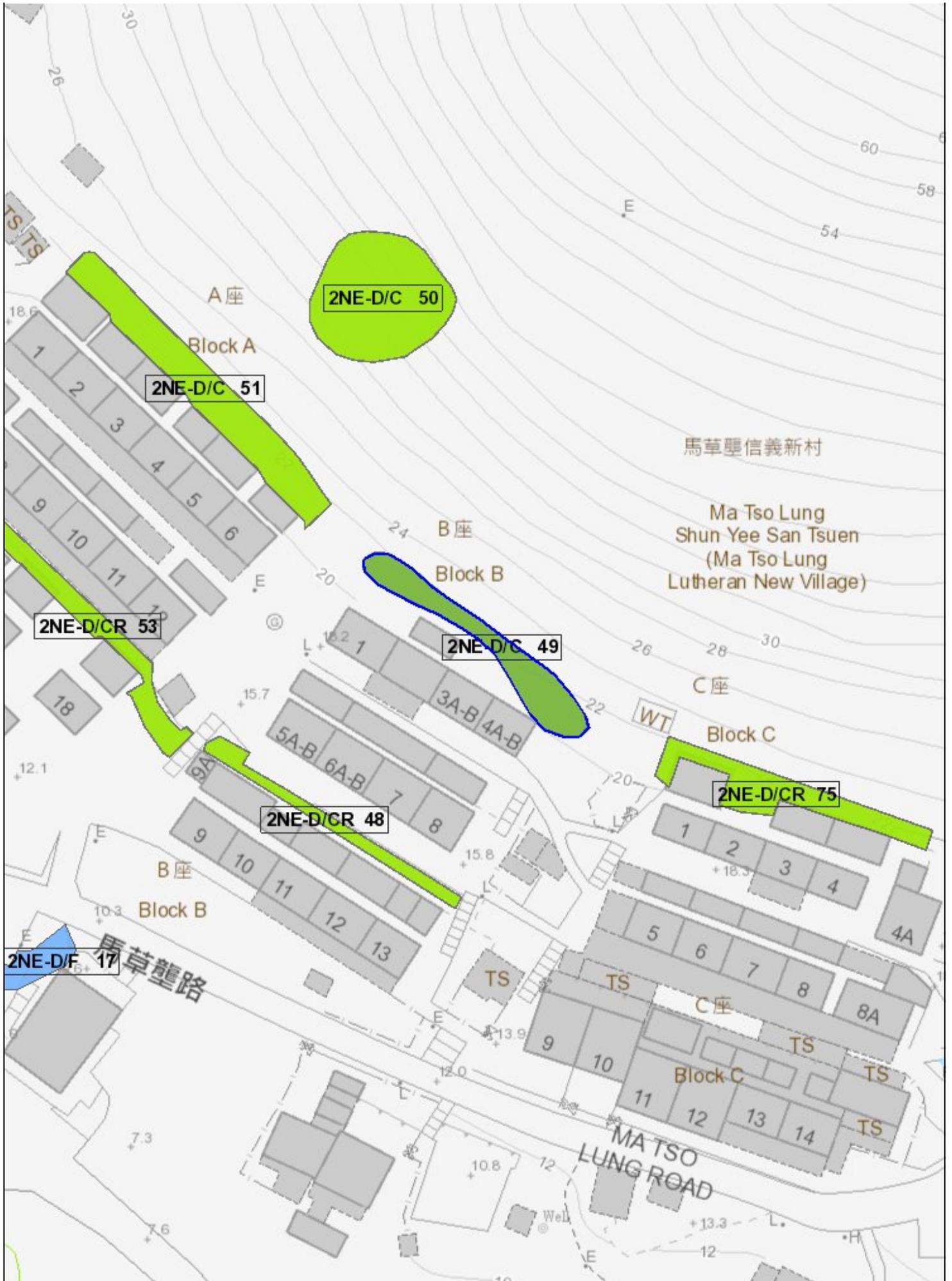
Criterion A / Criterion D: N/A
Action By: N/A
Further Study: Y
Action By: Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: Slope falls in GL, T14525, T18859 & T18943 near spot level 12.1, Ma Tso Lung Shung Yee San Tsuen, Ma Tso Lung
Date of Formation: pre-1977
Date of Construction/ Modification: 12-02-2009
Approximate Coordinates: Easting : 828077 Northing : 842628

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Cottage, licensed and squatter area
Distance of Facility from Crest (m): 2
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1)	Max. Height (m): 2	Length (m): 12	Average Angle (deg): 45
(2)	Max. Height (m): 4	Length (m): 8	Average Angle (deg): 60

WALL PART

(1)	Max. Height (m): 4	Length (m): 36	Face Angle (deg): 90
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MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-04-2009
Data Source: Project Office
Slope Part Drainage: (1) Position: Crest Size(mm): 250
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)

Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
 Material Description: Material type: Soil Geology: N/A
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): 75 Spacing (m): 1.5

Slope Part (2)

Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
 Material Description: Material type: Soil 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

Wall Part (1)

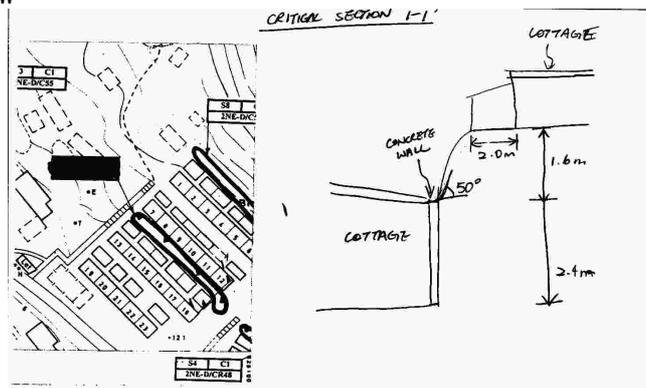
Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): 75 Spacing (m): 1.5

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): H1 : 2 , H2 : 2
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Cottage, licensed and squatter area
 Distance from Crest (m): 2
 Consequence Category: 1
 Engineering Judgement: P
 Section No: 2-2
 Type of Toe Facility: N/A

Distance from Toe (m):	N/A
Type of Crest Facility:	N/A
Distance from Crest (m):	N/A
Consequence Category:	1
Engineering Judgement:	P
Sign of Seepage:	Slope : No signs of seepage Wall : No sign of seepage
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):	1
Observations:	N/A
Emergency Action Required:	N
Action By:	N/A

ACTION TO INITIATE PREVENTIVE WORKS

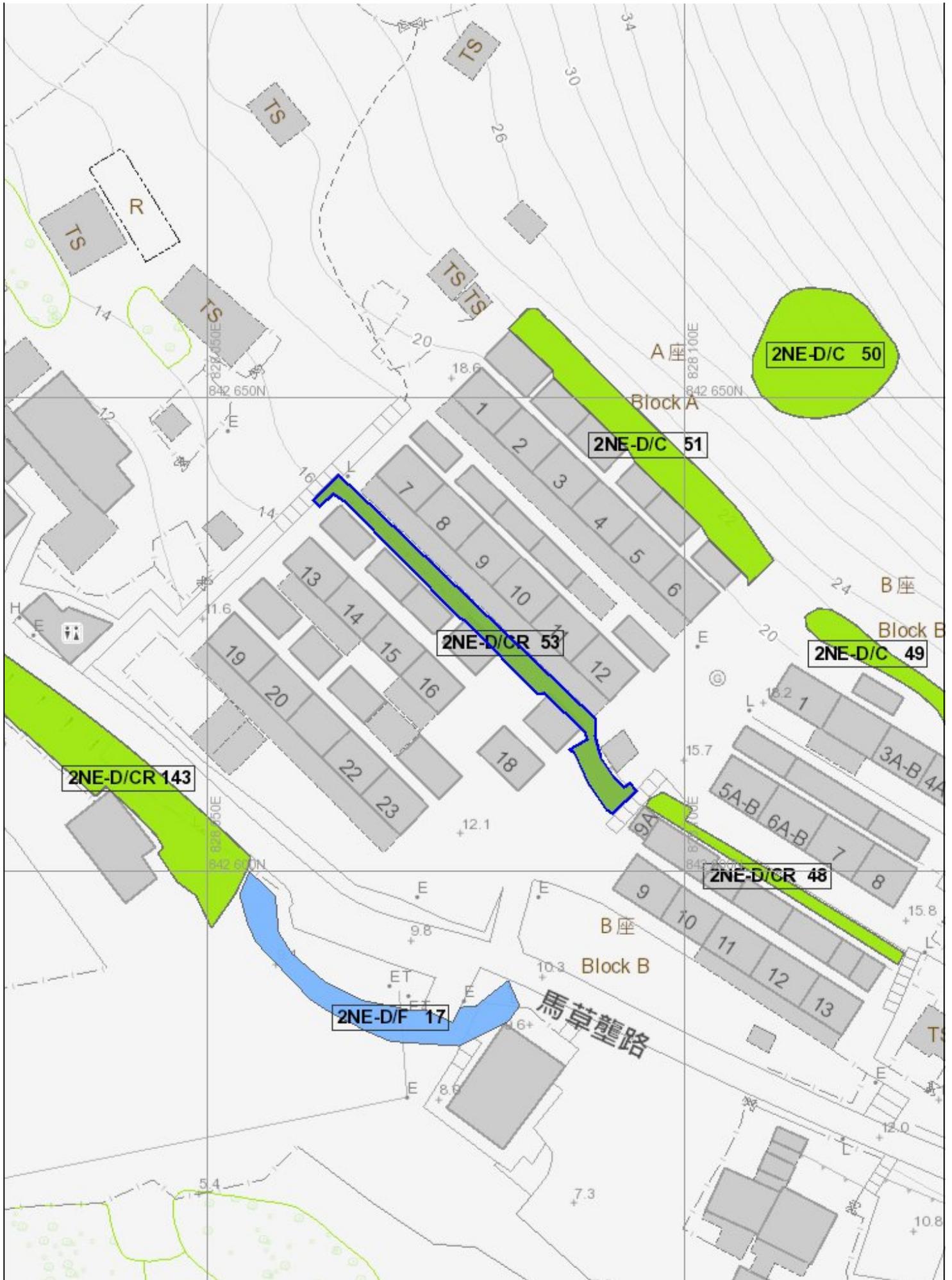
Criterion A / Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: House No. 1-4, Block C, Shun Yee San Tsuen, Yuen Long
Date of Formation: pre-1977
Date of Construction/ Modification: 07-11-2012
Approximate Coordinates: Easting : 828155 Northing : 842603

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3 Length (m): 29 Average Angle (deg): 50

WALL PART

(1) Max. Height (m): 2.5 Length (m): 16 Face Angle (deg): 90
(2) Max. Height (m): 2.5 Length (m): 5.5 Face Angle (deg): 90

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 11-06-2013
Data Source: Project Office
Slope Part Drainage: (1) Position: Crest Size(mm): 300
(2) Position: On slope Size(mm): 300
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 50 Spacing (m): 1.5

WALL PART

Wall Part (1)
 Type of Wall: Wall Material: Concrete Wall Location: Wall at toe
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): N/A Spacing (m): N/A

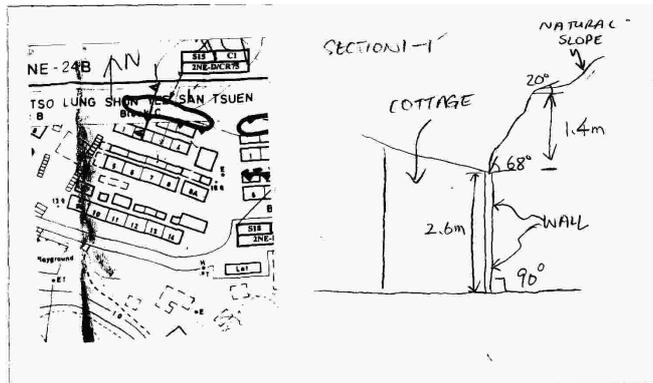
Wall Part (2)
 Type of Wall: Wall Material: Concrete Wall Location: Wall at toe
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): N/A Spacing (m): N/A

SERVICES

(1) Utilities Type: Water Main Size (mm): 25 Location: On crest Remark: N/A

STAGE 1 STUDY REPORT

Inspected On: 06-11-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): N/A
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Undeveloped green belt
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: HP

Section No: 2-2
 Type of Toe Facility: Cottage
 Distance from Toe (m): 0
 Type of Crest Facility: Undeveloped green belt
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: HP

Sign of Seepage:	Slope : No signs of seepage Wall : No sign of seepage
Criterion A satisfied:	N
Sign of Distress:	Slope : Severe (near crest) Wall : N/A
Criterion D satisfied:	N
Non-routine maintenance required:	Y
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

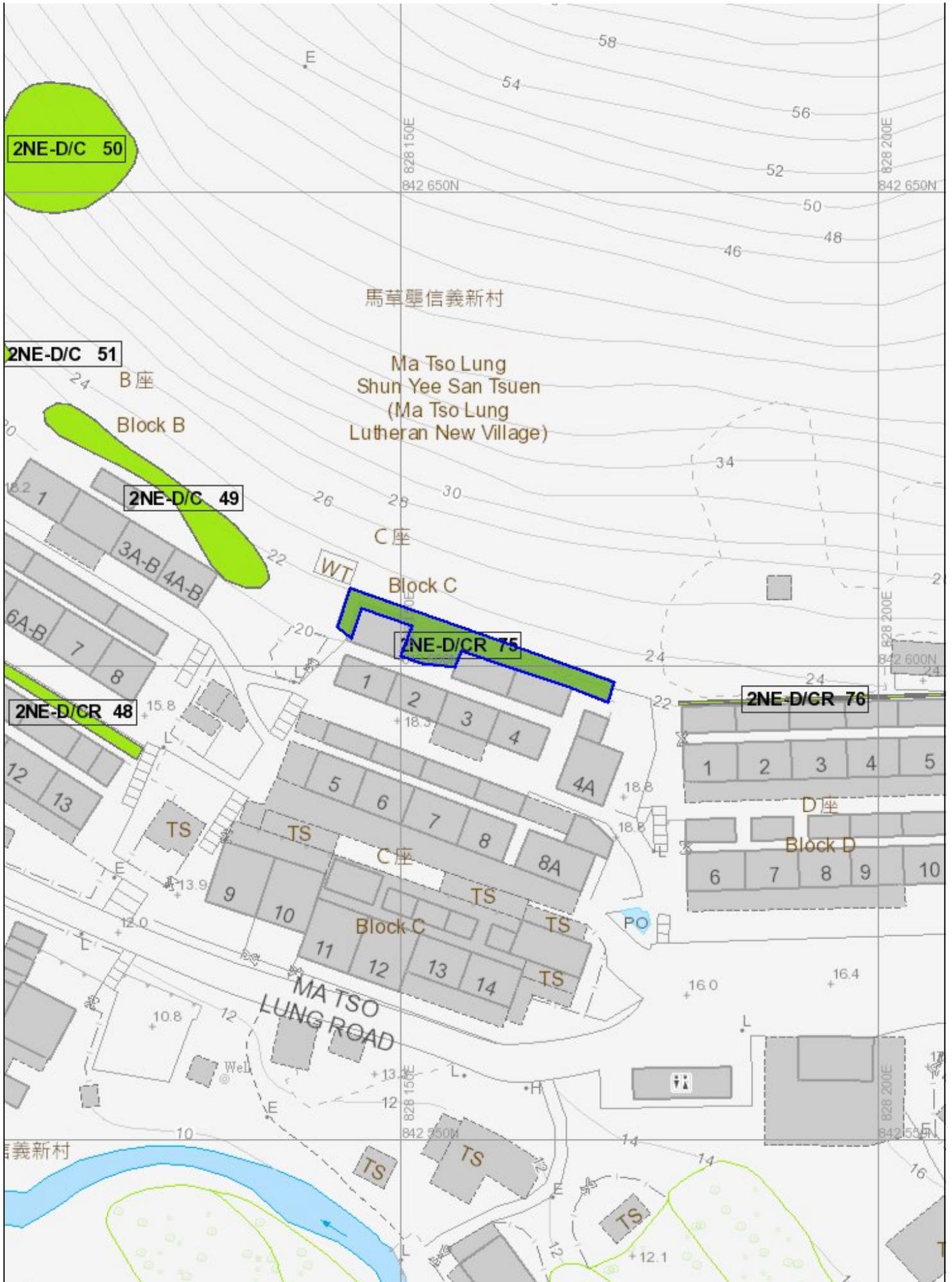
Criterion A / Criterion D:	N/A
Action By:	N/A
Further Study:	Y
Action By:	Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: Ma Tso Lung, Shun Yee San Tsuen, Lo Wu
Date of Formation: pre-1977
Date of Construction/ Modification: 23-04-2009
Approximate Coordinates: Easting : 828194 Northing : 842597

