



Geotechnical Planning Review Report for Construction of Horizontal Directional Drilling (HDD) Works Near Discovery Bay Tunnel

Geotechnical Planning Review | Government Land Near Discovery Bay Tunnel

B220171.023.01 | 15 October 2025

BD Ref.: N/A

CLP Power Hong Kong Limited



Contents

Contents	2
1. Introduction	4
2. Description of Site Conditions	4
2.1 Site location and Topography	4
2.2 The Proposed Development	5
3. Desk Study	5
3.1 Geology	5
3.2 Man-made Slopes	5
3.3 Available Ground Investigation	5
4. Geotechnical Assessment	6
4.1 Man-made Slopes	6
4.2 Natural Terrain Hazard	7
4.3 Site Formation and Excavation Works	7
4.4 Construction Method & Sequence	7
5. Impacts on Adjacent Premises / Geotechnical Features	8
5.1 Registered Retaining Wall and Slopes	8
5.2 Discovery Bay North Substation	8
5.3 HDD Works	8
5.4 Nearby MTR Railway	9
6. Conclusion	9

Appendices

Appendix A Site Location Plan

Appendix B Information of Existing Slopes / Retaining Walls

Appendix C Existing Ground Investigation Records

Appendix D Schedule Area / Designated Area

Appendix E Geological Survey Map

Appendix F Scheme of Proposed Site Formation Works

1. Introduction

Fugro (Hong Kong) Limited was appointed by CLP Power Hong Kong Limited as the Engineering Consultant for the preparation of a Geotechnical Planning Review Report for proposed construction of horizontal directional drilling (HDD) works near Discovery Bay Tunnel.

The proposed construction of horizontal directional drilling (HDD) works near Discovery Bay Tunnel includes construction of a launching pit and receiving pit. Based on available geotechnical information, the proposed horizontal directional drilling (HDD) works that may affect or be affected by natural terrain or man-made slopes is addressed in this report and geotechnical feasibility of proposed works is also recommended.

The geotechnical reviews is prepared in accordance with the requirement set out in GEO Advice Note for Planning Applications under Town Planning Ordinance and PNAP APP-25 (PNAP 78). This report contains the following as listed.

- Site topography, site location and brief description
- Available ground investigation, site geology and ground water regime
- Proposed site formation and the layout of any structures
- A review of impact on the slopes, retaining wall and natural terrains
- Assessment on the geotechnical feasibility of the proposed development
- Impact to adjoining premises & necessary precaution measures

2. Description of Site Conditions

2.1 Site location and Topography

The two sites (i.e. launching pit and receiving pit) situated at north of Discovery Bay which are near the Discovery Bay Tunnel. The site of launching pit is located at the southeast of the CLP Electricity Substation at Discovery Bay North. It is situated on a flat ground with a gentle slope at the south and access road to Discovery Bay North Substation with low vehicular traffic density is located at the east. The size of site is approximate 140m² x 2.5m(D). The elevation of site of launching pit is about +43.8mPD.

The site of receiving pit is located at the western entrance of Discovery Bay Tunnel. It is situated on a flat ground which is a lay-by area. Manmade and natural slopes are overlooking the site of receiving pit at north. The size of site is approximate 30m²x 3m(D). The elevation of site of receiving pit is about +54.5mPD.

A site location plan is attached in [Appendix A](#).

2.2 The Proposed Development

The proposed public utilities installation by horizontal directional drilling (HDD) method includes construction of a launching pit and receiving pit. To facilitate the set up of drilling machine at launching pit, excavation for footing construction is required. Pit excavation at receiving pit is also required.

After completion of the horizontal directional drilling (HDD) works, footing will be demolished, pits will be backfilled and the ground will be reinstated to its original situation.

3. Desk Study

3.1 Geology

In the vicinity of both the launching and receiving pits, Sheet 10 of the Hong Kong Geological Survey (HKGS) 1:20,000-scale map series HGM20 (1991 Edition; geological map shown in [Appendix E](#)) indicates that the site is underlain by superficial deposits comprising Qd—unsorted sand, gravel, cobbles, and boulders in a clay/silt matrix (debris flow deposits, typically ≤ 2 m thick). For solid geology, both pits are underlain by feldsparphyric rhyolite (rf) in the working area.

3.2 Man-made Slopes

According to Slope Information System, there are 2 registered man-made slopes at close proximity of the site area affecting / being affected by the proposed construction works. These slope characteristics are summarised in Table 1. Location plan & detail information of the features are attached in [Appendix B](#).

Table 1_ Summary of Registered Man-made Slopes

Feature No.	Type	Location	Responsible Party	Max. Height (m)	Average Angle (deg)	Length (m)
10NW-D/C118	Cut Slope	Launching Pit (East)	DD352L Lot385 RP & Exts Thereto	7	55	110
10NW-C/C53	Cut Slope	Receiving Pit (North)	Discovery Bay Road Tunnel Co. Ltd.	23	70	365

3.3 Available Ground Investigation

Information search has been carried out in GIU of the GEO. No borehole was found within the site. Seven boreholes, namely 11935-9B, 16C, 18B, 48A, 49A & 50A and 46834-DH3, were located at more than 50m from the concerned site. Based on the available ground investigation information and as summarized in Table 2, the superficial deposits mainly comprise colluvium (1 to 2m thick). The in-situ soil / rock of granite / rhyolite is encountered at 1m to 2m below the existing ground level.

Based on the available groundwater monitoring records from standpipe/piezometer at borehole BH8C which is about 341 m away from site (summarized in [Appendix C](#)), groundwater levels are at 14.23m below the existing ground.

The relevant GI records are enclosed in [Appendix C](#) and summarized in Table 2.

Table 2_Summary of Previous Ground Investigations

Borehole	Ground Level (mPD)	Total Depth (m)	Thickness (m)		
			Colluvium	Grade V/IV	Grade III or better
11935-9B	+56.40	14.05	-	8.80	5.25
11935-16C	+59.49	16.05	-	10.10	5.95
11935-18B	+54.54	9.29	-	4.20	5.09
11935-48A	+49.01	24.50	-	18.00	6.50
11935-49A	+44.49	18.10	0.80	11.05	7.05
11935-50A	+48.48	12.85	-	5.06	7.79
46834-DH3	+60.46	45.19	1.50	0.50	43.19

4. Geotechnical Assessment

4.1 Man-made Slopes

There are 2 registered man-made slopes in the vicinity affecting or being affected by the proposed excavation pits. Feature locations are shown in [Appendix B](#). It can be inferred that these 2 registered slopes, for which the maintenance responsibility lies with the Lands Department, are cut slopes formed during previous road construction works. Slope information is shown in [Appendix B](#), and slope characteristics are summarized in Table 1.

At the launching site, an HDD machine sits on a proposed reinforced pad during the wireline drilling and the pit will be supported by channel planking or sheet pile wall for the excavation works. Upon completion of the cable installation, the HDD machine and reinforced pad are removed, and the excavation is reinstated to its original condition. Additionally, since the excavated pits are more than 7.5m away from the man-made slope feature 10NW-D/C118, it has minimal to no impact on the existing slope. Hence, the construction works of the proposed utility installation on the adjacent cut slope are insignificant.

At the receiving pit, the working site is located alongside the man-made slope feature 10NW-D/C53. To minimize the effect on the slope from the excavation, sheet piles are installed to prevent the adjacent man-made slope from collapsing into the excavated pit. Similar to the launching site, the temporary sheet pile walls and struts are removed upon completion, and the excavation is reinstated to its original condition. Hence, the construction effects of the proposed utility installation on the adjacent man-made slope are insignificant.

Nevertheless, stability of existing feature within or close to the works area (including any unregistered features) affecting or being affected by the development during construction works shall be assessed in the detail design stage. Monitoring works shall be carried out during the whole construction period.

4.2 Natural Terrain Hazard

According to GEO Report No. 138 Section 2.3.4, natural terrain hazard studies shall be carried out when Alert Criteria is reached. "When there is a natural terrain outside the site, but within the same catchment, that is at an angular elevation of 20 degrees or more from the site and when there is ground sloping at more than 15 degrees within 50m horizontally upslope of the site boundary, provided that there is a credible debris flow path to the site."

However, the proposed construction site would not comprise any critical facilities (i.e. facilities under Group 1-3 in Table 2.2 of GEO Report No. 138), a Natural Terrain Hazard Study is not necessary. Nevertheless, if any, stability of the natural terrain affecting or being affected by the development permanently or temporarily during construction works shall be monitored throughout the whole construction period. Mitigation works shall be proposed and carried out as necessary.

4.3 Site Formation and Excavation Works

The foundations of the proposed launching and receiving wireline cable pits are constructed by the pit excavation method. The launching pit is approximately 140m² x 2.5 m (D), while the receiving pit is approximately 30m² x 3.0 m (D). Along the launching excavation pit. Excavation information can be found in [Appendix F](#).