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Non-dangerous goods storage site
Distance of Facility from Crest (m): 1
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 3 Length (m): 6 Average Angle (deg): 65

WALL PART

(1) Max. Height (m): 3.5 Length (m): 29 Face Angle (deg): 90

MAINTENANCE RESPONSIBILITY

Maintenance Type: Government Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 20-04-2009
Data Source: Project Office
Slope Part Drainage: (1) Position: Crest Size(mm): 300
Wall Part Drainage: (1) Position: Crest Size(mm): 300

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 0 Chunam: 0 Shotcrete: 100 Other Cover: 0
Material Description: Material type: Soil Geology: N/A
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 75 Spacing (m): 1.5

WALL PART

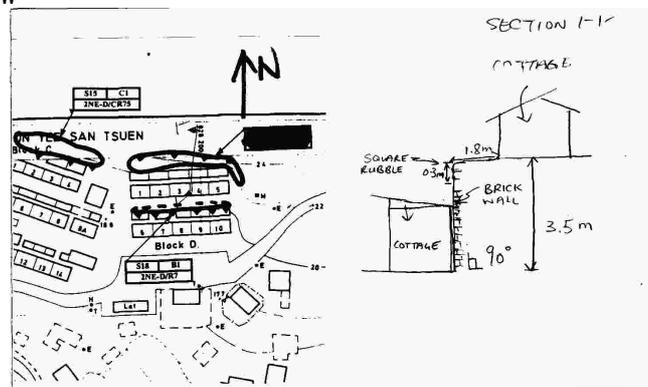
Wall Part (1)
 Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform
 Berm: No. of Berms: N/A Min. Berm Width (m): N/A
 Weepholes: Size (mm): N/A Spacing (m): N/A

SERVICES

N/A

STAGE 1 STUDY REPORT

Inspected On: 27-10-1997
 Weather: Mainly Fine
 District: MW



Section No: 1-1
 Height (m): N/A
 Type of Toe Facility: Cottage, licensed and squatter area
 Distance from Toe (m): 0
 Type of Crest Facility: Non-dangerous goods storage site
 Distance from Crest (m): 1
 Consequence Category: 1
 Engineering Judgement: P
 Section No: 2-2
 Type of Toe Facility: Cottage
 Distance from Toe (m): 0
 Type of Crest Facility: Other lightly-used open space
 Distance from Crest (m): 0
 Consequence Category: 1
 Engineering Judgement: P
 Sign of Seepage: Slope : No signs of seepage
 Wall : No sign of seepage
 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): 1
Observations: N/A
Emergency Action Required: N
Action By: N/A

ACTION TO INITIATE PREVENTIVE WORKS

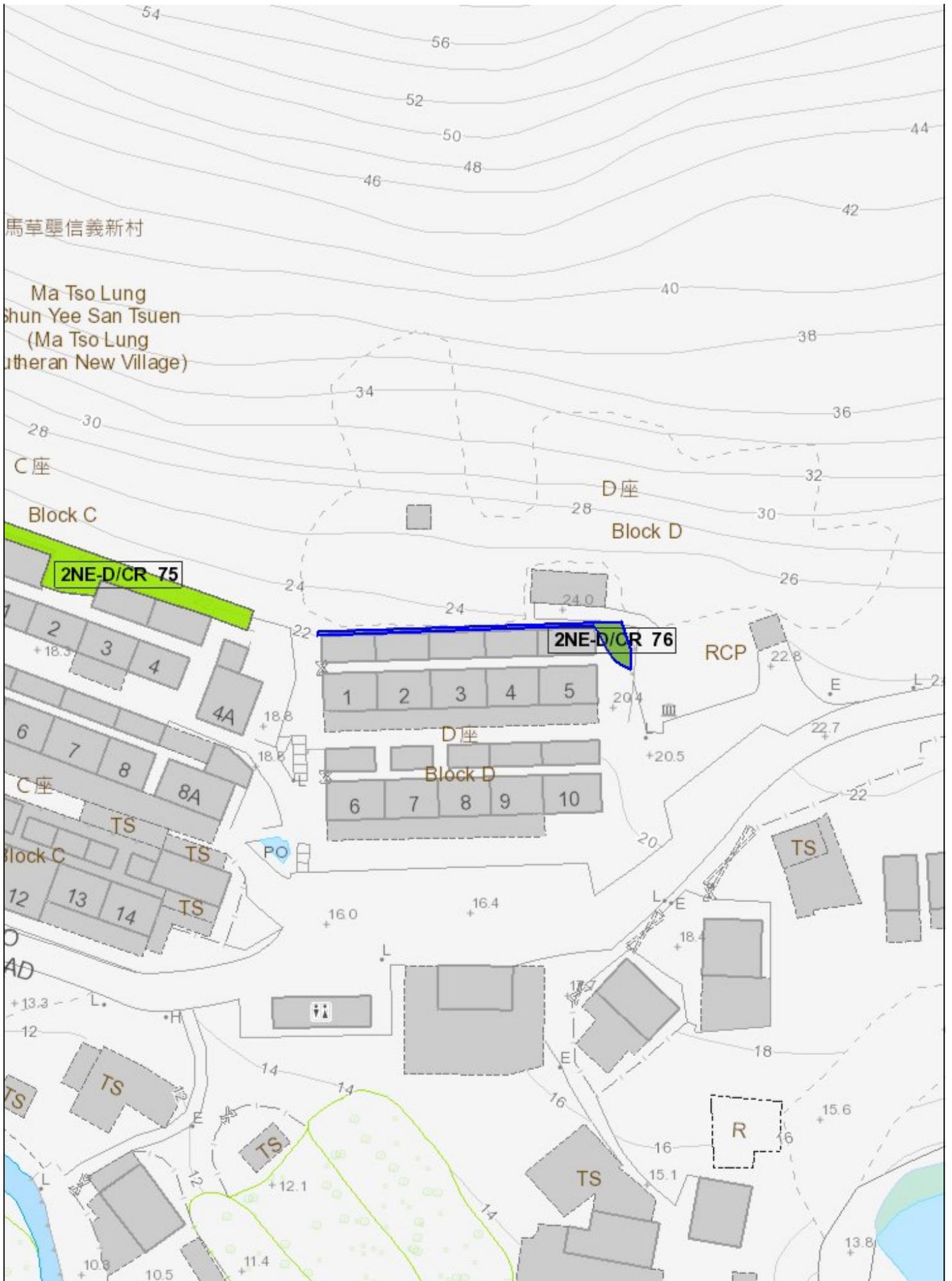
Criterion A / Criterion D: N/A
Action By: N/A
Further Study: Y
Action By: Mixed

OTHER EXTERNAL ACTION

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

PHOTO





BASIC INFORMATION

Location: Near Nos. 19-23, Ma Tso Lung Shun Yee San Tsuen, Ma Tso Lung
Date of Formation: post-1977
Date of Construction/ Modification: 30-01-2014
Approximate Coordinates: Easting : 828039 Northing : 842611

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Road/footpath with low traffic density
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 2.7 Length (m): 27 Average Angle (deg): 40

WALL PART

(1) Max. Height (m): 1.9 Length (m): 17 Face Angle (deg): 40
(2) Max. Height (m): 2.5 Length (m): 24 Face Angle (deg): 52

MAINTENANCE RESPONSIBILITY

Maintenance Type: Mixed Party: DD96 LOT1275 Agent: N/A
Maintenance Type: Mixed Party: DD96 LOT1283 Agent: N/A
Maintenance Type: Mixed Party: WSD Agent: WSD

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 24-11-2016
Data Source: EI(WSD)
Slope Part Drainage: (1) Position: On slope Size(mm): 300
(2) Position: Toe Size(mm): 400
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil 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

Wall Part (1)

Type of Wall: Wall Material: Concrete Wall Location: Wall at crest

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

Weepholes: Size (mm): 75 Spacing (m): 1.5

Wall Part (2)

Type of Wall: Wall Material: Concrete Wall Location: Retaining wall with level platform

Berm: No. of Berms: N/A Min. Berm Width (m): N/A

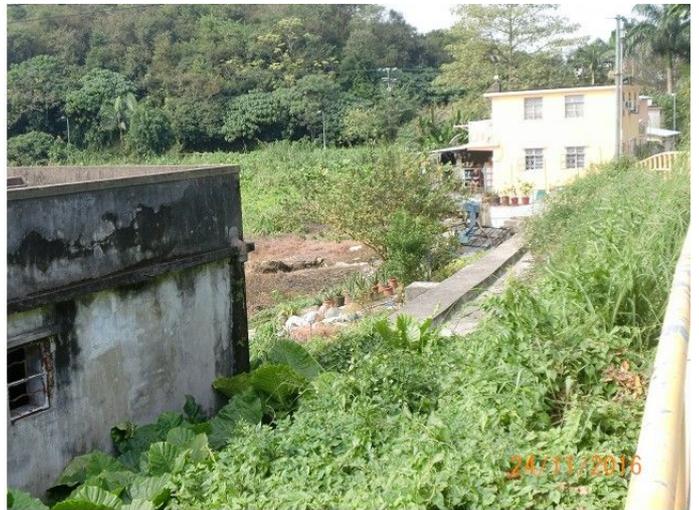
Weepholes: Size (mm): 75 Spacing (m): 1.5

SERVICES

(1) Utilities Type: Cable Size (mm): 0 Location: On crest Remark: Size cannot be determined

(2) Utilities Type: Water Main Size (mm): 80 Location: On crest Remark: N/A

PHOTO





BASIC INFORMATION

Location: Near House 23, Ma Tso Lung Shun Yee Tsuen, Ma Tso Lung, Yeun Long.
Date of Formation: pre-1977
Date of Construction/ Modification: N/A
Approximate Coordinates: Easting : 828068 Northing : 842584

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Open car park
Distance of Facility from Crest (m): 0
Facility at Toe: Cottage, licensed and squatter area
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 1
Remarks: SIFT class changed from post 78 to pre 78 by MW Div. on Apr 06 - SCRR 42150~42400

SLOPE PART

(1) Max. Height (m): 4 Length (m): 38 Average Angle (deg): 50

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

Maintenance Type: Mixed Party: DD96 LOT1275 Agent: N/A
Maintenance Type: Mixed Party: DD96 LOT1274 Agent: N/A
Maintenance Type: Mixed Party: Lands D Agent: Lands D

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 17-07-2014
Data Source: EI(Lands D)
Slope Part Drainage: N/A
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 100 Chunam: 0 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil 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

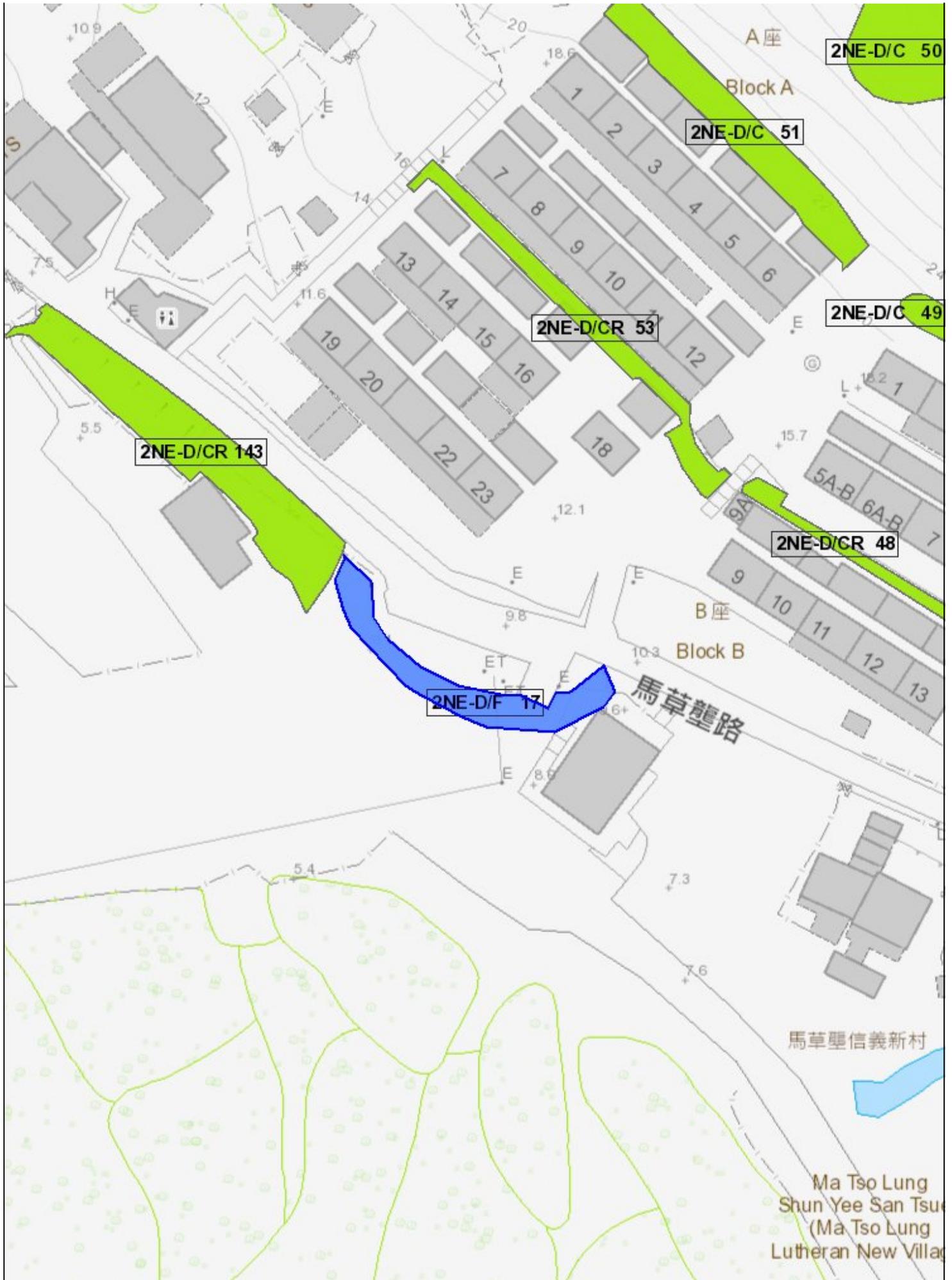
N/A

SERVICES

N/A

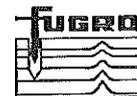
PHOTO





Appendix D

GI Record



**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
 GEOTECHNICAL ENGINEERING OFFICE
 Contract No. GE/2008/04
 GROUND INVESTIGATION – NEW TERRITORIES WEST
 (TERM CONTRACT)**

Works Order No. GE/2008/04.42

**Agreement No. BA/01/2008,
 Consultancy for the Investigation, Design and Supervision
 Of Slope and Retaining Wall Upgrading Works at
 Ma Tso Lung Sun Tsuen, Yuen Long, New Territories
 On Lot No. 1283 in D.D.96 for portion of Feature No. 2NE-D/R1**