For the construction works at the launching pit, installation of channel planking or sheet pile wall for pit excavation is considered a feasible option which can also avoid any damage on the existing tree. In the design of excavation and lateral support works at the receiving pit, attention is paid to the excavation and strutting sequence and to standard workmanship to limit loss of ground due to inward movement of the temporary retaining wall. Earth load, water load, and surcharge are taken into consideration. Sheet pile walls are considered a feasible scheme to retain the excavation depth. The choice of scheme for temporary support is subject to detailed assessment.

After excavation and removal of the wireline drilling machine, the reinforced concrete footing is demolished, the pits are backfilled, and the ground is reinstated to its original condition.

4.4 Construction Method & Sequence

All monitoring point shall be installed & initial reading shall be recorded prior commencement of any works. Remedial works on existing slopes & retaining walls being affected shall be carried out prior commencement of works if necessary.

Obstruction during channel planking or sheetpile wall installation for temporary ELS shall be overcome by pre-boring. Strut of the ELS shall not be dismantled until pits are backfilled and the ground is reinstated to its original condition. All temporary cut slope and excavated pit shall be backfilled by proper material with proper compaction. Precautionary measures against heavy rainfall and typhoon shall also be taken during the site formation and excavation works. Surface water flowing into the proposed site formation adjoining ground shall be intercepted and diverted from the site.

5. Impacts on Adjacent Premises / Geotechnical Features

5.1 Registered Retaining Wall and Slopes

The existing registered slopes, 10NW-C/C 53 and 10NW-D/C118, are in close proximity to the launching and receiving pits, shown in [Appendix B](#). Vibration caused by the installation of the sheet pile walls, channel-planking, HDD machine and ground settlement due to wall deflection and dewatering in the excavated areas may cause adverse effects to the adjacent geotechnical features utilities and structures. Tiltling check points and building settlement pins shall be proposed to be installed around the sites. The movement of the adjacent premises will be monitored at these stations continuously throughout the work period. The noise from proposed works shall be kept within acceptable limit to minimize the disturbance to the environment. The detailed assessment and discussion on these aspects will be presented detailed design stage.

5.2 Discovery Bay North Substation

The Discovery Bay North Substation is located in close proximity to the proposed launching pit (approximately 20 m away, as per site layout in [Appendix A](#)). Potential risks include excavation-induced ground movements from channel planking or sheet pile wall and HDD-related vibrations, which could affect the substation's foundations. Vibration monitoring and continuous settlement pins/inclinometers are recommended to oversee at the launching pit, ensuring minimum settlements are observed. Given the small scale, shallow depth (≤ 3.0 m), and controlled nature of the open cut and HDD for cable installation, impacts on adjacent premises and geotechnical features are anticipated to be negligible.

5.3 HDD Works

In addition to excavation impacts, the HDD works may involve potential risks such as minor ground settlement, heave along the drill path and vibration from the drilling equipment. To mitigate these, closely monitoring for ground movements, and selection of the drill path to avoid sensitive structures and utilities will be implemented. Given the small scale, depth, and controlled nature of the HDD for cable installation, impacts on adjacent premises and geotechnical features are anticipated to be negligible.

5.4 Nearby MTR Railway

It is also noted that the site excavation poses minimal to no significant effect on the nearby MTR railway protection area due to the site locations are approximately 700m away from these premises as well as the small scale of the excavation works shown in [Appendix D](#)

5.5 Existing Utilities

The proposed works may impact existing underground utilities in the vicinity, including power cables, water pipes, and drainage systems. Potential risks include damage from excavation activities, vibration from HDD operations, and ground settlement. During construction, monitoring of utility integrity will be implemented, utilities diversion will be applied if required. Given the controlled nature and small scale of the works, impacts are expected to be minimal.

5.6 Discovery Bay Tunnel

The Discovery Bay Tunnel is located approximately 50m from the site. The excavation and HDD works could potentially cause minor ground movements or vibrations that might affect the tunnel structure. However, due to the distance, shallow excavation depths (up to 3m), and the use of sheet piling / planking to contain ground movements, the impact is anticipated to be negligible. Vibration monitoring will be carried out during drilling operations to ensure levels remain within safe limits. No direct interference with the tunnel is planned, and the works will not alter the ground profile permanently.

6. Conclusion

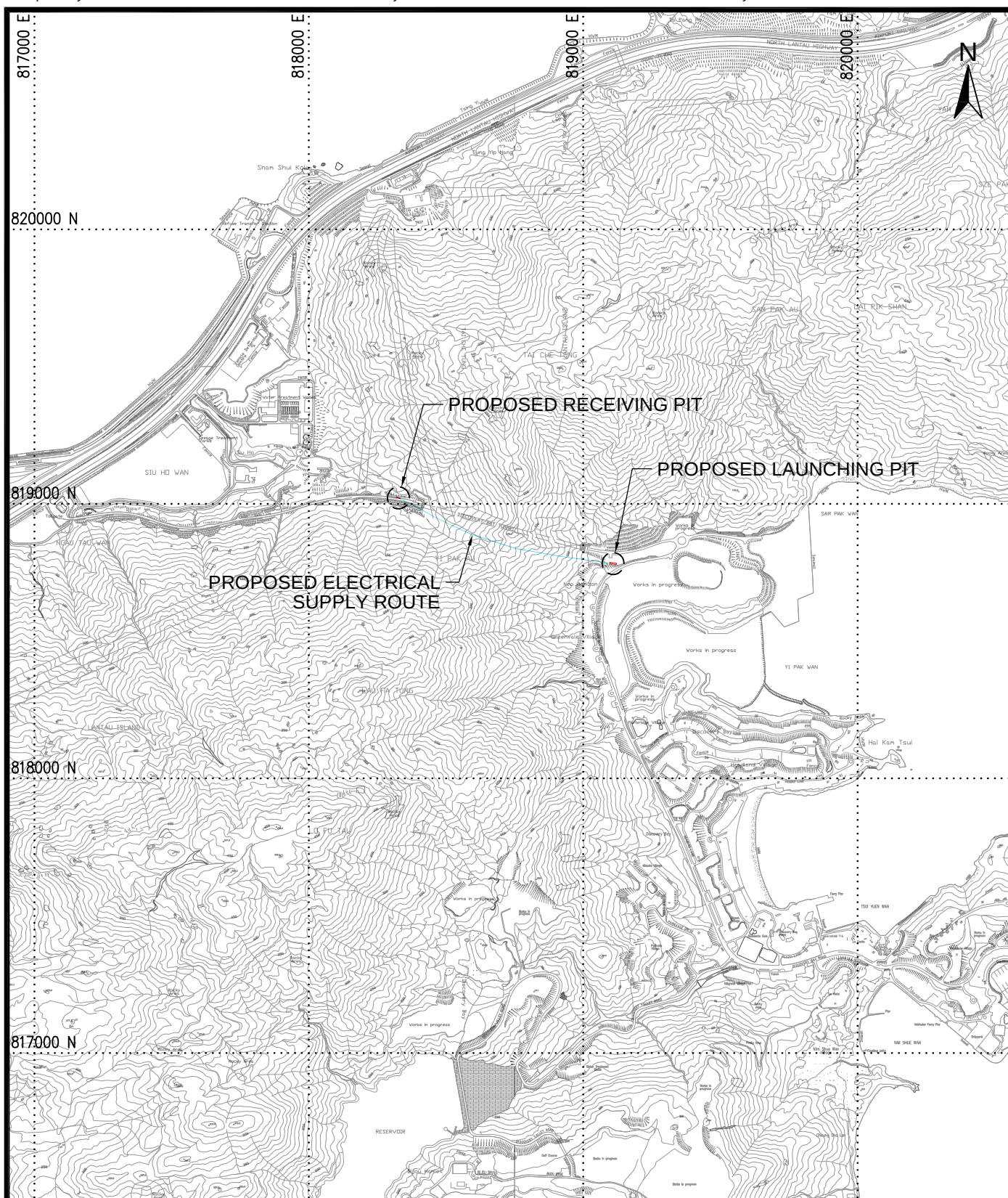
On the basis of the available geotechnical information, the following conclusions and recommendations are drawn:

1. The proposed construction of horizontal directional drilling (HDD) works near discovery bay tunnel includes construction of a launching pit and receiving pit is geotechnically feasible.
2. In the design of excavation and lateral support works for the pits, attention should be paid to the excavation and strutting sequence and earth load, water load and surcharge should be taken into consideration.
3. Proposed pit excavation works for the HDD cable installation of channel planking or sheet pile wall in the launching pit, and sheet pile walls for the receiving pit during the construction stage. Since the pit excavation works involve depths of up to 3.0 m, excavation effects on the adjacent ground/slopes and change of ground profile are monitored during works, though temporary and minimal.