Final Factual Fieldwork Report

Document No : 07-0376-03-42/R001

REVISION STATUS INDEX

0	01 April 2010	Final	BW <i>Jr</i>	AB <i>B</i>	JY <i>dv</i>
<i>Rev</i>	<i>Date</i>	<i>Description</i>	<i>Prepared</i>	<i>Checked</i>	<i>Approved</i>

CONTRACT DATA SUMMARY

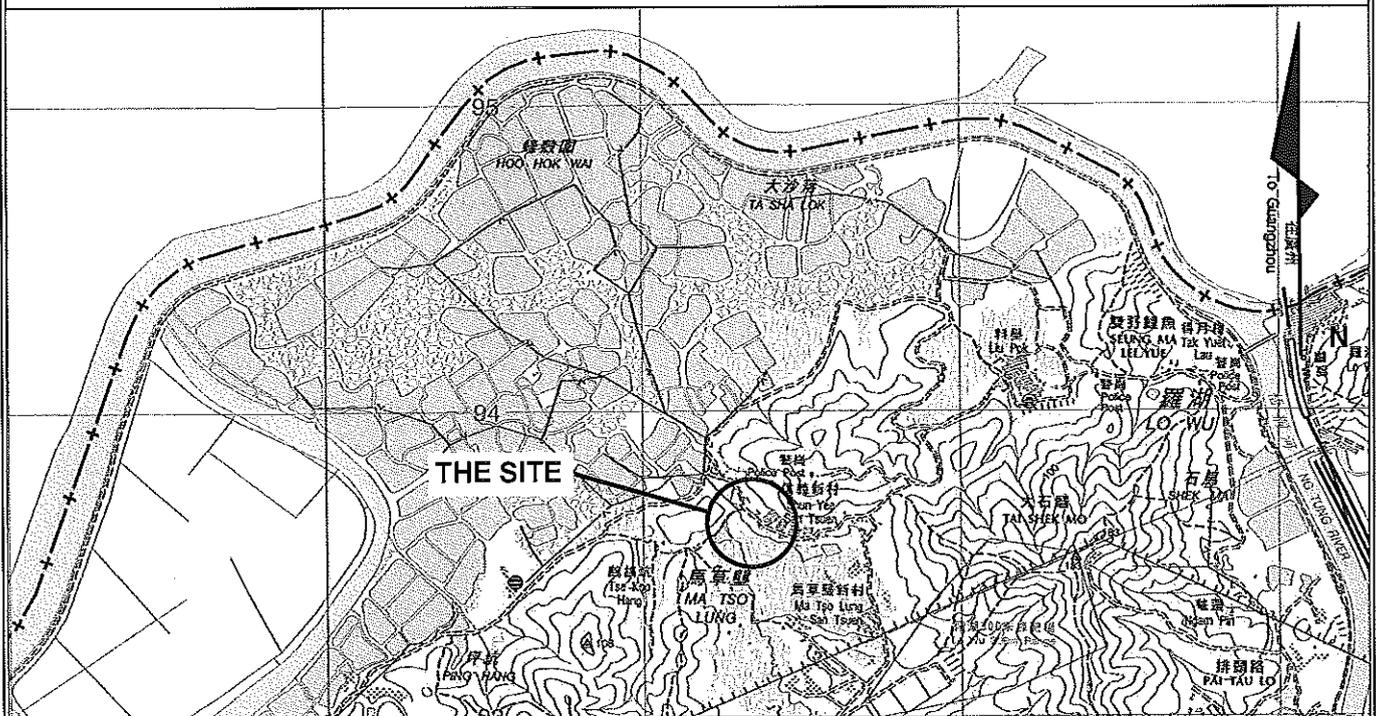
Project Name & No. : Ground Investigation - New Territories West (Term Contract)	Site Name : Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1	Date : 28/01/2010 to 01/04/2010 Official only G.E.O Data Bank No.
G.I. Contractor : Fugro Geotechnical Services Ltd.	Client: CEDD - GEO	
Contract No. : GE/2008/04	W.O. No. GE/2008/04.42	File Ref.

FIELD WORK SUMMARY

Drillhole Nos. : NIL	Method : Rotary	Date : 01/03/2010 to 02/03/2010
Corehole Nos. : 6	Trial Pit Nos. : NIL	Slope Stripping Nos. : NIL
Probe Nos. : NIL	Trial Trenches Nos. : NIL	Strip Windows Nos. : NIL
Piezometer/Standpipe Nos. : - / 1	Inspection Pit Nos. : 1	Halcrow Bucket Nos. : NIL
Insitu Test Nos. : NIL	Types : NIL	
Geophysics : NIL	Type : NIL	

LABORATORY TESTING SUMMARY

Total No. of Tests :		Date : _____ to _____			
Soil	Physical Properties	LL	PL	PSD	MC
		SG	γ_m/γ_d		
	Strength Tests	CU	CD	UU	Shear Box
	Compaction & CBR Tests	Standard	Modified		CBR
	Oedometer & Perm. Test	Cv	k		
Others					
Rock	γ	Pt load	UC	Shear Box	US Vel.
Location Plan	Scale 1: 20 000	Derived from:	Sheet 2, Series HM20C, Edition 10, 2007		



	Ground Investigation	Laboratory	GEOTECHNICAL ENGINEERING OFFICE
CONTRACTOR	Fugro Geotechnical Services Ltd.		CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
WORKS ORDER NO.	GE/2008/04.42		



**CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
GEOTECHNICAL ENGINEERING OFFICE
Contract No. GE/2008/04
GROUND INVESTIGATION - NEW TERRITORIES WEST
(TERM CONTRACT)**

Works Order No. GE/2008/04.42

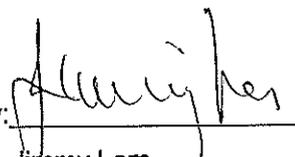
**Agreement No. BA/01/2008,
Consultancy for the Investigation, Design and Supervision
Of Slope and Retaining Wall Upgrading Works at
Ma Tso Lung Sun Tsuen, Yuen Long, New Territories
On Lot No. 1283 in D.D.96 for portion of Feature No. 2NE-D/R1**

Final Factual Fieldwork Report

Document No : 07-0376-03-42/R001

Checked By: 

A.F. Brock-Hollinshead
Geotechnical Engineer

Approved By: 

Jimmy Lam
Contractor's Representative



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- C. Corehole Records and Photographs
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1. INTRODUCTION

In February 2008, Fugro Geotechnical Services Ltd (Fugro) was awarded the New Territories West Term Contract No. GE/2008/04 for ground investigation works by the Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department (CEDD).

This report presents the results of works order number GE/2008/04.42 which involved a ground investigation on Feature No. 2NE-D/R1 a retaining wall adjacent to Ma Tso Lung Road, located to the north-east of Ma Tso Lung and south-west of Shun Yee San Tsuen, Yuen Long, New Territories. The Works consisted of rotary coring, installation of standpipe, water level monitoring, excavation of an inspection pit, logging and the reinstatement of the exploratory holes. Fieldwork for the investigation was performed between the 1st March and the 2nd March 2010, under the supervision of Au Posford Consultants Limited (the Engineer).

The factual field data are presented herein.

2. SITE DESCRIPTION

The site comprised feature no. 2NE-D/R1, located to the north-east of Ma Tso Lung and the south-west of Shun Yee San Tsuen, Yuen Long, New Territories. Refer to the enclosed Ground Investigation Plan; Figure 1. Feature 2NE-D/R1 is approximately 45m long and 5m wide in plan with a vertical height of some 2m. Ground Investigation locations included in this Works Order were located within an area defined by the following co-ordinates:

	Easting (m)	Northing (m)
1.	828 025	842 615
2.	828 025	842 625
3.	828 030	842 615
4.	828 030	842 625



3. FIELDWORK

A programme of subsurface investigation, performed at the site between 1st March and 2nd March 2010, included the following:

- Exploratory coreholes with:
 - continuous coring in hard strata
 - small disturbed sampling in soils
- Exploratory inspection pit;
- Standpipe installation and groundwater monitoring;
- Surveying of investigation locations.

Fieldworks were performed under the full time supervision of a suitably experienced Fugro Geotechnical Field Technician (GFT).

Investigation locations are indicated in Figure 1 (Ground Investigation Plan) relative to the site layout and existing site features. Field test results and observations are presented in Appendices C to E. The presentation of field results is preceded by a checklist of rock and soil descriptions and summarised explanations of log symbols and classification systems in Appendices A and B respectively.

The soil and rock encountered in drillholes has been described in accordance with Geoguide 3 and the Checklist for Rock and Soil Descriptions presented in Appendix A. Corehole records are presented in the "Coreole Records and Photographs", Appendix C.

A total of six (6) U100 samples and four (4) large disturbed samples were taken of the soil exposed at the surface above and below the retaining wall under investigation. Further details of the samples taken are not included in this reports.

3.1. Exploratory Coreholes

Four (4) horizontal coreholes (CH1, CH3, CH5 and CH6) and two (2) inclined coreholes were cored on site to depths of 3.00m (CH1 to CH3, CH5 and CH6) and 5.00m (CH4). Coring was performed using a portable rotary coring machine with a CAT C-100 core barrel. The coreholes were terminated according to instructions issued by the Engineer.

All samples were retained in purpose built core boxes labelled with contract and drilling details. All samples were logged on site then transported to the contract storage facility at the Works Area and photographed. Photographs are presented with the corehole logs in Appendix C. The photographic board shown in each photograph presents contract and works order details as well as box depths and numbers with reference to a standard Kodak™ colour chart and scale.



3.2. Groundwater Measurements

One (1) standpipe was installed to a depth of 3.00m below existing ground level at the location of the inspection pit SP1. A response test for the instrument was carried out, after installation, to ensure functionality. Refer to Appendix D "Installation Detail and Response Test Record"

The installation was monitored for a period of seven (7) days after completion of the response tests. The recorded groundwater levels are presented in tabular form in Appendix E, "Record of Water Levels".

3.3. Inspection Pit

An inspection pit was manually excavated at a location instructed by the Engineer. The location of the inspection pit is included on the Site Plan presented in Figure 1 and the inspection pit survey data are presented in Table 1. No further records or photographs of the inspection pit are presented in this report.

3.4. Surveying Investigation Locations

Investigation locations were set out by survey with adjustments made in agreement with the Engineer to allow for site conditions. Following completion of the fieldwork, levels and co-ordinates for each location were determined with respect to an existing benchmark. Co-ordinates and levels of all test locations are summarised in the Survey Record of Investigation Locations, Table 1, and presented on individual logs. Co-ordinates are relative to Hong Kong Metric Grid (1980) and reduced levels are related to the Hong Kong Principal Datum (PD).

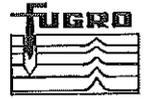
4. SUBSURFACE CONDITIONS

According to the geological survey map of San Tin, published by the Geotechnical Control Office entitled "San Tin, Sheet 2, Solid and Superficial Geology, Series HGM20, Scale 1 : 20 000. (Edition 1-1989)", the site is underlain by well-sorted to semi-sorted Alluvium comprising clay/silt, sand and gravel, formed during the Holocene period of the Quaternary era.

5. DIGITAL RECORDS

The corehole logs have been produced using gINT, a widely used commercial software package providing ground investigation data in ASCII format. The data format is in accordance with the Association of Geotechnical and Geoenvironmental Specialists (AGS) publication, "Electronic Transfer of Geotechnical and Geoenvironmental Data" (AGS, 1999). The field headings comply with the recommendations of the AGS with local variations as recommended by the GEO.

The data is provided on a compact disk with this report and can be found in Appendix F.

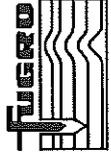


6. REFERENCES

1. AGS (1999). Electronic Transfer of Geotechnical and Geoenvironmental Data, 3rd Edition, Association of Geotechnical and Geoenvironmental Specialists.
2. AGS (2002). AGS Digital Data Format Recommendations for Usage in Hong Kong. AGS Subcommittee of the Association of Geotechnical and Geoenvironmental Specialists (Hong Kong) Ltd.
3. BS 1377: 1990: Methods of Test for Soil for Civil Engineering Purposes, British Standards Institute, UK.
4. BS 5930:1999 : Code of Practice of Site Investigations, British Standards Institute, U.K.
5. GCO (1989). Hong Kong Geological Survey, San Tin, sheet 2, Solid and Superficial Geology, Geotechnical Engineering Office, Series HGM20, Edition 1-1989.
6. GEO (1988). Guide to Rock and Soil Descriptions. Geoguide 3. Geotechnical Engineering Office, Hong Kong.
7. GEO (1990). Guide to Site Investigation. Geoguide 2. Geotechnical Engineering Office, Hong Kong.
8. GEO (2007). Contract No. GE/2008/04, Ground Investigation – New Territories West (Term Contract)
9. Macbeth (1994), Munsell Soil Colour Charts, 1994 Revised Edition published by Gretag Macbeth.



TABLES



FUGRO GEOTECHNICAL SERVICES LTD

Table 1
Survey Record of Investigation Locations

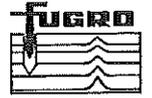
Drillhole / Trial Pit No.	As-Built Co-ordinates		Ground Level (mPD)	Orientation	Remarks
	Easting (m)	Northing (m)			
CH1	828031.52	842618.27	+7.46	050°/0°	Corehole
CH2	828031.02	842617.56	+6.31	050°/45°	Corehole
CH3	828029.43	842620.23	+7.36	050°/0°	Corehole
CH4	828028.75	842619.36	+5.99	050°/45°	Corehole
CH5	828026.44	842622.18	+6.66	050°/0°	Corehole
CH6	828026.08	842621.75	+5.84	050°/0°	Corehole
SP1	828029.01	842621.70	+7.96	--	Inspection Pit



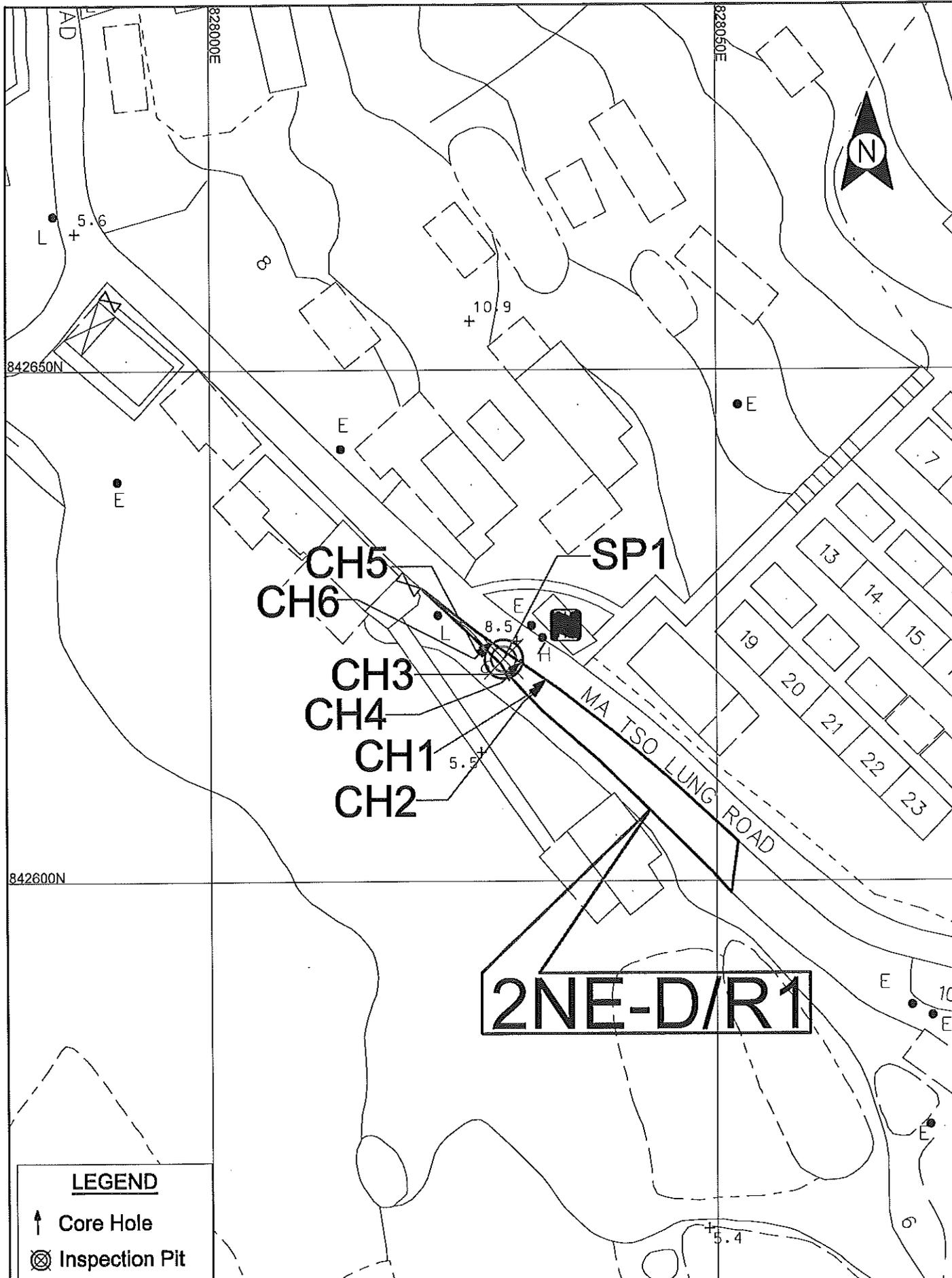
Table 2
 Summary of Field Testing and Field Installations

Station No.	Type of Test	Test Zone/ Test Depth (m bgl)	Type of Installation	Installation Tip/ End Depth (m bgl)	Response Zone (m bgl)	Install Halcrow Buckets		Remarks
						Depth (m bgl)	Spacing (m)	
SP1	-	-	Standpipe	3.00	0.50 to 3.00	-	-	

Notes:	IP - Impression Packer Survey	Rising - Rising Head Permeability Test	Pressuremeter - Pressuremeter Test
	Vane - Vane Shear Test	Constant - Constant Head Permeability Test	Falling - Falling Head Permeability Test
	Sand - In-Situ Density Test	Packer - Water Absorption Test	GCO - Dynamic Probing Test



FIGURE



LEGEND	
↑	Core Hole
⊗	Inspection Pit

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SERVICES LTD

PROJECT:
 Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1

TITLE:	Ground Investigation Plan
SCALE:	1:500
CLIENT:	CEDD-GEO
FIGURE:	1

JOB REF: 07 0376 03
DATE: 24-March-2010

WORKS ORDER NO: GE/2008/04.42



APPENDIX A
Checklist for Rock and Soil Descriptions

CHECKLIST FOR ROCK DESCRIPTION

GEOTECHNICAL ENGINEERING OFFICE, HKSAR

1. STRENGTH

Term	Identification
Extremely weak	Easily crumbled by hand; indented deeply by thumbnail.
Very weak	Crumbled with difficulty; scratched easily by thumbnail; peeled easily by pocket knife.
Weak	Broken into pieces by hand; scratched by thumbnail; peeled by pocket knife; deep indentations (to 5 mm) by point of geological pick; hand-held specimen easily broken by single light hammer blow.
Moderately weak	Broken with difficulty in two hands; scratched with difficulty by thumbnail; difficult to peel but easily scratched by pocket knife; shallow indentations easily made by point of pick; hand-held specimen usually broken by single light hammer blow.
Moderately strong	Scratched by pocket knife; shallow indentations made by firm blow with point of pick; hand-held specimen usually broken by single firm hammer blow. Point load strength (PLS) 0.5 - 2 MPa.
Strong	Firm blows with point of pick cause only superficial surface damage; hand-held specimen requires more than one firm hammer blow to break. PLS 2 - 4 MPa.
Very strong	Many hammer blows required to break specimen. PLS 4 - 8 MPa.
Extremely strong	Specimen only chipped by hammer blows. PLS > 8 MPa.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Grey, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light pinkish grey spotted with black).

State whether sample was wet or dry when described.

3. TEXTURE/FABRIC

Texture Terms (Applicable Mainly to Igneous Rocks)
Equigranular, Inequigranular, Megacrystic, Porphyritic, Crystalline, Cryptocrystalline, Aphanitic

Fabric
Describe preferred orientation of grains/crystals where apparent.

Describe intensity, spacing, continuity and any preferred orientation of microfractures where apparent.

4. MATERIAL WEATHERING/ALTERATION

Decomposition Term	Grade Symbol	Typical Characteristics
Residual Soil	VI	Original rock texture completely destroyed; can be crumbled by hand and finger pressure into constituent grains.
Completely Decomposed	V	Original rock texture preserved; can be crumbled by hand and finger pressure into constituent grains; easily indented by point of geological pick; slakes in water; completely discoloured compared with fresh rock.
Highly Decomposed	IV	Can be broken by hand into smaller pieces; makes a dull sound when struck by hammer; not easily indented by point of pick; does not slake in water; completely discoloured compared with fresh rock.
Moderately Decomposed	III	Cannot usually be broken by hand; easily broken by hammer; makes a dull or slight ringing sound when struck by hammer; completely stained throughout.
Slightly Decomposed	II	Not broken easily by hammer; makes a ringing sound when struck by hammer; fresh rock colours generally retained but stained near joint surfaces.
Fresh Rock	I	Not broken easily by hammer; makes a ringing sound when struck by hammer; no visible signs of decomposition (i.e. no discolouration).

This classification is applicable to igneous and volcanic rocks and other rocks of equivalent strength in fresh state.

Disintegration
Describe small-scale cracking and fracturing caused by mechanical weathering, where apparent.

Alteration
Describe state of alteration (e.g. mineralised, kaolinised) where apparent.

5. ROCK NAME (Including Grain Size)

Igneous	: Coarse- (6-20 mm), Medium- (2-6 mm) & Fine- (0.06-2 mm) grained GRANITE; GRANODIORITE. Very Fine-grained (< 0.06 mm) RHYOLITE; BASALT. (Common types only, see Geoguide 3 for others).
Pyroclastic	: PYROCLASTIC BRECCIA (> 60 mm), Lapilli TUFF (2-60 mm), Coarse ash TUFF (0.06-2 mm), Fine ash TUFF (< 0.06 mm).
Metamorphic	: Foliated - SCHIST (> 0.06 mm), PHYLLITE (< 0.06 mm). Non-foliated - MARBLE, QUARTZITE, FAULT BRECCIA.
Sedimentary	: CONGLOMERATE, BRECCIA (> 2 mm), SANDSTONE (0.06-2 mm), MUDSTONE (< 0.06 mm) = SILTSTONE (0.002-0.06 mm) + CLAYSTONE (< 0.002 mm). (Common types only).

If rock name cannot be identified, describe grain size quantitatively, including textural term where appropriate.

6. STRUCTURE

Structural Term	Rock Type
Bedded, Laminated, Massive	Sedimentary
Massive, Flow-banded	Igneous, Pyroclastic
Foliated, Banded, Cleaved	Metamorphic

Spacing of Planar Structures
Very thick (> 2 m), Thick (0.6-2 m), Medium (200-600 mm), Thin (60-200 mm), Very thin (20-60 mm), Thickly-laminated (Sedimentary) (6-20 mm) or Narrow (Igneous, Metamorphic) (6-20 mm), Thinly-laminated (Sedimentary) (< 6 mm) or Very narrow (Igneous, Metamorphic) (< 6 mm).

Examples: Thickly-bedded SANDSTONE. Narrowly flow-banded RHYOLITE.

7. DISCONTINUITIES

Nature (Type of Discontinuity)	Location and Orientation
Fault zone	Cleavage
Fault	Schistosity
Joint	Shaar plane
	Fissure
	Tension crack
	Foliation
	Bedding

Record location as co-ordinates or relative position along datum line, preferably on map or plan.

Record orientation as dip direction/dip in degrees (e.g. 032/55).

Spacing
Extremely widely-spaced (> 6 m), Very widely-spaced (2-6 m), Widely-spaced (0.6-2 m), Medium-spaced (200-600 mm), Closely-spaced (60-200 mm), Very closely-spaced (20-60 mm), Extremely closely-spaced (< 20 mm).

In exposures, supplement spacing with description of rock block shape where possible. Descriptors: Blocky, Tabular, Columnar, Polyhedral.

Persistence (Areal extent or size of a discontinuity within a plane)
Measured maximum persistence dimension should be used where possible (e.g. the discontinuity trace length on the surfaces of rock exposures). For general descriptions of different discontinuity sets, relative terms should be used.

Roughness	Waviness (large-scale): Estimate/measure wavelength and amplitude in metres.
Unevenness (small-scale), use one term from the following:	
Rough stepped	Smooth stepped
Rough undulating	Smooth undulating
Rough planar	Smooth planar
	Slit-sided stepped
	Slit-sided undulating
	Slit-sided planar

Aperture Size
Wide (> 200 mm), Moderately wide (60-200 mm), Moderately narrow (20-60 mm), Narrow (6-20 mm), Very narrow (2-6 mm), Extremely narrow (> 0-2 mm), Tight (zero).

Infilling (Nature)	Surface staining	Decomposed/ disintegrated rock
Clean	Surface staining	Decomposed/ disintegrated rock
Non-cohesive soil	Cohesive soil	Quartz
Calcite	Manganese	Kaolin
Other (Specify)		

Give full description of infill materials/minerals where appropriate.

Seepage
Dry, Damp/wet, Seepage present (estimate quantity in l/sec or l/min)

Fracture State
In borehole cores, measure the following: Total Core Recovery (TCR), Solid Core Recovery (SCR), Rock Quality Designation (RQD), Fracture Index (FI). See Geoguide 3 for definitions.

8. MASS WEATHERING

Term	Zone Symbol	Typical Characteristics
Residual Soil	RS	Residual soil derived from insitu weathering; mass structure and material texture/fabric completely destroyed; 100% soil
Partially Weathered Rock	PW 0/30	Less than 30% rock
		Soil retains original mass structure and material texture/fabric (i.e. sepolite)
	PW 30/50	Rock content does not affect shear behaviour of mass, but relict discontinuities in soil may do so.
		Rock content may be significant for investigation and construction.
		30% to 50% rock
PW 50/90	Both rock content and relict discontinuities may affect shear behaviour of mass.	
	50% to 90% rock	
PW 90/100	Interlocked structure.	
	Greater than 90% rock	
Unweathered Rock	UW	Small amount of the material converted to soil along discontinuities. 100% rock
		May show slight discolouration along discontinuities.

9. ADDITIONAL GEOLOGICAL INFORMATION

Record geological formation name if known. Avoid conjecture. Refer to HKGS maps & memoirs for further information.

NOTES:

- Rock material description normally includes: strength, colour, texture/fabric, material weathering/alteration and ROCK NAME.
- Rock mass description normally includes: strength, colour, structure, mass weathering, ROCK NAME, discontinuities and additional geological information. Can be supplemented with more detailed information on texture/fabric and material weathering/alteration of different materials within the mass where necessary.

1. STRENGTH (Compactness & Consistency)

Soil Type	Term	Identification
Very Coarse (COBBLES & BOULDERS)	Loose	By inspection of voids and particle packing in the field.
	Dense	
	Very loose	SPT 'N' value 0-4.
Coarse (SANDS & GRAVELS)	Loose	SPT 4-10; can be excavated with spade; 50 mm peg easily driven.
	Medium dense	SPT 10-30.
	Dense	SPT 30-50; requires pick for excavation; 50 mm peg hard to drive.
	Very dense	SPT > 50.
Fine (CLAYS & SILTS)	Very soft	Undrained shear strength (USS) < 20 kPa; exudes between fingers when squeezed in hand.
	Soft	USS 20-40 kPa; moulded by light finger pressure.
	Firm	USS 40-75 kPa; can be moulded by strong finger pressure.
	Stiff	USS 75-150 kPa; cannot be moulded by fingers; can be indented by thumb.
	Very stiff or hard	USS > 150 kPa; can be indented by thumbnail.
Organic (ORGANIC CLAYS, SILTS SANDS & PEATS)	Compact	Fibres already compressed together.
	Spongy	Very compressible and open structure.
	Plastic	Can be moulded in hand and smears fingers.

Terms applicable only to transported soils. For soils derived from insitu rock weathering, record actual values of quantitative tests (e.g. SPT 'N' value) as part of the description, where appropriate.

2. COLOUR

Parameter	Terms
Value	Light, Dark
Chroma	Pinkish, Reddish, Yellowish, Orangish, Brownish, Greenish, Bluish, Purplish, Greyish
Hue	Pink, Red, Yellow, Orange, Brown, Green, Blue, Purple, White, Gray, Black

For uniform colour distribution, choose a hue, supplemented by a value and/or chroma if necessary.

For non-uniform distribution, repeat this procedure using one of the following descriptors: spotted, mottled, dappled, streaked, striped (e.g. light yellowish brown mottled with red).

State whether sample was wet or dry when described.

3. PARTICLE SHAPE & COMPOSITION

Characteristic	Terms
Form	Equidimensional, Flat, Elongate, Flat & Elongate
Angularity	Angular, Subangular, Subrounded, Rounded
Surface Texture	Smooth, Rough, Glassy, Honeycombed, Pitted, Striated

Describe composition of coarse particles where appropriate. Gravel and larger particles are usually rock fragments (e.g. granite, tuff); sand particles are usually individual minerals (e.g. quartz, feldspar).

4. STRUCTURE

Soil Type	Term	Identification
Coarse & Fine	Homogenous	Deposit consists essentially of one type.
	Interstriated (Interbedded or Interlamated)	Alternating layers of varying types or with bands or lenses of other materials.
Coarse	Heterogenous	A mixture of types.
	Fissured	Breaks into polyhedral fragments along fissures.
Fine	Intact	No fissures.
	Fibrous	Plant remains recognizable & retain some strength.
Organic	Amorphous	No recognizable plant remains.

Describe spacing of bedding planes, fissures, shell bands, etc using the spacing terms given in Items 6 & 7 for rock description (see other side).

Above terms applicable only to transported soils. For soils derived from insitu rock weathering, describe relict structures in accordance with item 8 of rock description (see other side).

5. WEATHERING

Soils Derived from Insitu Weathering of Rocks
There are two main types: saprolites (rock texture/structure retained) and residual soils (rock texture/structure completely destroyed). Describe state of weathering in accordance with items 4 & 8 for rock description (see other side).

Sedimentary (Transported) Soils
Coarse soils: Describe overall discoloration of soil and degree of decomposition of gravel and larger particles (see item 4, other side). Also note any signs of disintegration of large particles where apparent.

Fine Soils: Describe overall discoloration of soil where apparent.

6. SOIL NAME

A. Basic Soil Types			
Soil Type	Particle Sizes (mm)	Identification	
BOULDERS	> 200	Only seen complete in pits or exposures. Often difficult to recover from boreholes.	
COBBLES	60 - 200		
GRAVELS	Coarse 20 - 60	Easily visible to naked eye; particle shape and grading can be described. Well-graded: wide range of grain sizes. Poorly-graded: not well-graded (split further into uniform or gap-graded).	
	Medium 6 - 20		
	Fine 2 - 6		
SANDS	Coarse 0.6 - 2	Visible to naked eye; very little or no cohesion; grading can be described. May be well-graded or poorly-graded (uniform or gap-graded) as for gravel.	
	Medium 0.2 - 0.6		
	Fine 0.06 - 0.2		
SILTS	Coarse 0.02 - 0.06	Only coarse silt barely visible to naked eye; exhibits little plasticity and marked dilatancy; slightly granular or silky to the touch. Disintegrates in water; lumps dry quickly; possesses cohesion but can be powdered easily between fingers.	
	Medium 0.006 - 0.02		
	Fine 0.002 - 0.006		
CLAYS	< 0.002	Dry lumps can be broken by hand but not powdered between the fingers. Disintegrates in water more slowly than silt; smooth to the touch; exhibits plasticity but no dilatancy; sticks to the fingers and dries slowly; shrinks appreciably on drying, usually showing cracks. These properties more noticeable with increasing plasticity.	
ORGANIC CLAYS, SILTS OR SANDS	varies	Contains much organic vegetable matter; often has a noticeable smell and changes colour on oxidation.	
PEATS	varies	Predominantly plant remains; usually dark brown or black in colour, often with distinctive smell; low bulk density.	