4. The proposed launching pit is located on a flat ground while receiving pit is excavated adjacent to the existing slopes. After pit excavation, installation of wireline drilling equipment and reinforced pad, and completion of cable installation, the pits are reinstated to their original condition. Hence, the construction effect of proposed utilities installation adjacent to the slopes on the adjacent slopes is insignificant.
5. One registered man-made slope near the receiving pit is 23 m in height at 70° slope angle. Stability of the feature shall be assessed during detailed design stage.
6. There are no records of landslides and boulders within the natural terrain area above the proposed pit locations. The proposed development does not comprise any critical facilities (i.e., facilities under Group 1-3 in Table 2.2 of GEO Report No. 138), a Natural Terrain Hazard Study is not necessary.
7. The location and disposition of the site for the HDD works minimise the filling and excavation of land. The proposed works do not cause adverse impacts on geotechnical features and premises safety.

Appendix A

Site Location Plan



Project
**GEOTECHNICAL PLANNING REVIEW REPORT FOR
 CONSTRUCTION OF HORIZONTAL DIRECTIONAL
 DRILLING (HDD) WORKS NEAR DISCOVERY BAY
 TUNNEL**

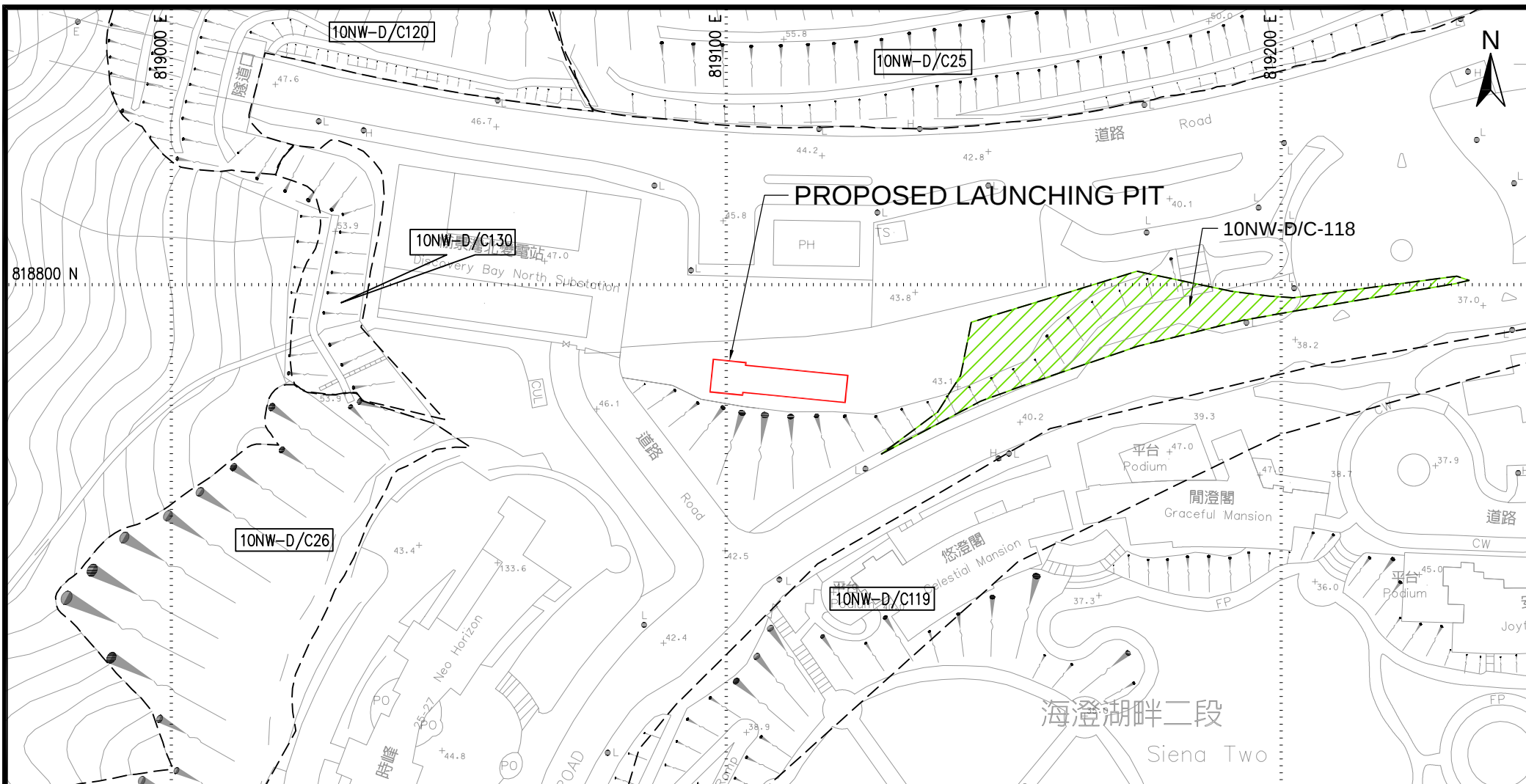
Drawing Title
LOCATION PLAN

Job No.	220171.023	Scale	1 : 20000	Date	Figure	1	Rev.
---------	------------	-------	-----------	------	--------	---	------

Compiled by :

Drawn by :

Checked by :



LEGEND :

- REGISTERED MAN-MADE FEATURES
- PROPOSED LAUNCHING PIT



Project
GEOTECHNICAL PLANNING REVIEW REPORT
FOR CONSTRUCTION OF HORIZONTAL
DIRECTIONAL DRILLING (HDD) WORKS NEAR
DISCOVERY BAY TUNNEL

Drawing Title
SITE PLAN OF LAUNCHING PIT

Job No.
220171.023

Figure
2

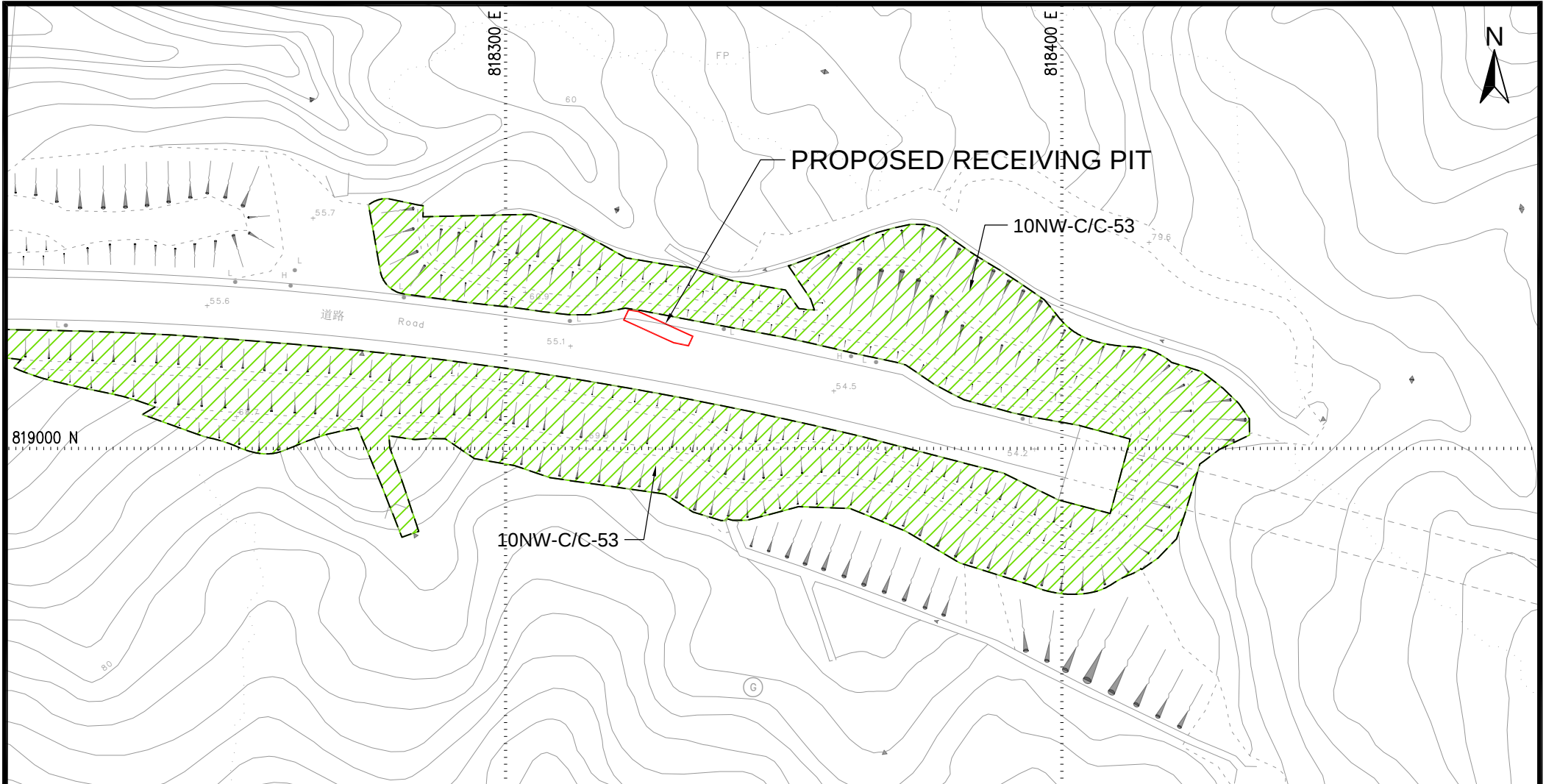
Scale
1 : 1000

Date **Rev.**

Compiled by :

Drawn by :

Checked by :



LEGEND :



REGISTERED MAN-MADE FEATURES



PROPOSED RECEIVING PIT



Project
**GEOTECHNICAL PLANNING REVIEW REPORT
FOR CONSTRUCTION OF HORIZONTAL
DIRECTIONAL DRILLING (HDD) WORKS NEAR
DISCOVERY BAY TUNNEL**

Drawing Title
SITE PLAN OF RECEIVING PIT

Job No.
220171.023

Figure
3

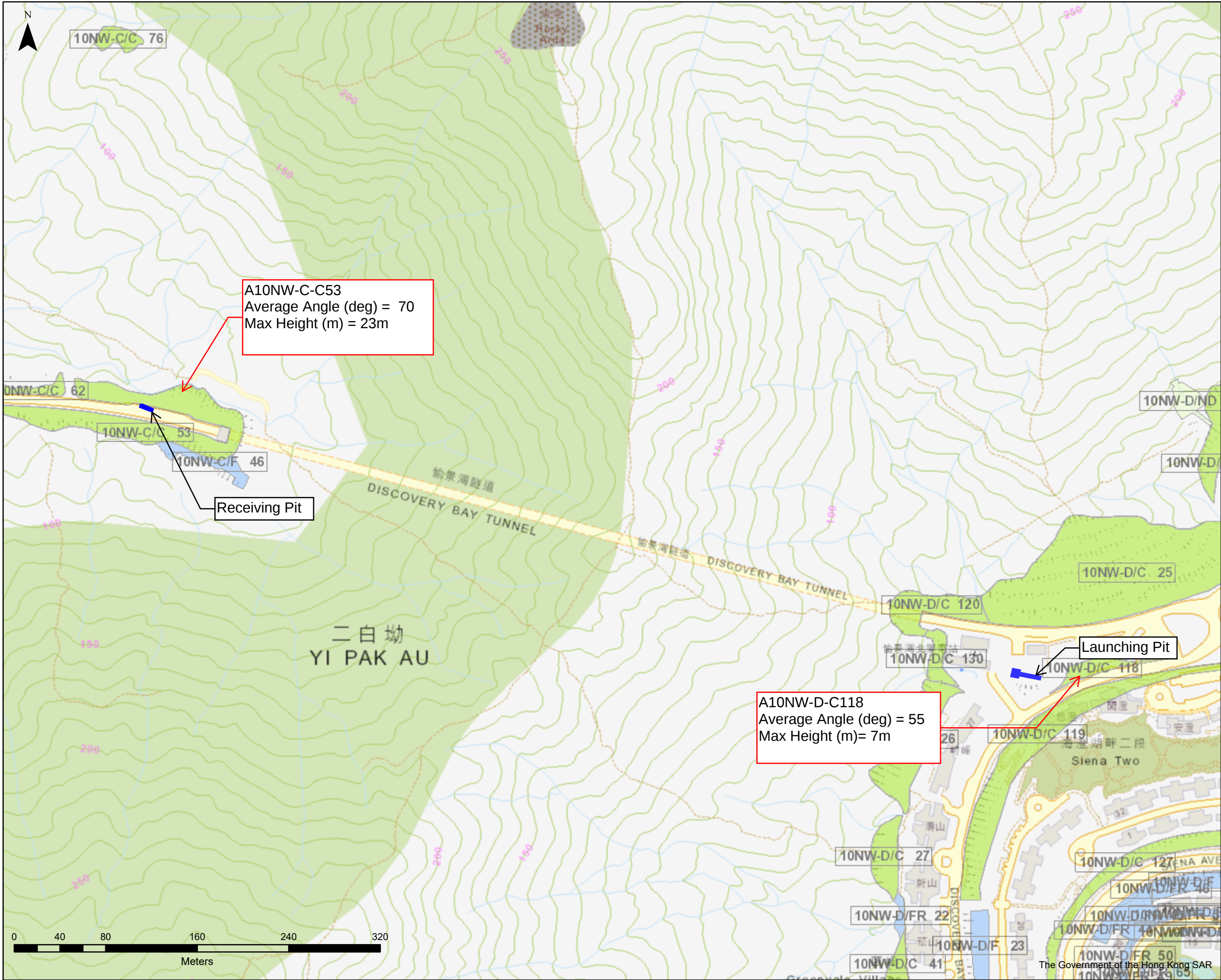
Scale
1 : 1000

Date

Rev.

Appendix B

Information of Existing Slopes / Retaining
Walls



Appendix B(Cont'd)

General View of the Man-made Slopes

General Views of Registered Man-made Slopes

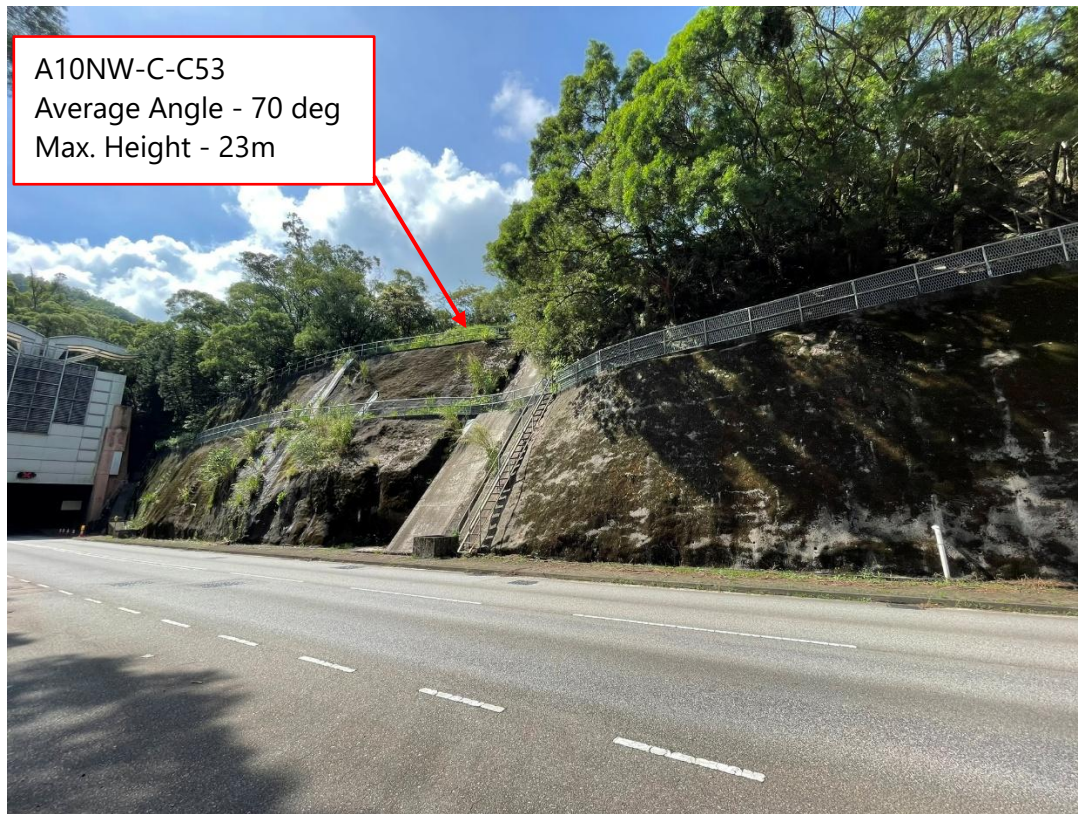


Photo 1: General View of 10NW-C-C53



Photo 2: General View of 10NW-C-C53



Photo 3: General View of 10NW-D-C118

Appendix B(Cont'd)

Basic Data from SIS

BASIC INFORMATION

Location: NEAR DISCOVERY BAY TUNNEL, LANTAU ISLAND.
Registration Date: 26-01-2000
Ranking Score (NPRS): 22 (LPMit)
Date of Formation: post-1977
Date of Construction/ Modification:
Data Source: SIRST
Approximate Coordinates: Easting : 818315 Northing : 819028

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Tunnel portal
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 2
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 23 Length (m): 365 Average Angle (deg): 70

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0 Private Feature Party: DISCOVERY BAY ROAD TUNNEL CO. LTD Agent: N/A Land Cat.: 1 Reason Code: 2 MR
Endorsement Date: 26-06-2001