B. Composite Soil Types (Mixtures of Basic Types)			
Principal Soil Type	Terminology Sequence	Term for Secondary Constituent	% of Secondary Constituent
Very coarse (BOULDERS & COBBLES) (> 50% of soil > 60 mm)	Secondary constituents (finer material) ▲ after principal	With a little	< 5
		With some	5 - 20
		With much	20 - 50
Coarse (GRAVELS & SANDS) (> 65% gravel & sand sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (silty, clayey or silty/clayey) *	< 5
		(silty, clayey or silty/clayey) *	5 - 15
		Very (silty, clayey or silty/clayey) *	15 - 35
Fine (SILTS & CLAYS) (> 35% silt & clay sizes)	Secondary constituents before principal (excluding cobbles & boulders) +	Slightly (gravelly or sandy) *	< 5
		(gravelly or sandy) *	5 - 20
		Very (gravelly or sandy) *	20 - 50
		Slightly (gravelly or sandy or both) *	< 35
		(gravelly or sandy) *	35 - 65

- ▲ Full name of finer material should be given (see examples below).
- * Secondary soil type as appropriate; use 'silty/clayey' when a distinction cannot be made between the two.
- + If cobbles or boulders are also present in a coarse or fine soil, this can be indicated by using one of the following terms relating to the very coarse fraction after the principal: 'with occasional' (< 5), 'with some' (5-20), 'with many' (20-50), where figures in brackets are % very coarse material expressed as a fraction of the whole soil (see examples below).

Examples: Slightly silty/clayey, sandy GRAVEL. Slightly gravelly, sandy SILT. Very gravelly SAND. Sandy GRAVEL with occasional boulders. BOULDERS with much finer material (silty/clayey, very sandy gravel).

For fine soils, plasticity terms should also be described where possible, viz: 'non-plastic' (generally silts), 'intermediate plasticity' (lean clays), 'high plasticity' (fat clays).

7. DISCONTINUITIES

Full description of discontinuities, where necessary, should be made using the methods and terms given in item 7 for rock description (see other side).

8. ADDITIONAL GEOLOGICAL INFORMATION

Record geological name which indicates geological origin or soil type (e.g. Alluvium, Colluvium, Marine sand etc.). Refer to HKGS maps & memoirs for further information.

- NOTES:
- Mass characteristics of soils (i.e. structure, weathering, discontinuities) can only be described satisfactorily in undisturbed field exposures or large undisturbed samples.
 - For full descriptions of soils derived from insitu rock weathering:
 - saprolites - describe as rocks, supplemented by soil strength and soil name terms in brackets,
 - residual soils - describe as soils, supplemented by name of parent rock where apparent from field evidence.



APPENDIX B
Log Symbols and Classification Systems

LEGEND SYMBOLS FOR LOGS



AGGLOM	ASPHALT	BASALT	BIOCLAST	BLANK	BLDR	BLDR	BLDRSBL	BLDRSG
BLDRCKT	BLDRCT	BLDRS	BLDRSGK	BLDRK	BLDRS	BLDRSG	BLDRSGK	BLDRSK
BLDRZ	BLDRK	BLDRZSG	BLDRZSGK	BLDRSK	BRECCIA	CBLI	CBLIC	CBLICG
CBLICG	CBLICS	CBLICSG	CBLICSGK	CBLICK	CBLICG	CBLICZ	CBLICZS	CBLICZS
CBLISG	CBLISGO	CBLIS	CBLISG	CBLIS	CBLISG	CBLISZ	CLAY	CLAYB
CLAYG	CLAYGB	CLAYK	CLAYSB	CLAYRO	CLAYGO	CLAYK	CLAYB	CLAYO
CLAYB	CLAYS	CLAYB	CLAYSO	CLAYSB	CLAYSG	CLAYK	CLAYSO	CLAYSTON
CLAYZ	CLAYZ	CLAYZ	CLAYZB	CLAYZK	CLAYZ	CLAYZ	CLAYZ	CLAYZB
CLAYZG	CLAYZGB	CLAYZK	CLAYZK	CLAYZSO	CONCRETE	CONGLOM	DOLMITE	FAULT
FILL	FINE	FINES	FINEG	FINEGB	FINEK	FINEGO	FINEK	FINEKB

LEGEND SYMBOLS FOR LOGS



FINEKO	FINEO	FINES	FINESB	FINESG	FINESGB	FINESGK	FINESGO	FINESK
FINESO	FISSIH	GABRO	GREISS	GRANITE	GRAV	GRAVB	GRAVC	GRAVCS
GRAVCBL	GRAVCK	GRAVCO	GRAVCSB	GRAVCSG	GRAVCSGB	GRAVCSGO	GRAVCSK	GRAVCSZ
GRAVCSB	GRAVCSG	GRAVCSGB	GRAVCSGO	GRAVCSK	GRAVCSZ	GRAVCSB	GRAVCSG	GRAVCSGB
GRAVCSGO	GRAVCSK	GRAVCSZ	GRAVCSB	GRAVCSG	GRAVCSGB	GRAVCSGO	GRAVCSK	GRAVCSZ
GRAVCSB	GRAVCSG	GRAVCSGB	GRAVCSGO	GRAVCSK	GRAVCSZ	LST	LSTSLT	MARBLE
METACON	METANZ	MUDSTONE	ORGANICS	PEGNETE	PHYLLITE	QUARTZIT	RHYOLITE	SAND
SANDB	SANDC	SANDCB	SANDCG	SANDCGB	SANDCGK	SANDCGO	SANDCK	SANDCO
SANDCZ	SANDCZB	SANDCZG	SANDCZGB	SANDCZGK	SANDCZK	SANDCZO	SANDG	SANDGB
SANDGK	SANDGG	SANDK	SANDO	SANDSTON	SANDE	SANDSB	SANDSG	SANDSGB
SANDSGK	SANDSGO	SANDSK	SANDZO	SCHIST	SHALE	SILT	SILTGB	SILTGC

LEGEND SYMBOLS FOR LOGS

SILTCL 	SILTCL 	SILTCL 	SILTCK 	SILTGO 	SILTCK 	SILTGO 	SILTCS 	SILTCS
SILTCS 	SILTCSK 	SILTCSGO 	SILTCSK 	SILTCSO 	SILTG 	SILTGB 	SILTCK 	SILTGO
SILTCK 	SILTO 	SILTCS 	SILTS 	SILTGB 	SILTSG 	SILTSGB 	SILTSGK 	SILTSGO
SILTCK 	SILTSCO 	SILTSCO 	SILTSTON 	STEEL 	SURFACE 	SYENITE 	TRACHYTE 	TUFF
TUFFINE 	VEIN 	WASHING 						

LIST OF MATERIAL CODES FOR THE LOG LEGEND



<u>Material Code</u>	<u>Description</u>	
AGGLOM	Agglomerate	
ASPHALT	Asphalt	
BASALT	Basalt	
BIOCLAST	Shells	
BLANK	Material not recovered	
BLDR	Boulders	
BLDRCBBL	Boulders and Cobbles	
BRECCIA	Sedimentary Breccia	
CBBL	Cobbles	
CLAY	Clay	
CLAYSTON	Claystone	
CONCRETE	Concrete	
CONGLOM	Conglomerate	
DOLOMITE	Dolomitic Limestone	
FILL	Artificial Fill	
FISSIN	Fissure Infill	
GABBRO	Gabbro, Lamprophyre	
GNEISS	Gneiss	
GRANITE	Granite	
GRAV	Gravel	
GRAVCBBL	Gravel and Cobbles	
LST	Limestone	
LSTSLT	Interbedded Limestone and Siltstone	
MARBLE	Marble	
METACON	Metamorphic Rock – Contact	
METAREG	Metamorphic Rock – Regional	
MUDSTONE	Mudstone	
ORGANICS	Organic, Peat	
PEGMTITE	Pegmatite	
PHYLLITE	Phyllite, Mylonite	
QUARTZIT	Quartzite	
RHYOLITE	Rhyolites	
SAND	Sand	
SANDSTON	Sandstone	
SCHIST	Schist (Medium – grained Metamorphic Rock)	
SHALE	Shale	
SILT	Silt	
SILTSTON	Siltstone	
SURFACE	Artificial Surfacing – Masonry, Stone/Brick Shotcrete and Chunam surface etc.	Pitching,
SYENITE	Granodiorite, Syenite, Monzonite	
TRACHYTE	Trachyte	
TUFF	Coarse Ash Tuff, Lapilli Tuff	
TUFFINE	Fine Ash Tuff	

Notes:

In common ground the following codes are added to the main description in the order stated below the denote secondary constituents:

(i)	C – Clay	(v)	K – Cobbles
(ii)	Z – Silt	(vi)	O – Organic
(iii)	S – Sand	(vii)	B – Shells
(iv)	G – Gravel		

e.g. A silty CLAY with occasional shell and organic material is coded as CLAYZOB



APPENDIX C
Corehole Records and Photographs



**FUGRO
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SERVICES LTD**

COREHOLE RECORD

HOLE No. CH1

CONTRACT No.: GE/2008/04

SHEET: 1 of 1

Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1

METHOD: Portable Coring

CO-ORDINATES:

WORKS ORDER No. GE/2008/04.42

MACHINE & No.: R-1

E 828031.52
N 842618.27

DATE from: 01/03/2010 to 01/03/2010

FLUSHING MEDIUM: Water

ORIENTATION: 050°/0°

GROUND LEVEL + 7.46 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
01/03/2010	HW 0.28			100							0.00	0.00				
1									1	*	0.28	7.46	0.28			Pinkish grey (7.5YR/7/2), angular BOULDERS of moderately strong granite. (MASONRY WALL)
2									2	*	0.55					Yellowish brown (10YR/5/6), angular fine to coarse GRAVEL of weak to moderately strong metasiltstone, metatuff and concrete with some matrix of sandy clayey silt. (FILL)
3									3	*	1.05					
4									4	*	1.55					
5									5	*	2.05	7.46	2.50			
6									6	*	2.55					
01/03/2010									7	*	3.05	7.46	3.00			Soft, reddish yellow (5YR/6/6), sandy, very clayey SILT. (ALLUVIUM)
4																End of investigation hole at 3.00m.
5																
6																
7																
8																
9																
10																

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample
- Standard Penetration Test
- In-situ Vane Shear Test
- Permeability Test
- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



CEDD Contract No.: GE/2008/04
Ground Investigation - New Territories West (Term Contract)

From Fugro Geotechnical Services Ltd.

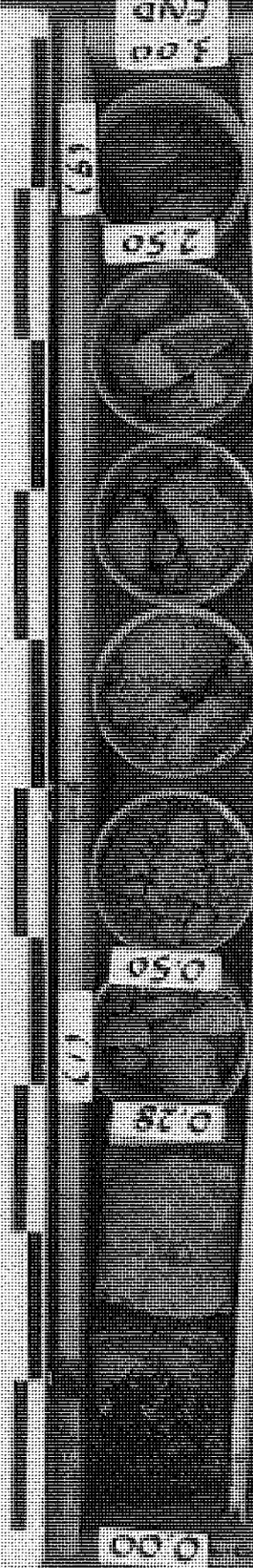
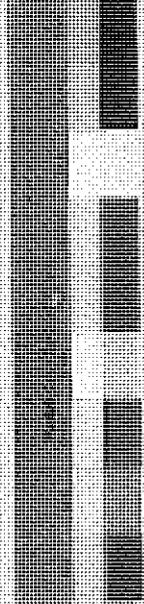
Works Order No.: GE/2008/04.42

Hole No.: CH1 **Box No.:** 1 of 1

Depth: 0.00 m. to 3.00 m.

Date of Photograph: 5/3/2010

Job Title: Agreement No. BA012005
 Consultancy for the Investigation, Design & Supervision of Slope & Retaining Wall Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, N.T. on Lot No. 1263 in D.D.96 for Portion of Feature No. 2NE-D/R1



0.00

0.50

0.50

2.50

3.00

(5)



**FUGRO
GEOTECHNICAL
SERVICES LTD**

COREHOLE RECORD

HOLE No. **CH2**

CONTRACT No.: **GE/2008/04**

SHEET: **1** of **1**

Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: **Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1**

METHOD: **Portable Coring**

CO-ORDINATES:

WORKS ORDER No. **GE/2008/04.42**

MACHINE & No.: **R-2**

E **828031.02**

DATE from: **01/03/2010** to **01/03/2010**

N **842617.56**

FLUSHING MEDIUM: **Water**

ORIENTATION: **050°/45°**

GROUND LEVEL **+ 6.31** mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples			Depth (m)	Legend	Grade	Description
									No.	Type	Depth				
01/03/2010	HW HW 0.40			90											
1									1	*	0.40	6.03	0.40		Grey (7.5YR/6/1), angular coarse GRAVEL and COBBLES of strong granite and concrete. (MASONRY WALL)
									2	*	0.55				Soft, red (10R/5/8), sandy clayey SILT with occasional angular coarse gravel of weak to moderately strong metasilstone. (FILL)
									3	*	1.55	5.25	1.50		Soft, light yellowish brown (2.5Y/6/4), mottled black, sandy, very clayey SILT. (FILL)
2									4	*	1.55	4.90	2.00		Soft, greyish brown (10YR/5/2), sandy clayey SILT with occasional subangular coarse gravel of strong granite. (FILL)
									5	*	2.55				Soft, light yellowish brown (2.5Y/6/4), sandy silty CLAY with occasional angular coarse gravel of strong granite. (FILL)
01/03/2010									6	*	2.55	4.19	3.00		End of investigation hole at 3.00m.
4															
5															
6															
7															
8															
9															
10															

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample
- Standard Penetration Test
- In-situ Vane Shear Test
- Permeability Test
- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



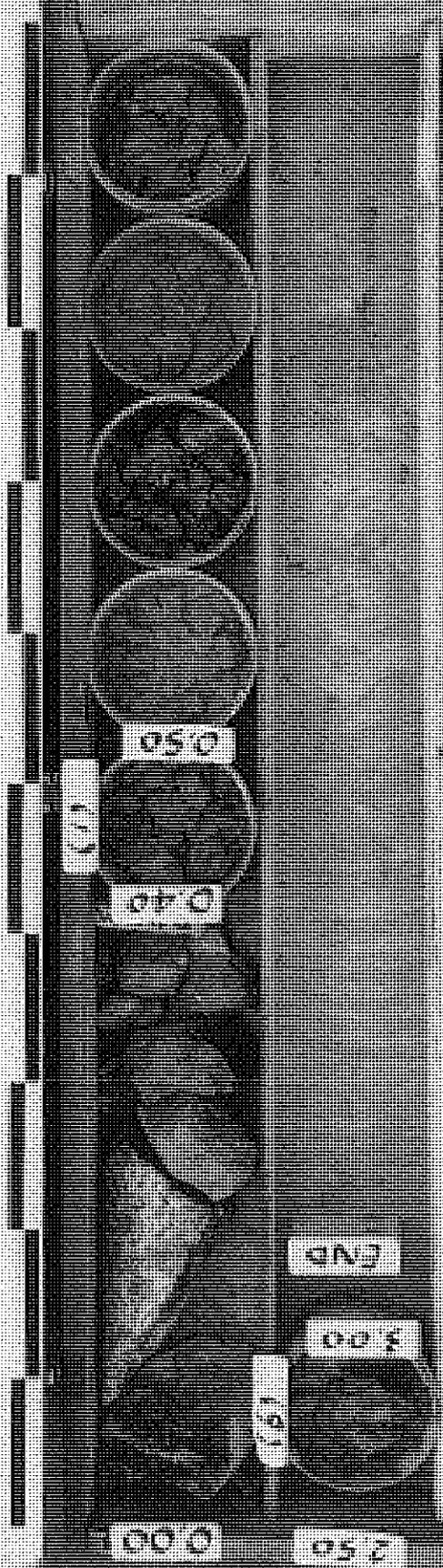
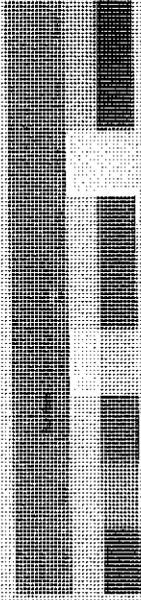
CEDD Contract No.: GE/2008/04
 Ground Investigation - New
 Territories West (Term Contract)

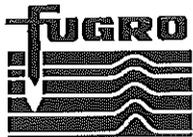
Fugro Geotechnical Services Ltd.