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 17-04-2000
Data Source: SIRST
Slope Part Drainage: (1) Position: Stepped Size(mm): 201
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 0 Vegetated: 60 Chunam: 0 Shotcrete: 40 Other Cover: 0
Material Description: Material type: Soil & Rock Geology: Decomposed granite
Berm: No. of Berms: 3 Min. Berm Width (m): 1.5
Weepholes: Size (mm): 40 Spacing (m): 1.2

WALL PART

N/A

SERVICES

- | | | | | |
|-----|-----------------------------|---------------|--------------------|-------------|
| (1) | Utilities Type: Sewer/Drain | Size(mm): 100 | Location: On crest | Remark: N/A |
| (2) | Utilities Type: Sewer/Drain | Size(mm): 100 | Location: On slope | Remark: N/A |
| (3) | Utilities Type: Water Main | Size(mm): 40 | Location: On slope | Remark: N/A |

CHECKING STATUS INFORMATION

N/A

BACKGROUND INFORMATION

GIU Cell Ref.:	10NW23A2
Map Sheet Reference (1:1000):	10NW-23A
Aerial Photos:	20985-6 (1978), CN24219-20 (1999)
Nearest Rainguage Station (Station Number):	Siu Ho Wan Water Treatment Works, Siu Ho Wan(N23)
Data Collected On:	17-04-2000
Date of Construction, Subsequent Modification and Demolition:	Modification: Constructed Before: N/A After: 1999

Related Reports/Files or Documents:	File/Report: DLC/BC	Ref. No.: GCMW4/1C/2-1() PT.16 F(23,24)
	File/Report: DLC/BC	Ref. No.: GCMW4/1C/2-1() PT.16 F(23,24)
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: Development	Ref. No.: GCMW 9257/96
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.20 F(27-2,29)
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.20 F(27-2,29)
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.23 F(6,7,6-1,24-1,26,30)
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.23 F(6,7,6-1,24-1,26,30)
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.24 F(5-1,7,9,10)
	File/Report: LA	Ref. No.: GCMW 5/3/13 PT.24 F(5-1,7,9,10)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.5 F(33,39,63,67)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.5 F(33,39,63,67)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.7 F(13-1,20)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.7 F(13-1,20)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.8 F(90-3,90-4,94,95,92-1,97)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.8 F(90-3,90-4,94,95,92-1,97)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.9 F(2-1,38,42,47,51)
	File/Report: LA	Ref. No.: GCMW 5/6/13 PT.9 F(2-1,38,42,47,51)

Remarks: N/A

Follow Up Actions: N/A

DH-Order (To Be Confirmed with Buildings Department): **None**

Advisory Letter (To Be Confirmed with Buildings Department): None

LPMIS: Agreement No.: CE55/2022 Report No.: S2R022/2024

ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 26/06/2025)

STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: MW

Section No: 1-1

Height(m):



Type of Toe Facility:	Tunnel portal
Distance from Toe(m):	0
Type of Crest Facility:	Undeveloped green belt
Distance from Crest(m):	0
Consequence Category:	
Engineering Judgement:	
Section No:	2-2
Type of Toe Facility:	
Distance from Toe(m):	
Type of Crest Facility:	
Distance from Crest(m):	
Consequence Category:	
Engineering Judgement:	
Sign of Seepage:	
Criterion A satisfied:	
Sign of Distress:	
Criterion D satisfied:	
Non-routine maintenance required:	
Note:	
Masonry wall/Masonry facing:	
Note:	
Consequence category (for critical section):	
Observations:	N/A
Emergency Action Required:	
Action By:	N/A

ACTION TO INITIATE PREVENTIVE WORKS

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

OTHER EXTERNAL ACTION

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

eLPMIS

LPM/LPMit Details Report

LPM Study Feature No.:	10NW-C/C 53
Location:	NEAR DISCOVERY BAY TUNNEL, LANTAU ISLAND.
District Council:	Islands
Maintenance Responsibility (At the Time of Selection):	Private
Responsible Party for Maintenance of Government Portion:	N/A
Private Lot No.:	DISCOVERY BAY ROAD TUNNEL CO. LTD

LPM/LPMit Study

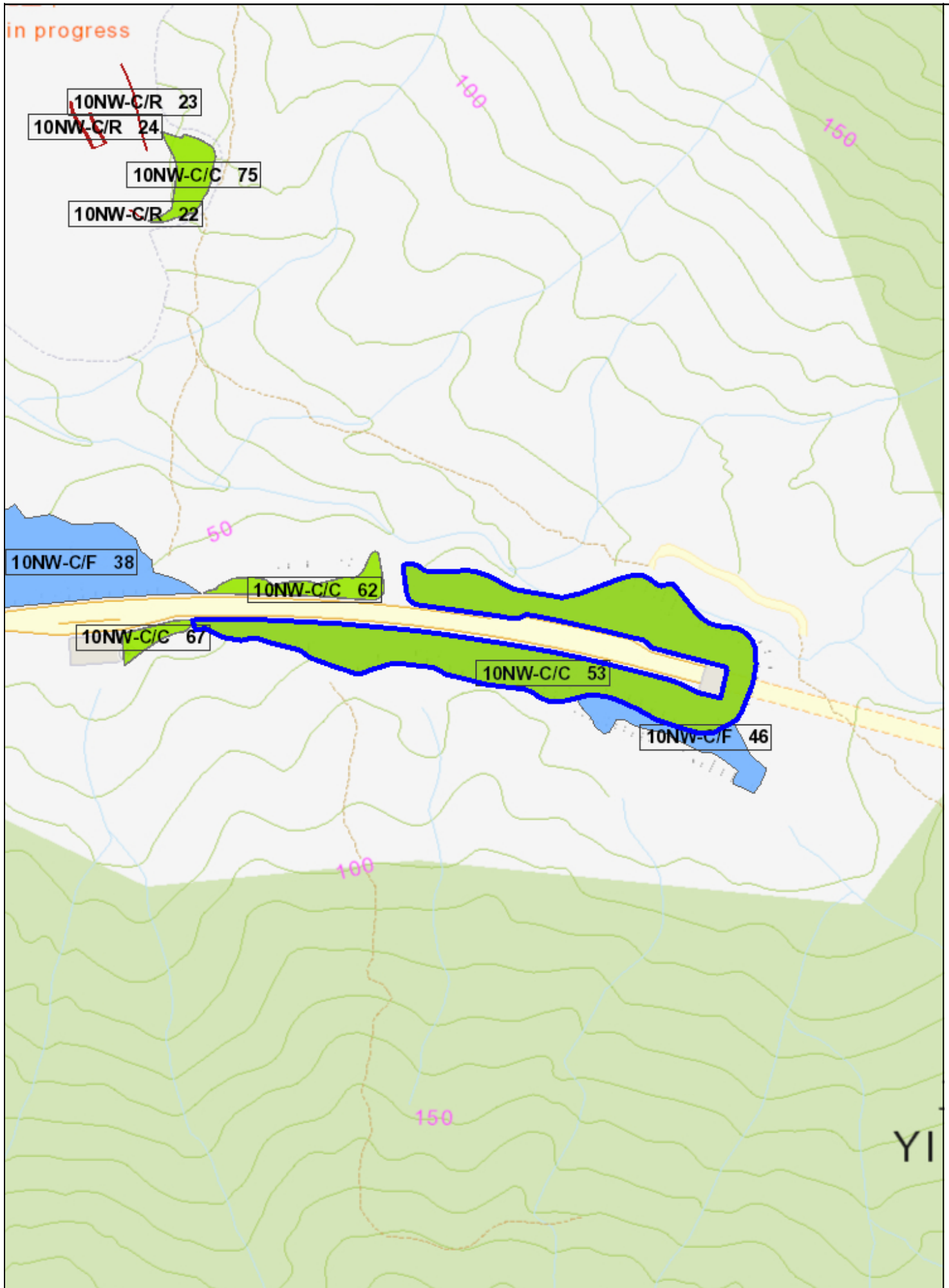
Agreement No.:	CE55/2022
Study Type:	Stage 2 Study
Consultant:	Atkins China Ltd.
GEO Managing Section / Engineer:	SS / SS1
Study Status:	Study completed
Design Approach:	N/A
Option Assessment Accepted:	N
Study Report No.:	S2R022/2024
Programme / Actual Commencement:	12-01-2024
Programme / Actual Completion:	12-03-2024
Report Recommendation (For Stage 2 Study):	N/A
District Check Status:	N/A
Checking Certificate No.:	N/A
GEO Engineer's Remarks:	N/A

LPM/LPMit Works

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

PHOTO





BASIC INFORMATION

Location: DISCOVERY BAY NORTH DEVELOPMENT SITE, LANTAU
Registration Date: 24-10-1998
Ranking Score (NPRS): 6 (Notional)
Date of Formation: post-1977
Date of Construction/ Modification:
Data Source: SIRST
Approximate Coordinates: Easting : 819161 Northing : 818793

CONSEQUENCE-TO-LIFE CATEGORY

Facility at Crest: Undeveloped green belt
Distance of Facility from Crest (m): 0
Facility at Toe: Construction sites
Distance of Facility from Toe (m): 0
Consequence-to-life Category: 2
Remarks: N/A

SLOPE PART

(1) Max. Height (m): 7 Length (m): 110 Average Angle (deg): 55

WALL PART

N/A

MAINTENANCE RESPONSIBILITY

(1) Sub Div.: 0 Private Feature Party: DD352L LOT385 RP &EXTS THERETO Agent: N/A Land Cat.: 1 Reason Code: 1 MR Endorsement
Date: 19-10-2016

DETAILS OF SLOPE / RETAINING WALL

Date of Inspection: 21-08-1998
Data Source: SIRST
Slope Part Drainage: (1) Position: Stepped Size(mm): 325
Wall Part Drainage: N/A

SLOPE PART

Slope Part (1)
Surface Protection (%): Bare: 50 Vegetated: 40 Chunam: 10 Shotcrete: 0 Other Cover: 0
Material Description: Material type: Soil & Rock Geology: Decomposed granite
Berm: No. of Berms: N/A Min. Berm Width (m): N/A
Weepholes: Size (mm): 40 Spacing (m): 1.2

WALL PART

N/A

SERVICES

N/A

CHECKING STATUS INFORMATION

Tagmark: SCS_20704 Part: 0 Checking Status: Others (See remarks) Checking Certificate No.: N/A

BACKGROUND INFORMATION

GIU Cell Ref.: 10NW2388
Map Sheet Reference (1:1000): 10NW-23B
Aerial Photos: A29024 (1991), A29025 (1991)
Nearest Rainguage Station (Station Number): Siu Ho Wan Water Treatment Works, Siu Ho Wan(N23)
Data Collected On: 21-08-1998
Date of Construction, Subsequent Modification and Demolition: Modification: Constructed Before: 1991 After: 1987
Modification: Modified Before: N/A After: 1997
Related Reports/Files or Documents: File/Report: DLC/BC Ref. No.: GCMW4/1C/2-1 PT16F(8,9),PT17F(6,7)
File/Report: DLC/BC Ref. No.: GCMW4/1C/2-1 PT16F(8,9),PT17F(6,7)
File/Report: DLC/BC Ref. No.: GCMW4/1C/2-1PT13F(36),PT15F(18,19,21,22)
File/Report: DLC/BC Ref. No.: GCMW4/1C/2-1PT13F(36),PT15F(18,19,21,22)
File/Report: Development Ref. No.: 9167/96
File/Report: Development Ref. No.: 9167/96
File/Report: Other Ref. No.: PNAP168
File/Report: Other Ref. No.: PNAP168
Remarks: THE FEATURE WAS FILL ACCRODING TO THE SIFT REPORT
Follow Up Actions: N/A
DH-Order (To Be Confirmed with Buildings Department): None
Advisory Letter (To Be Confirmed with Buildings Department): None
LPMIS: None

ENHANCED MAINTENANCE INFORMATION

From Maintenance Department: (Last Updated Date: 26/06/2025)

STAGE 1 STUDY REPORT

Inspected On:

Weather:

District: MW

Section No: 1-1

Height(m):

Type of Toe Facility: Construction sites

Distance from Toe(m): 0

Type of Crest Facility: Undeveloped green belt

Distance from Crest(m): 0

Consequence Category:

Engineering Judgement:

Section No: 2-2

Type of Toe Facility:

Distance from Toe(m):

Type of Crest Facility:

Distance from Crest(m):

Consequence Category:

Engineering Judgement:

Sign of Seepage:

Criterion A satisfied:

Sign of Distress:

Criterion D satisfied:

Non-routine maintenance required:

Note:

Masonry wall/Masonry facing:

Note:

Consequence category (for critical section):

Observations: N/A

Emergency Action Required:

Action By: N/A

ACTION TO INITIATE PREVENTIVE WORKS

Criterion A/Criterion D: N/A

Action By: N/A

Further Study:

Action By: N/A



OTHER EXTERNAL ACTION

Check / repair Services:

Action By: N/A

Non-routine Maintenance:

Action By: N/A

PHOTO



10NW-D/C118

GENERAL VIEW .

F1



10NW-D/C118

GENERAL VIEW .

F2, F3



Appendix B(Cont'd)

Slope Maintenance Responsibility Report
SMRIS

Slope Maintenance Responsibility Report

(10NW-C/C53)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	10NW-C/C53		Sub-Division	Not Applicable
	Location	FALLS WITHIN TUNNEL AREA OF DISCOVERY BAY TUNNEL LINK		
	Responsible Lot/Party	DISCOVERY BAY ROAD TUNNEL CO. LTD	Maintenance Agent	Not Applicable
	Remarks	Not Applicable		

- End of Report -

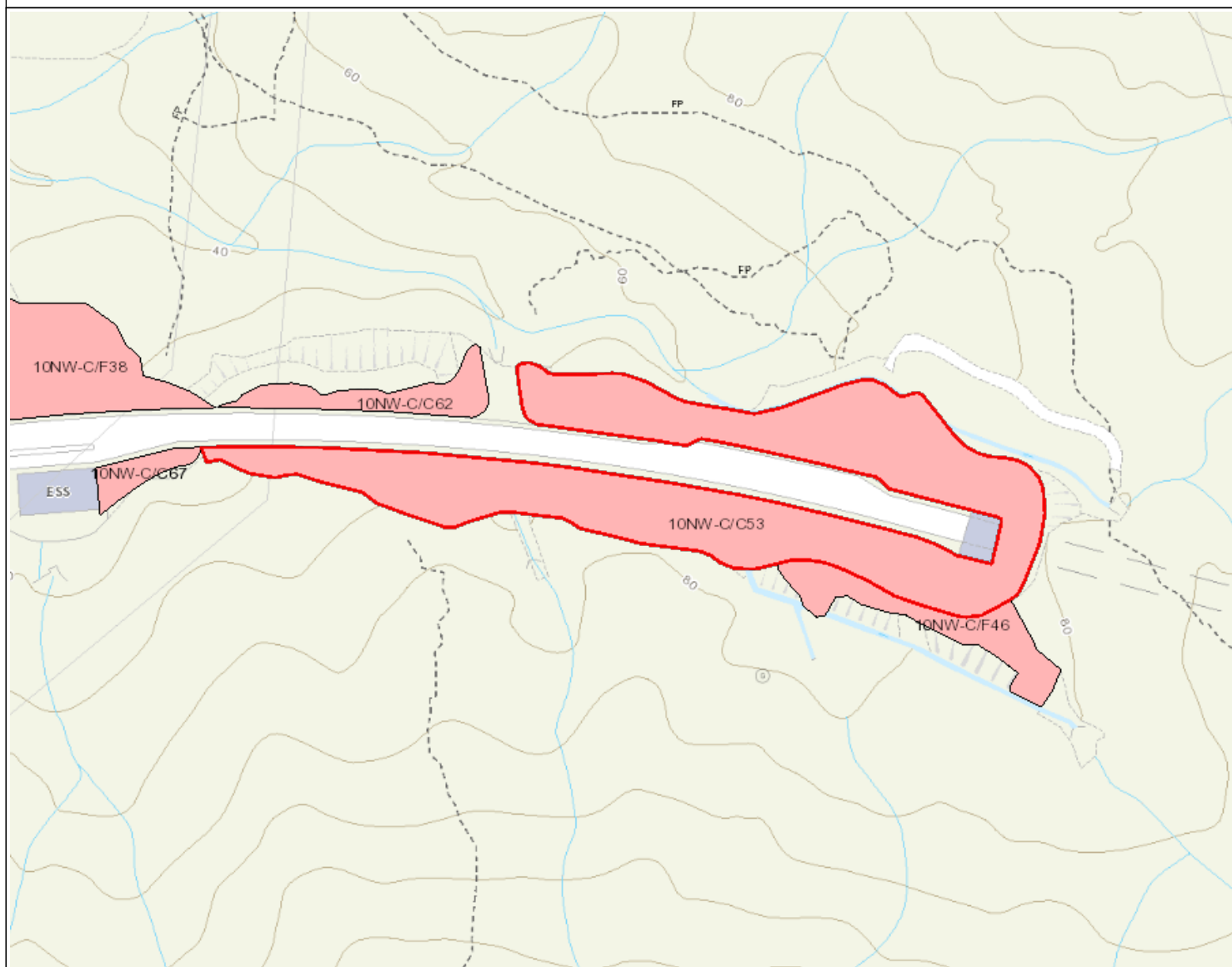
Notes:

- (i) The location plan in Annex is for identification purposes of slope(s) only.
- (ii) The slope(s) as listed in the Slope Maintenance Responsibility Report may not be shown on the location plan in Annex.