Hole No.: CH2 Box No.: 1 of 1
 Depth: 0.00 m. to 3.00 m.
 Works Order No.: GE/2008/04.42

Job Title: Agreement No. BA/01/2006
 Consultancy for the Investigation, Design
 & Supervision of Slope & Retaining Wall
 Upgrading Works at Ma Tso Lung Sun
 Tsuen, Yuen Long, N.T. on Lot No. 1283 in
 D.D.96 for Portion of Feature No. 2NE-D/R1

Date of Photograph: 5/3/2010





**FUGRO
GEOTECHNICAL
SERVICES LTD**

COREHOLE RECORD

HOLE No. **CH3**

CONTRACT No.: **GE/2008/04**

SHEET: **1** of **1**

Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: **Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1**

METHOD: **Portable Coring**

CO-ORDINATES:

WORKS ORDER No. **GE/2008/04.42**

MACHINE & No.: **R-1**

E **828029.43**

DATE from: **01/03/2010** to **01/03/2010**

N **842620.23**

FLUSHING MEDIUM: **Water**

ORIENTATION: **050°/0°**

GROUND LEVEL **+ 7.36** mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
01/03/2010	HW 0.20			100							7.36	0.00			
									1	+	8.65				Pinkish grey (7.5YR/7/2), angular BOULDERS of strong granite. (MASONRY WALL)
1									2	+	9.65				Soft to firm, weak, red (10R/5/8), sandy clayey SILT with some angular fine to coarse gravel of weak to moderately strong metatuff, quartz and concrete. (FILL)
									3	+	1.65				
2									4	+	1.65				
									5	+	2.65	7.36	2.50		Light yellowish brown (2.5Y/6/4), angular coarse GRAVEL of moderately strong metatuff. (FILL)
01/03/2010									6	+	3.65	7.36	3.00		End of investigation hole at 3.00m.
3															
4															
5															
6															
7															
8															
9															
10															

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample
- Standard Penetration Test
- In-situ Vane Shear Test
- Permeability Test
- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



CEDD Contract No.: GE/2008/04
 Ground Investigation - New
 Territories West (Term Contract)

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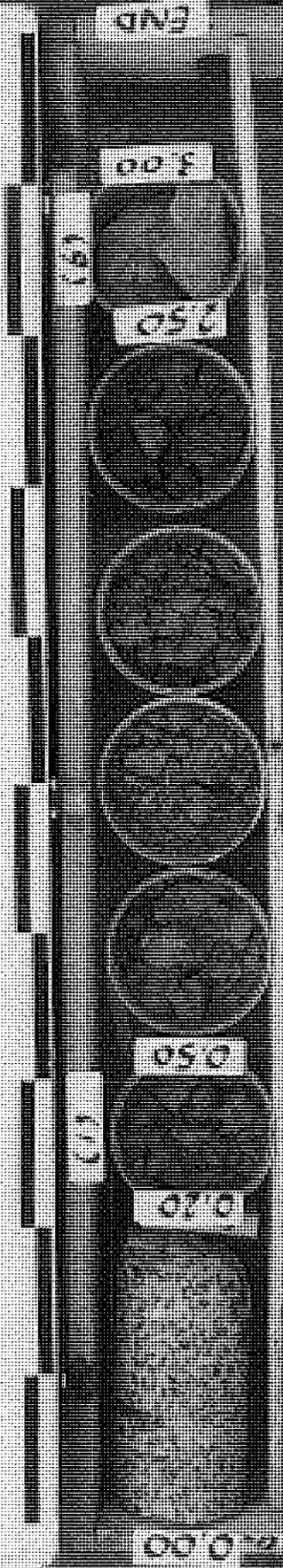
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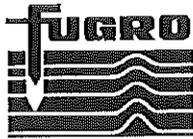
Works Order No.: GE/2008/04.42

Depth: 0.00 m. to 3.00 m.

Date of Photograph: 5/3/2010

Job Title: Agreement No. BA/01/2008
 Consultancy for the Investigation, Design
 & Supervision of Slope & Retaining Wall
 Upgrading Works at Ma Tso Lung Sun
 Tsuen, Yuen Long, N.T. on Lot No. 1283 in
 D.D.96 for Portion of Feature No. 2NE-D/R1





**FUGRO
GEOTECHNICAL
SERVICES LTD**

COREHOLE RECORD

HOLE No. **CH4**

CONTRACT No.: **GE/2008/04**

SHEET: **1** of **1**

Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: **Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NF-D/R1**

METHOD: **Portable Coring**

CO-ORDINATES:

WORKS ORDER No. **GE/2008/04.42**

MACHINE & No.: **R-2**

E **828028.75**

DATE from: **02/03/2010** to **02/03/2010**

N **842619.36**

FLUSHING MEDIUM: **Water**

ORIENTATION: **050°/45°**

GROUND LEVEL **+ 5.99** mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples			Depth (m)	Legend	Grade	Description
									No.	Type	Depth				
02/03/2010	HW 0.20			100							5.99	0.00			
											5.85	0.20			Pinkish grey (7.5YR/7/2), angular BOULDERS of strong granite. (FILL)
1															Soft, yellowish brown (10YR/5/6), sandy clayey SILT. (FILL)
											4.93	1.50			
2											4.58	2.00			Soft, light yellowish brown (2.5Y/6/4), sandy silty CLAY with occasional angular coarse gravel of moderately strong quartz. (FILL)
3															Soft to firm, light yellowish brown (2.5Y/6/4), mottled red, sandy silty CLAY. (ALLUVIUM)
4											3.16	4.00			Red (10R/5/8), fine to medium SAND. (ALLUVIUM)
5											2.45	5.00			End of investigation hole at 5.00m.
02/03/2010															
6															
7															
8															
9															
10															

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample
- Standard Penetration Test
- In-situ Vane Shear Test
- Permeability Test
- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



CEDD Contract No.: GE/2008/04
Ground Investigation - New
Territories West (Term Contract)

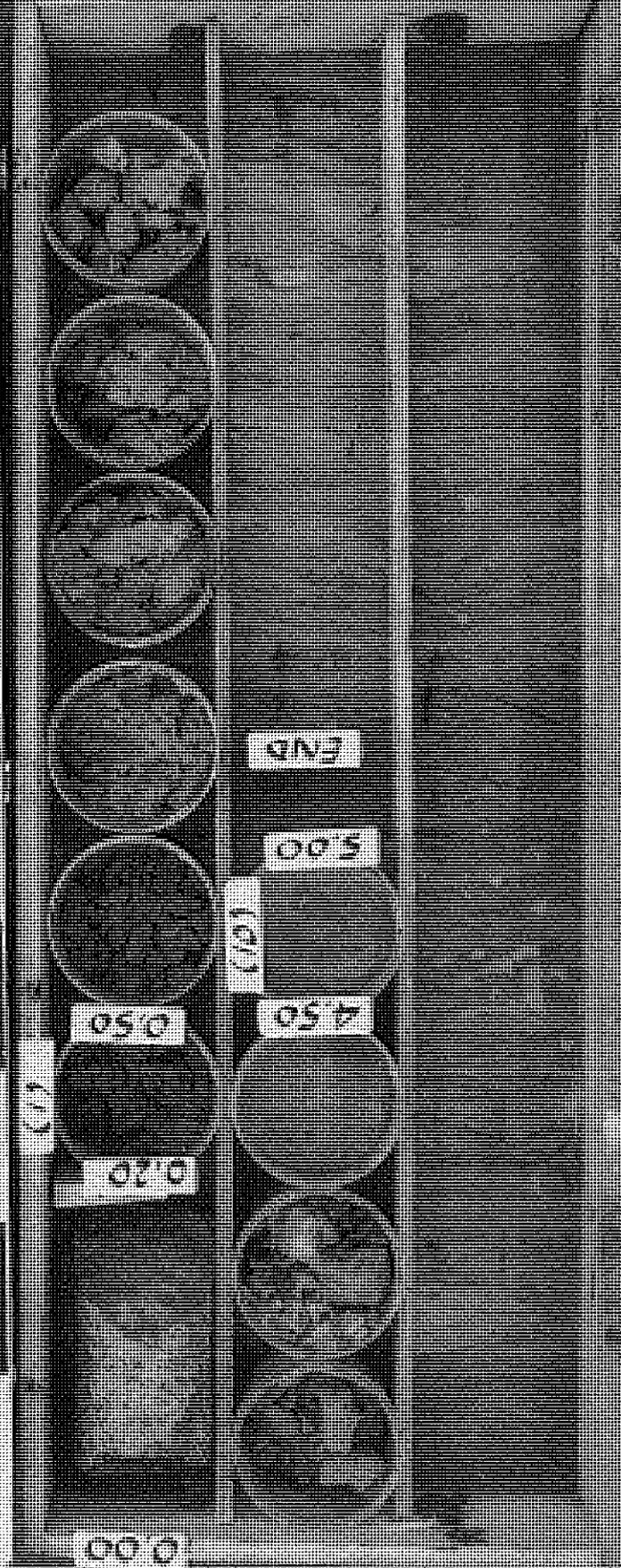
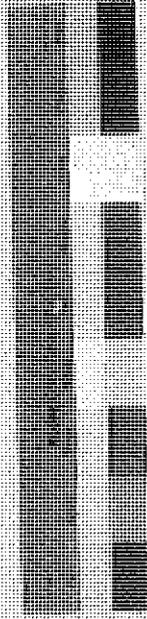
Fugro Geotechnical Services Ltd.

Hole No. : CH4 **Box No. : 1** **of 1**

Works Order No. : GE/2008/04.42 **Depth : 0.00** **m. to 5.00** **m.**

Job Title : Agreement No. BA/01/2006
Consultancy for the Investigation, Design
& Supervision of Slope & Retaining Wall
Upgrading Works at Ma Tso Lung Sun
Tsuen, Yuen Long, N.T. on Lot No. 1283 in
D.D.96 for Portion of Feature No. 2NE-D/R1

Date of Photograph : 5/3/2010





FUGRO
GEOTECHNICAL
SERVICES LTD

COREHOLE RECORD

HOLE No. CH5

CONTRACT No.: GE/2008/04

SHEET: 1 of 1

Agreement No. BA/017/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1

METHOD: Portable Coring

CO-ORDINATES:

WORKS ORDER No. GE/2008/04.42

MACHINE & No.: R-2

E 828026.44
 N 842622.18

DATE from: 01/03/2010 to 01/03/2010

FLUSHING MEDIUM: Water

ORIENTATION: 050°/0°

GROUND LEVEL + 6.66 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples		Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type					
01/03/2010	HW 0.40			98							6.66	0.00			
1									1	±	0.40	0.40			Pinkish brown (7.5YR/7/2), angular BOULDERS of moderately strong tuff. (MASONRY WALL)
									2	±	0.85	0.85			Light yellowish brown (2.5Y/6/4), angular coarse GRAVEL of moderately strong metatuff. (FILL)
									3	±	1.55	1.55			Soft, yellowish brown (10YR/5/6), sandy SILT with much angular fine to coarse gravel of weak to moderately strong metatuff and metasiltstone. (FILL)
2				100					4	±	1.70	1.70			Grey (7.5YR/6/1), angular BOULDERS of strong tuff. (FILL)
									5	±	2.00	2.00			Soft, dark grey (5YR/4/1) to black (5R/2.5/1), sandy clayey SILT with occasional medium gravel of glass. (FILL/TOPSOIL)
3									6	±	2.55	2.55			Soft to firm, reddish yellow (5YR/6/6), sandy, very clayey SILT. (ALLUVIUM)
01/03/2010											6.66	3.00			End of investigation hole at 3.00m.
4															
5															
6															
7															
8															
9															
10												10.00			

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample
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- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



CEDD Contract No.: GE/2008/04
 Ground Investigation - New
 Territories West (Term Contract)

Fugro Geotechnical Services Ltd.

Hole No.: CH5 Box No.: 1 of 1

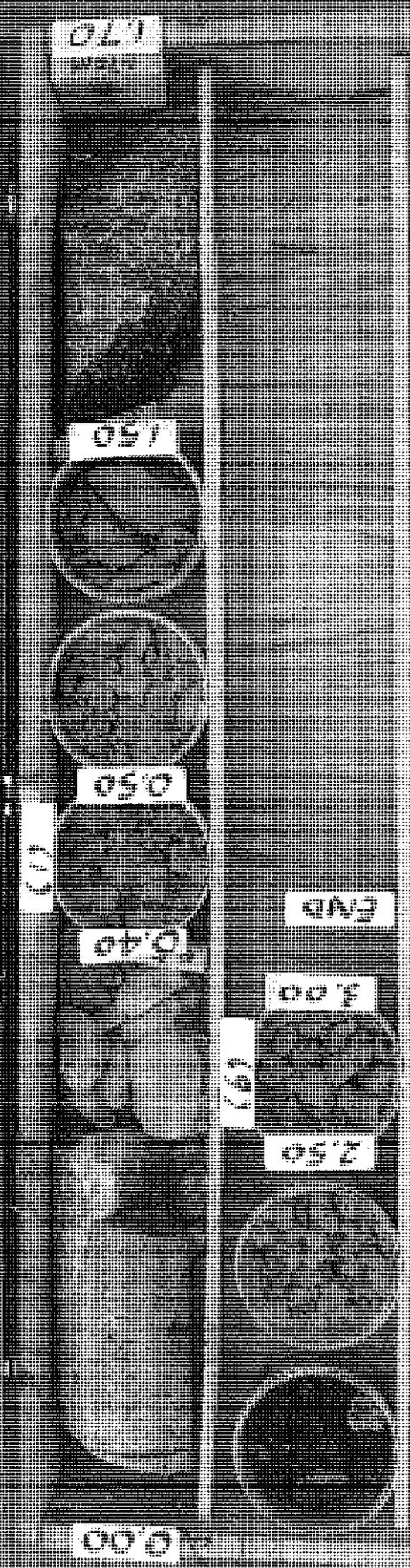
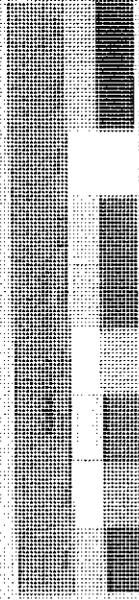
Works Order No.: GE/2008/04.42

Depth: 0.00 m. to 3.00 m.

Job Title: Agreement No. BA/01/2008

Date of Photograph: 5/3/2010

Consultancy for the Investigation, Design
 & Supervision of Slope & Retaining Wall
 Upgrading Works at Ma Tso Lung Sun
 Tsuen, Yuen Long, N.T. on Lot No. 1283 in
 D.D.96 for Portion of Feature No. 2NE-D/R1



END



**FUGRO
GEOTECHNICAL
SERVICES LTD**

COREHOLE RECORD

HOLE No. CH6

CONTRACT No.: GE/2008/04

SHEET: 1 of 1

Agreement No. BA/01/2008, Consultancy for the Investigation, Design and Supervision of Slope and Retaining Wall
 PROJECT: Upgrading Works at Ma Tso Lung Sun Tsuen, Yuen Long, New Territories on Lot No. 1283 in D.D. 96 for portion of Feature No. 2NE-D/R1

METHOD: Portable Coring

CO-ORDINATES:

WORKS ORDER No. GE/2008/04.42

MACHINE & No.: R-1

E 828026.08
N 842621.75

DATE from: 01/03/2010 to 01/03/2010

FLUSHING MEDIUM: Water

ORIENTATION: 050°/0°

GROUND LEVEL + 5.84 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
01/03/2010	HW 0.20			100							0.00	0.00				
											5.84	0.20				Pinkish grey (7.5YR7/2), angular BOULDERS of strong granite. (MASONRY WALL)
1																Soft, yellowish brown (10YR/5/6), sandy, very clayey SILT. (FILL)
2											5.84	1.50				1.50 - 2.00m : With piece of plastic fragment. (FILL)
											5.84	2.00				Soft, reddish yellow (5YR/6/6), sandy, very clayey SILT. (ALLUVIUM)
01/03/2010											5.84	3.00				End of Investigation hole at 3.00m.
4																
5																
6																
7																
8																
9																
10																

- Small Disturbed Sample
- Piston sample
- U76 Undisturbed Sample
- U100 Undisturbed Sample
- Mazier Sample
- 76mm Vibrocore Sample
- 100mm Vibrocore Sample
- Vibrocore Sub-sample
- SPT Liner Sample

- Standard Penetration Test
- In-situ Vane Shear Test
- Permeability Test
- Pressuremeter Test
- Televiwer Survey
- Packer Test
- Impression Packer Test
- Water Sample
- Standpipe
- Piezometer Tip

LOGGED W.P. Yiu
 DATE 04/03/2010
 CHECKED A.B. Hollinshead
 DATE 10/03/2010

REMARKS



CEDD Contract No.: GE/2008/04
 Ground Investigation - New
 Territories West (Term Contract)

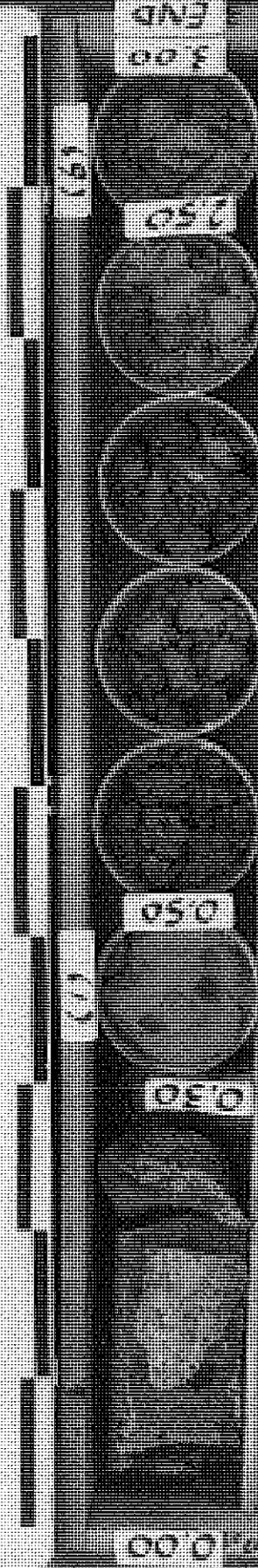
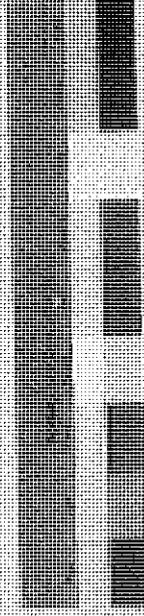
Fugro Geotechnical Services Ltd.

Works Order No.: GE/2008/04.42 Hole No.: CH6 Box No.: 1 of 1

Depth: 0.00 m. to 3.00 m.

Date of Photograph: 5/3/2010

Job Title: Agreement No. BA/012008
 Consultancy for the Investigation, Design
 & Supervision of Slope & Retaining Wall
 Upgrading Works at Ma Tso Lung Sun
 Tsuen, Yuen Long, N.T. on Lot No. 1283 in
 D.D. 96 for Portion of Feature No. 2NE-D/RI



0.00

(1)

0.50

0.50

2.50

3.00
END



APPENDIX D
Installation Detail and Response Test Record



APPENDIX E
Record of Water Levels

Appendix E

Geotechnical Map

GEOLOGICAL EXPLANATORY NOTES

The solid geology of the district is dominated by Upper Paleozoic sedimentary rocks and Mesozoic volcanic and intrusive igneous rocks. Pre- and post-volcanic Mesozoic sedimentary rocks are also present in the district.

Paleozoic Lower Carboniferous San Tin Group is divided into the Yuen Long and Lok Ma Chau formations. The Yuen Long Formation comprises pure marble (the Ma Tin Member), and impure and dolomitic marble, with subordinate chert and metaslates interbeds (the Lung Ping Member). The marbles occur at Tai Shan Hill and Pak Tai Chau as a substrate beneath a cover of superficial deposits of at least 20 m thick. The Lok Ma Chau Formation, mainly exposed on the lee hills at Lok Ma Chau and Ma Tai Lung, is divided into two units: the lower Ma Po Member and the upper Tai Shek Ma Member. The Ma Po Member comprises metamorphosed siltstone and phyllite with minor metaslates and graphitic schists, whereas the Tai Shek Ma Member consists of metaslates with subordinate metagranitoids and phyllite.

A sequence of metamorphosed siltstone, sandstone and carbonaceous mudstone near Fung Keng Shan, which was previously considered to belong to the Ma Po Member, has now been reassigned to the Tai O Formation. This sequence is now recognized as pre-volcanic sediments underlying the Mesozoic volcanic rocks.

Mesozoic volcanic successions include the Tuen Mun Formation and the Tuen Wan Volcanic Group, both are of Middle Jurassic age. Volcaniclastic sandstone, siltstone and conglomerate with occasional laterally mobile clasts belonging to the Tin Shui Wu and Siu Hong Tsuen members of the Tuen Mun Formation are found underneath the Tin Shui Wu. Ams sandstone and conglomerate layers crop out at Hong Tseng Wai, which were previously mapped as part of the Carboniferous Lok Ma Chau Formation, have now been re-assigned to the Siu Hong Tsuen Member. The Shing Mun and Tai Ma Shan formations belonging to the Middle Jurassic Tuen Wan Volcanic Group occur from Kai Kung Leung to Ki Lung Shan (Hidden Hill). Both formations consist mainly of fine-grained coarse ash tuff with subordinate tuffaceous sandstone, although the lithology of the Shing Mun Formation is more variable.

The post-volcanic Oligocene Kai O Formation is exposed along the coastline to the west of Lau Fau Shan and found in offshore boulders in Deep Bay. It comprises thickly bedded, reddish purple, granitic disintegrating breccia, conglomerate and coarse sandstone.

Quartzites of Late Jurassic to Early Cretaceous age intrude or are in fault contact with the Carboniferous to Middle Jurassic strata. The Tsing Shan Granite is dominantly fine- to medium-grained, locally sheared and encased by quartz veins, and occurs at a narrow zone extending from San Hong Tsuen to Tuen Bei Tai. A porphyritic coarse-grained granite, which remains to be undifferentiated, is identified in boulders at Lok Ma Chau Loo and in Deep Bay. Prograde fine- to medium-grained granitoids, which is tentatively assigned to the Middle Jurassic Tai Po Granitoids, has limited occurrences near Ng Uk Tsuen and Hong Kong Wetland Park. Undifferentiated basic dykes cut the sedimentary, volcanic and granitic rocks at various locations. Quartz veins are common in all rock types, the largest being closely associated with the Deep Bay Fault.

The structure of the district is dominated by the northeast-trending Lo Wu-Tuen Mun Fold Belt (Fault Zone), which comprises a series of folds and ductile shear zones associated with the major northeast-trending faults, including Deep Bay Fault, Yuen Tai Shan Fault, East Tuen Mun Fault, Ma Po Fault and San Tin Fault. Apart from ductile shearing, the rocks within the fault zone have been subjected to dynamic and hydrothermal metamorphism, and brecciation and modification are also evident in some of these faults. The rocks of the San Tin Group and parts of the Tuen Wan Volcanic Group are also regionally metamorphosed to phyllite, siltite and pelitic schist, metaslates and metagrit.

A weathered mantle covers most of the district. The effect of weathering upon the different rock types is broadly indicated in the topographic relief: in general, the finer-grained tuffs tend to form higher and sharper peaks, whereas granites and sedimentary rocks form lower and more rounded hills.

Quaternary intertidal deposits from the Tin Shui Wu, Ma Po and San Tin plains, Beach and backshore sand deposits fringe the coastline from Lau Fau Shan to Tuen Bei Tai, as well as the plain shoreline at Tuen Kiu Chau. These sediments, together with the marine mud covering the seabed of Deep Bay, belong to the Holocene Hang Hau Formation. Alluvium and colluvium of both Pleistocene and Holocene age are present in the district. Alluvial deposits are present along the lower stream courses and are widespread on the ground at Long Valley, Tai Keng and Ngai Tam Mei in the hilly areas; colluvium is common in the upland valleys and the foothills. The Holocene alluvial deposits accumulated along recent stream courses, are assigned to the Funging Formation whereas the older alluvium and colluvium, belonging to the Pleistocene Chak Lap Koa Formation are present in onshore area as well as covered by marine sediments of the Holocene Hang Hau Formation.

GEOLOGICAL MEMOIRS

Earlier descriptions of the geology for the areas covered by the maps in this series are published as memoirs of the Hong Kong Geological Survey. The first edition of Map Sheet 2 (1988 and 1991) was described in Memoir No. 3, "Geology of Western New Territories" (1989). The geology of the district is summarized in two memoirs, The Pre-Quaternary Geology of Hong Kong (2000) and The Quaternary Geology of Hong Kong (2000) that are accompanied by a series of 1:100,000-scale geological maps. An online version of these two memoirs is available at http://www.geod.gov.hk/eng/about-us/organisation/eng_geo_services/pub_info_memoirs/geology/index.htm.

The latest revisions to Map Sheet 2 are described in Geological Report GR 2009, "Updates of Hong Kong Geological Survey 1:250,000-scale Maps - Major Findings and Revisions Map Sheet 2 - San Tin". The published maps and memoirs are available from the online Government Book store (<http://www.bookstore.gov.hk>), and the Geological Report is available on request from the Chief Geotechnical Engineer / Planning, GEO, CEDD.

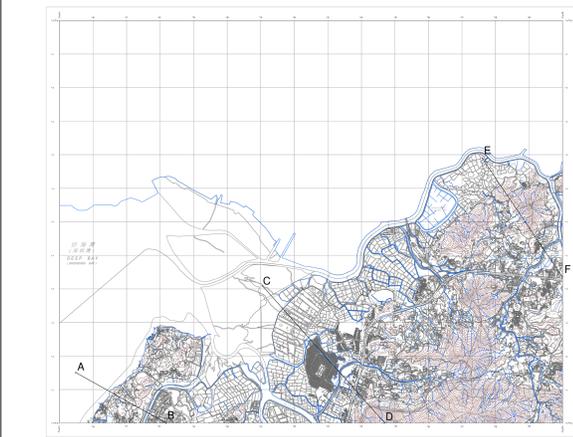


BASE MAP REFERENCE

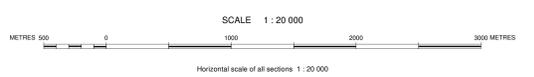
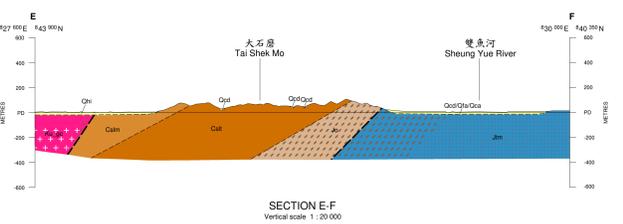
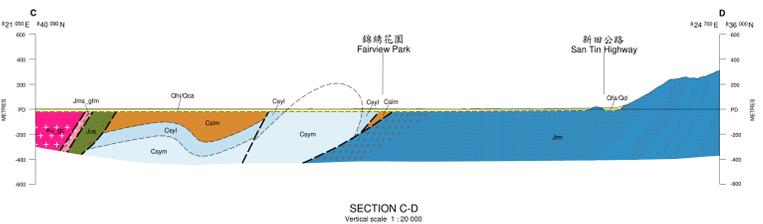
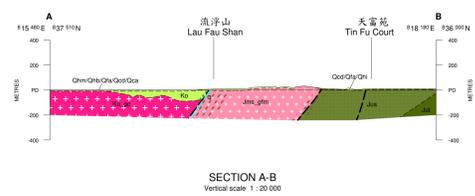
- Main road with route number
- Secondary roads
- Road under construction
- Footpath
- Railway with station
- River, watercourse & catchwater
- Water tunnel
- Swamp
- Mud
- Building or built-up area
- Cultivation
- Powerline

The base map is a monochrome version of Sheet 6, Topographic Series HM20C, published by Lands Department. Heights are in metres above Principal Datum, which is 1.2m below Mean Sea Level. The contour interval is 20m. Submarine contours, shown by 5m, 10m, 15m, 20m, 30m and 50m, are derived from the Hong Kong Electronic Navigation Charts prepared by the Hydrographic Office of the Hong Kong SAR Government. The Hong Kong 1980 Grid on this geological edition is shown at 1000 metre spacing. For further information on the topographical and cultural elements, consult the Topographic Series HM20C.