The use of this report and plan is subject to the terms and conditions set out under the respective Disclaimers, Copyright Notice and Privacy Policy displayed on the Slope Maintenance Responsibility Information System webpage at <http://www.slope.landsd.gov.hk/smris/disclaimer>. The contents of this report and plan, including but not limited to all text, graphics, drawings, diagrams and compilation of data or other materials are protected by copyright. The users of this report and plan acknowledge that the Government of the Hong Kong Special Administrative Region is the owner of all copyright works contained in this report and plan. Any reproduction, adaptation, distribution, dissemination or making available of any copyright works contained in this report and plan to the public is strictly prohibited unless prior written authorization is obtained from the Lands Department.

Search Criteria: 10NW-C/C53

Location Plan



Legend

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



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

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

Printed on: 15/08/2025

The use of this report and plan is subject to the terms and conditions set out under the respective Disclaimers, Copyright Notice and Privacy Policy displayed on the Slope Maintenance Responsibility Information System webpage at <http://www.slope.landsd.gov.hk/smris/disclaimer>. The contents of this report and plan, including but not limited to all text, graphics, drawings, diagrams and compilation of data or other materials are protected by copyright. The users of this report and plan acknowledge that the Government of the Hong Kong Special Administrative Region is the owner of all copyright works contained in this report and plan. Any reproduction, adaptation, distribution, dissemination or making available of any copyright works contained in this report and plan to the public is strictly prohibited unless prior written authorization is obtained from the Lands Department.

Search Criteria: 10NW-C/C53

Slope Maintenance Responsibility Report

(10NW-D/C118)



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

List of Slope Maintenance Responsibility Area(s)

1	10NW-D/C118		Sub-Division	Not Applicable
	Location	Within DD352L LOT385 RP &EXTS THERETO		
	Responsible Lot/Party	DD352L LOT385 RP &EXTS THERETO	Maintenance Agent	Not Applicable
	Remarks	Not Applicable		

- End of Report -

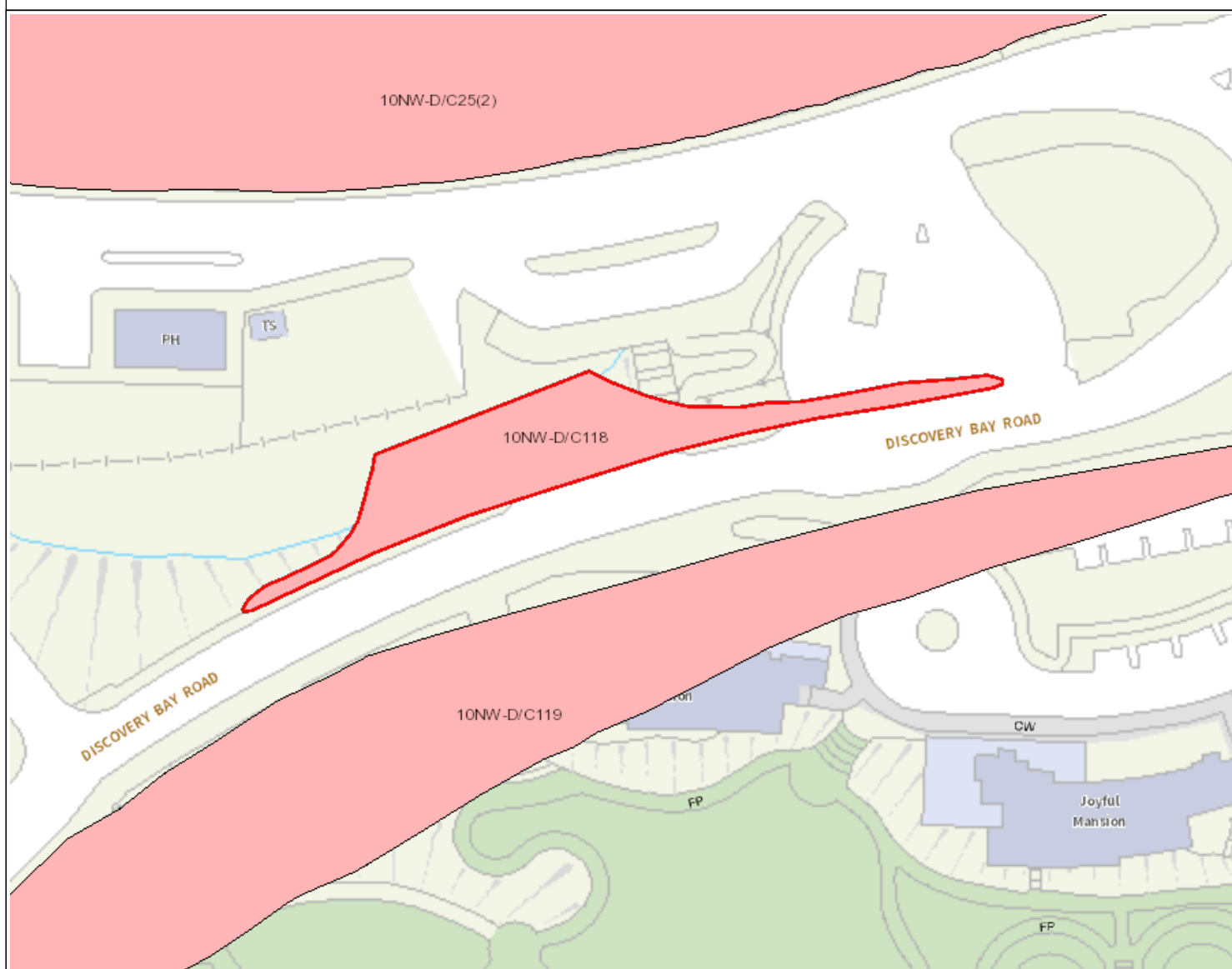
Notes:

- (i) The location plan in Annex is for identification purposes of slope(s) only.
- (ii) The slope(s) as listed in the Slope Maintenance Responsibility Report may not be shown on the location plan in Annex.

The use of this report and plan is subject to the terms and conditions set out under the respective Disclaimers, Copyright Notice and Privacy Policy displayed on the Slope Maintenance Responsibility Information System webpage at <http://www.slope.landsd.gov.hk/smris/disclaimer>. The contents of this report and plan, including but not limited to all text, graphics, drawings, diagrams and compilation of data or other materials are protected by copyright. The users of this report and plan acknowledge that the Government of the Hong Kong Special Administrative Region is the owner of all copyright works contained in this report and plan. Any reproduction, adaptation, distribution, dissemination or making available of any copyright works contained in this report and plan to the public is strictly prohibited unless prior written authorization is obtained from the Lands Department.