LINES OF CROSS-SECTION

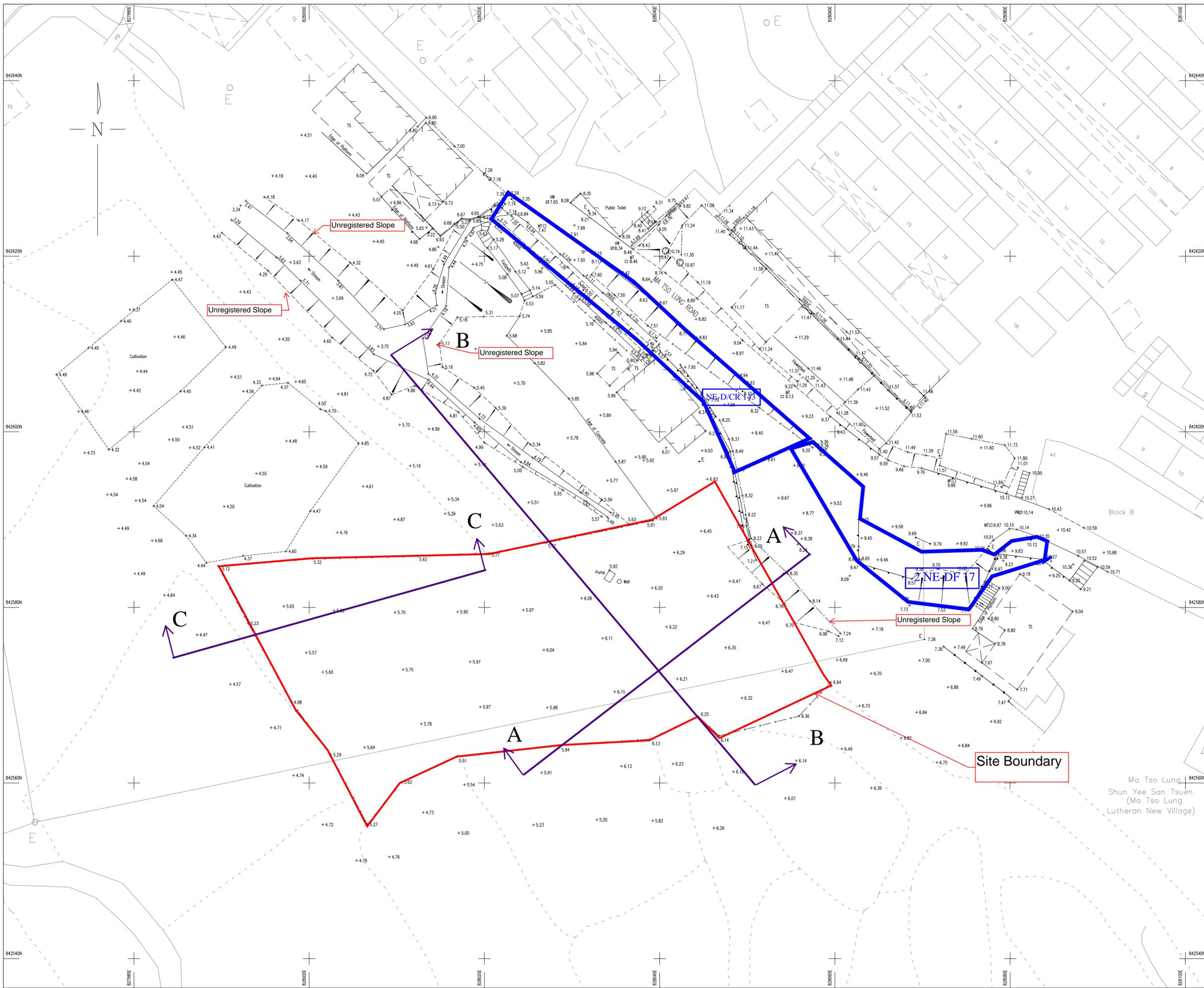


GEOLOGICAL CROSS-SECTIONS



Appendix F

Topographic Survey Plan



NOTES:
 1. Hong Kong Geodetic Datum 1980
 2. All levels refer to Principal Datum Hong Kong
 3. All units are in Metres
 4. All spot level positions are indicated by the decimal point or a cross.

ABBREVIATIONS :-

BB	SIGN BOARD	ME	MANHOLE (ELECTRIC)
BD	BOULDER	MF	MANHOLE (FOUL WATER)
BH	BORE HOLE	MH	MANHOLE
BO	BOLLARD	MP	METER POST
CB	CONCRETE BLOCK	MS	MANHOLE (STORM WATER)
CL	COVER LEVEL	MT	MANHOLE (TELEPHONE)
CD	COLUMN	RCP	REFUSE COLLECTION POINT
CP	CATCHPIT	SC	STEP CHANNEL
CUL	CULVERT	SHR	SHRINE
DP	DRAW PIT	SP	SIGN POLE
EB	ELECTRIC BOX	ST	STOOL
EP	ELECTRICITY POST	TC	TELEPHONE CHAMBER
ESS	ELECTRIC SUB-STATION	TL	TRAFFIC LIGHT
ET	ELECTRIC TRANSFORMER	TP	TELEPHONE POLE
FB	FLOWER BED	TS	TEMPORARY STRUCTURE
FH	FIRE HYDRANT	TV	MANHOLE (CABLE TV CO)
FIG	FEEDS INTO GROUND	UC	U CHANNEL
FP	FOOTPATH	V	VALVE
GA	GRATING	VF	VALVE FIRE
GU	GULLY	VG	VALVE GAS
IC	INSPECTION COVER	VT	VENT
IL	INVERT LEVEL	VW	VALVE-WATER WORKS
LB	LETTER BOX	WT	WATER TANK
L	LAMP POST	WP	WATER POINT

SYMBOLS :-

	ARTIFICIAL SLOPE		SLOPE TOP / BOTTOM
	BOUNDARY LINE		LANDSLIDE SCAR
	BOUNDARY POINT		SEPTIC TANK
	BOULDER		STEPS
	CANOPY		TREE
	5m CONTOUR (5m)		U-CHANNEL WITH FLOW & SIZE
	1m CONTOUR (1m)		VERTICAL CUTTING
	DRAIN		
	FENCE/RAILING		
	FREE STANDING WALL		
	GATE		
	HOARDING		

SHEET INDEX :-

1

No.	Date	Descriptions	Checked	Approved
REVISION				
Surveyed		M K Cheung		23/4/2025
Drawn		C H Yan		28/4/2025
Checked		Adrian Tam		29/4/2025

Approved

Helen Chan
 ALS, MHKIS, MRICS, RPS(LS)
 Date: April 29, 2025

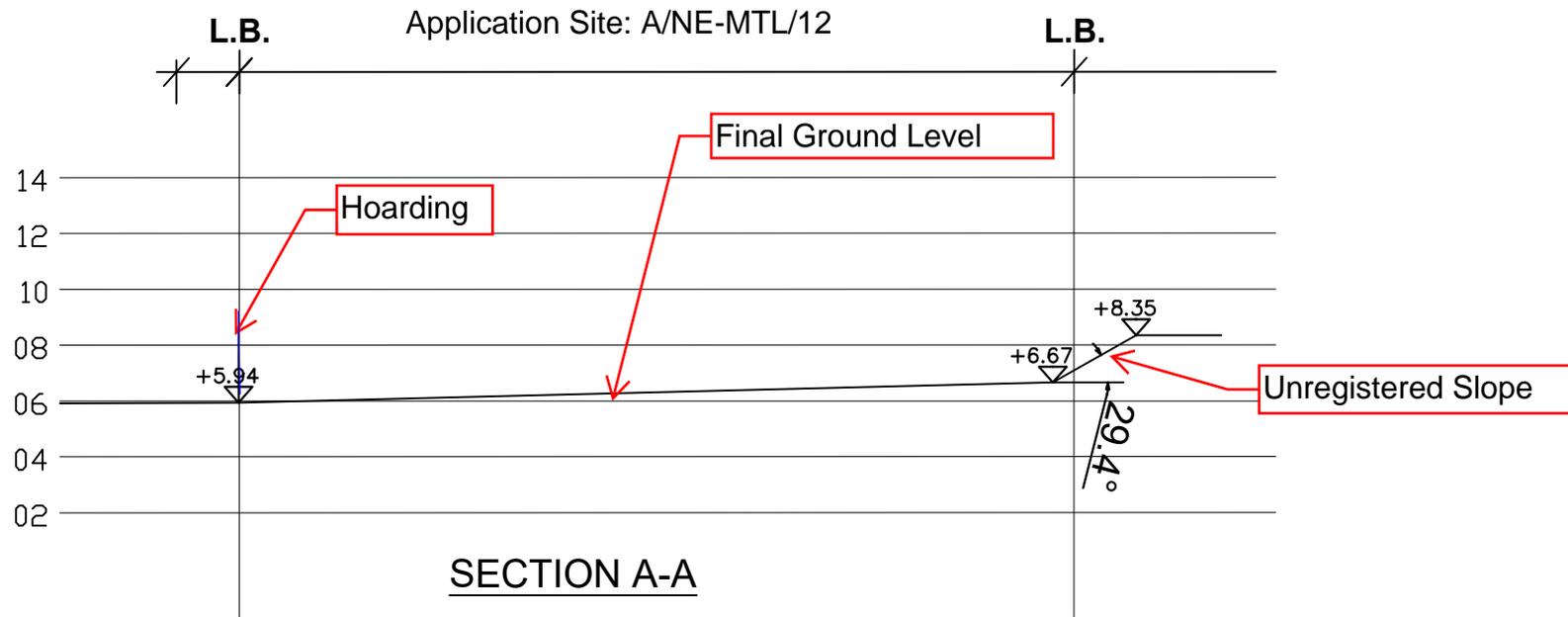
Client
 馬草壟生態園有限公司

Contract
 Lots 1280, 1281, 1275(P),
 1279(P) & 1284(P) in D.D.96
 Ma Tso Lung

Drawing Title
 TOPOGRAPHIC SURVEY

Drawing No. HPL3431/TS/01	Scale 1:200(A1)
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Helen Chan Professional Land Survey Ltd.
 陳婉琪測量師行有限公司
 2/F, No.36 Lung Sum Avenue, Sheung Shui, N.T., Hong Kong
 Tel: 26395466 Fax: 26734966
 e-mail: hcpls@netvigator.com



Company:



Project:

Lots 1275 (Part),
1279 (Part), 1280,
1281 (Part), 1282
and 1284 (Part) in
D.D. 96,
Ma Tso Lung, New
Territories

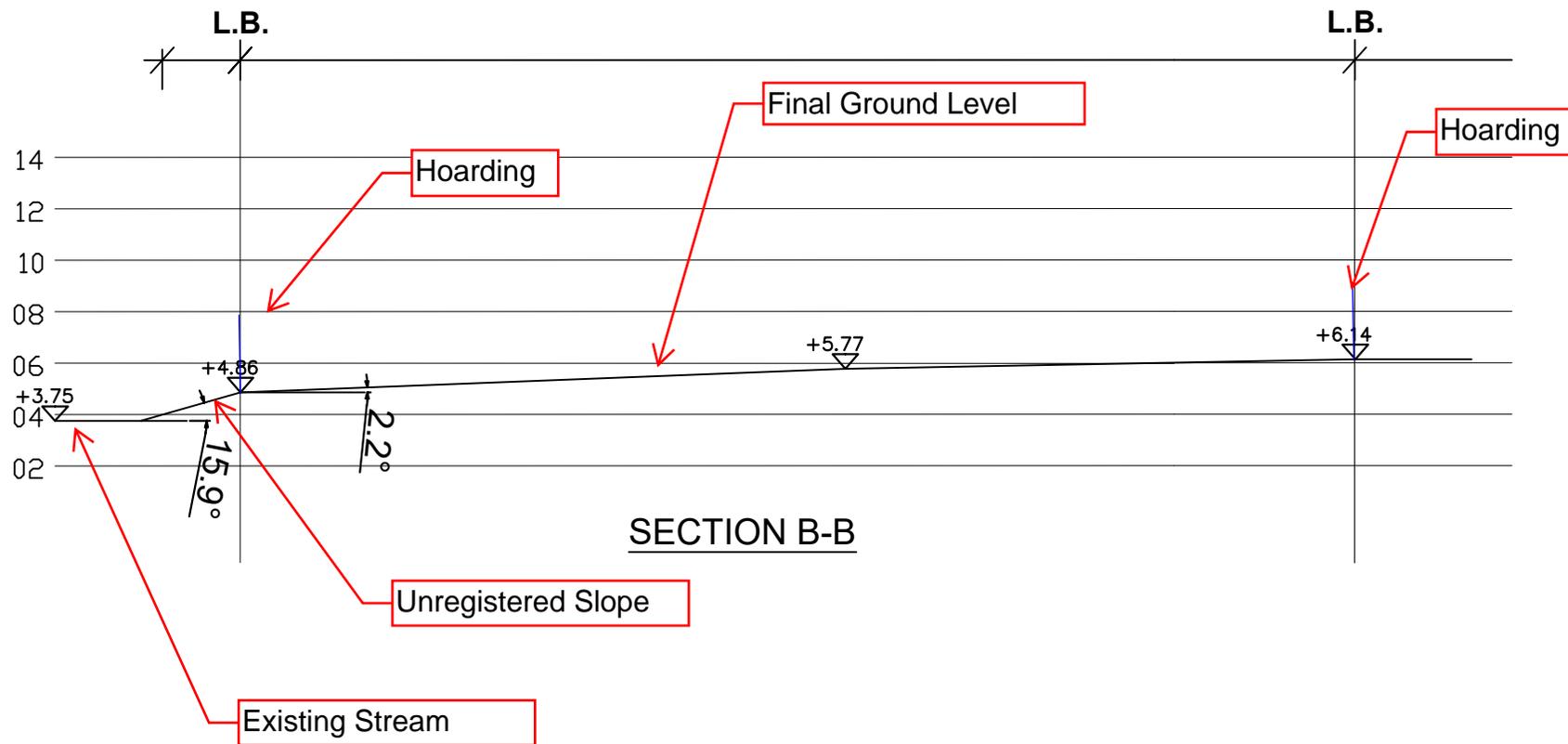
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Section A-A

Dwg No: File:

Fig. 5

Date:
12 July
2025



Company:



Project:

Lots 1275 (Part),
1279 (Part), 1280,
1281 (Part), 1282
and 1284 (Part) in
D.D. 96,
Ma Tso Lung, New
Territories

Title:

Section B-B

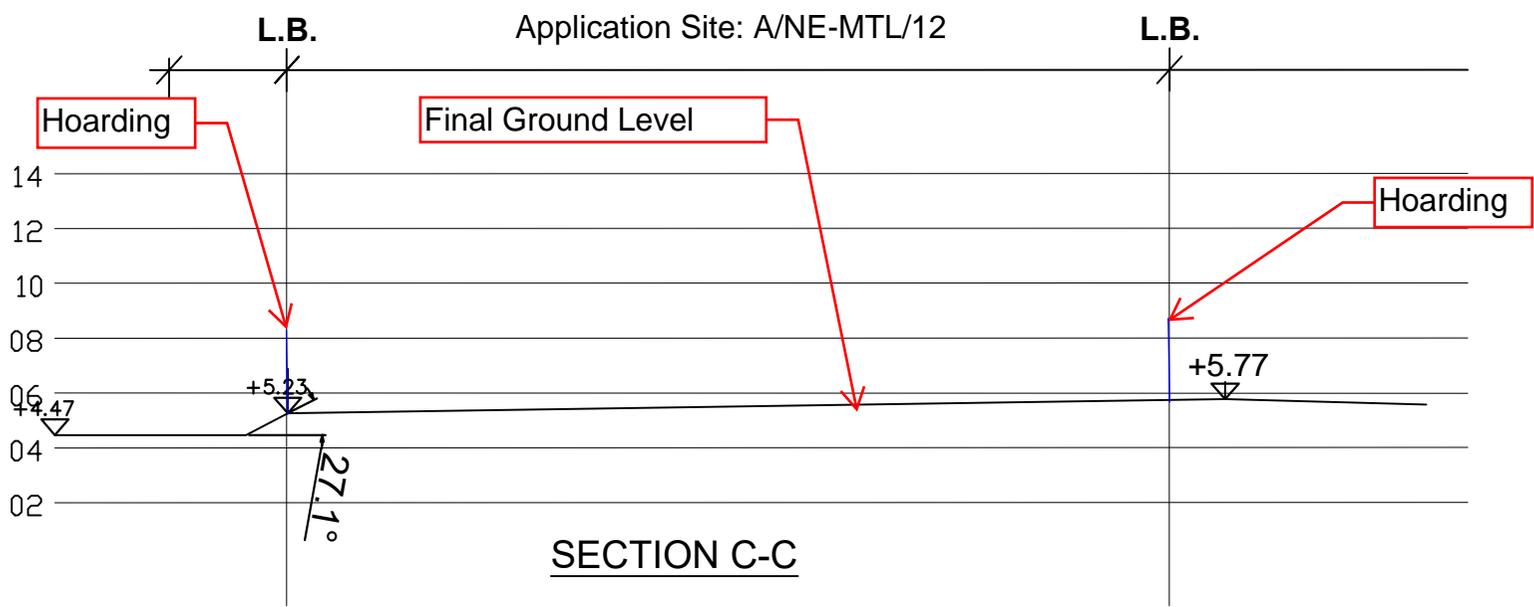
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Fig. 6

Date:

12 July
2025



Company:



Project:

Lots 1275 (Part),
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and 1284 (Part) in
D.D. 96,
Ma Tso Lung, New
Territories

Title:

Section C-C

Dwg No:

File:

Fig. 7

Date:

12 July
2025