Search Criteria: 10NW-D/C118

Location Plan



Legend

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



ESTATE MANAGEMENT SECTION
LANDS DEPARTMENT

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

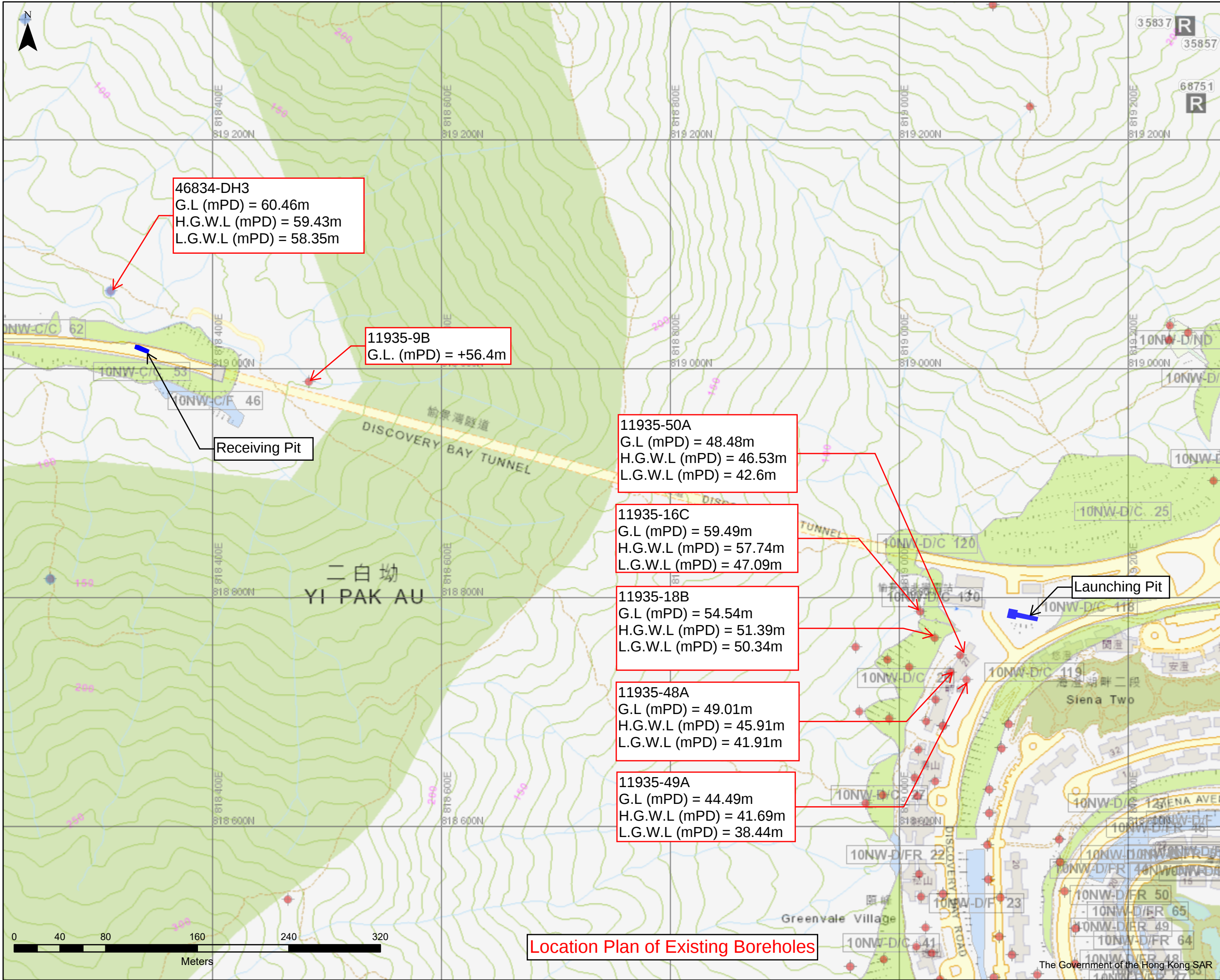
Printed on: 15/08/2025

The use of this report and plan is subject to the terms and conditions set out under the respective Disclaimers, Copyright Notice and Privacy Policy displayed on the Slope Maintenance Responsibility Information System webpage at <http://www.slope.landsd.gov.hk/smris/disclaimer>. The contents of this report and plan, including but not limited to all text, graphics, drawings, diagrams and compilation of data or other materials are protected by copyright. The users of this report and plan acknowledge that the Government of the Hong Kong Special Administrative Region is the owner of all copyright works contained in this report and plan. Any reproduction, adaptation, distribution, dissemination or making available of any copyright works contained in this report and plan to the public is strictly prohibited unless prior written authorization is obtained from the Lands Department.

Search Criteria: 10NW-D/C118

Appendix C

Location Plan of Existing Borehole



- Man-made Features
- Cut slopes
 - Disturbed terrain
 - Fill slopes
 - NT defence measures
 - NT stabilisation measures
 - Retaining walls
 - Slope Features
 - GIU Report
 - GI with AGS
- GI Location
- <all other values>
 - Slope striping
 - Cone Penetration Test
 - GCO Probe
 - Grab Samples
 - Impression Packer Test
 - Trial pit
 - PR
 - Rock joint survey
 - Trial trench
 - GI

Legend:

■ Pit Locations

Division	
Scale	1:3000
Date	19/08/2025
GEOTECHNICAL ENGINEERING OFFICE CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT The Government of the Hong Kong SAR	

Appendix C(Cont'd)

Measured Groundwater Record

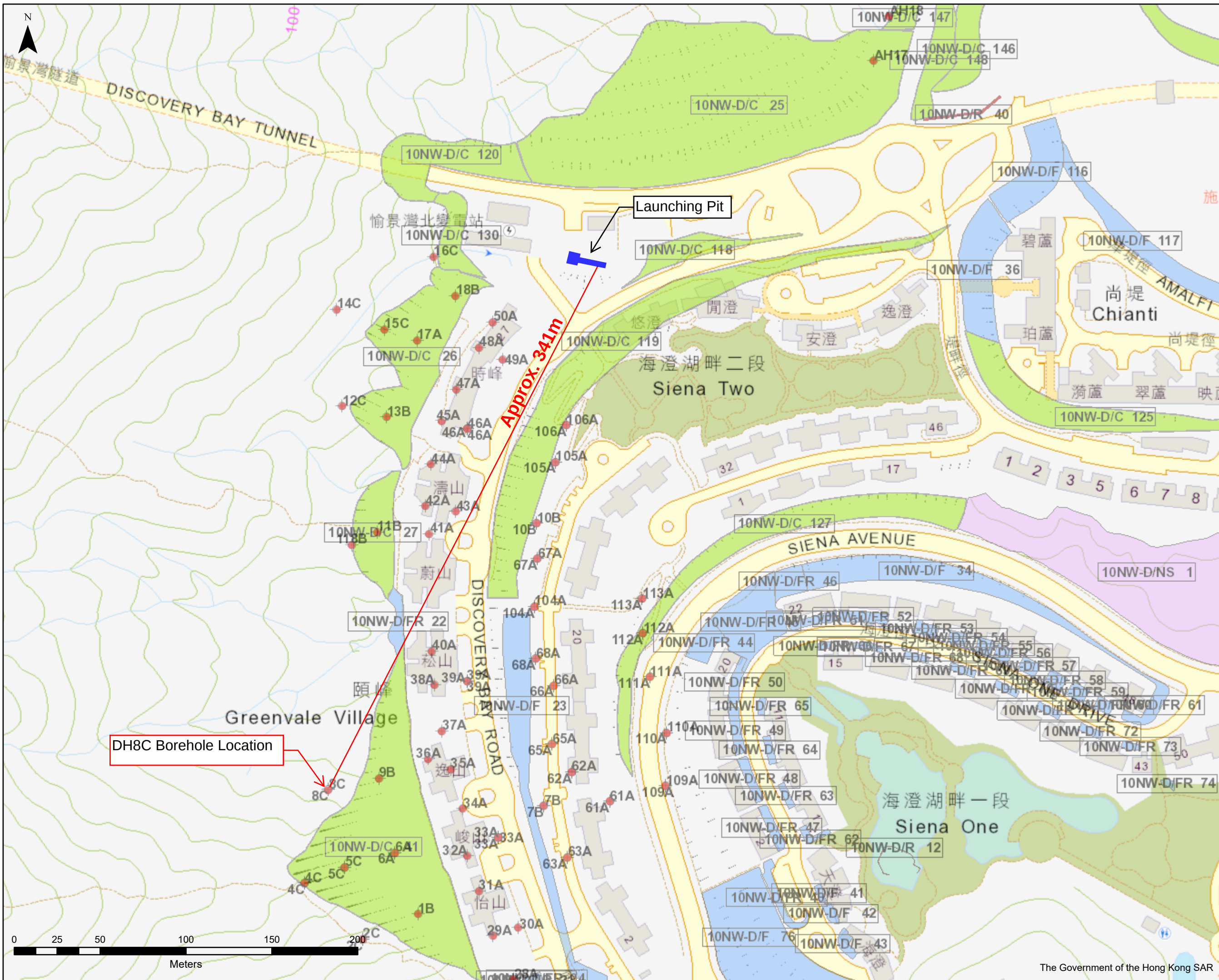


Sheet 1 of 1

Coordinates N _____ E _____

DEPTH OF PIEZOMETER 2

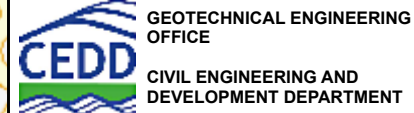
[illegible]



- ### Man-made Features
- Cut slopes
 - Disturbed terrain
 - Fill slopes
 - NT defence measures
 - NT stabilisation measures
 - Retaining walls
- ### Slope Features
- GIU Report
- ### GI Location
- <all other values>
 - Slope striping
 - Cone Penetration Test
 - GCO Probe
 - Grab Samples
 - Impression Packer Test
 - Trial pit
 - PR
 - Rock joint survey
 - Trial trench
 - GI

Legend:

- Pit Locations

Division	
Scale	1:2000
Date	22/08/2025
 GEOTECHNICAL ENGINEERING OFFICE CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	

Appendix C(Cont'd)

Existing Ground Investigation Records

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V Equipment & Methods: ROTARY										DRILLHOLE NO. 9B Sheet 1 of 2	
Hong Kong Metric Grid Reference: E 18484.28 N 10700.80 Ground level +56.40 mPD Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal: 90° Bearing: *E of N											

Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level mPD	Total core recovery %	RQD	FRACTURE INDEX	Legend	Description	Grade	
20-7-1987	HX	M101		2.2. 3.4.4.6, N=17	2.0	+56.40					Medium dense, brown & yellowish brown, silty SAND with trace fine gravel (C.D.G.)	I	
				1.0									
				1.50									
				2.0									
				2.50									
				2.95									
				3.0									
				4.0									
				5.0									
				5.45									
				6.0									
				6.50									
20-7-1987	HX	M101		2.3. 4.4.6.6, N=20	4.0					with some rock fragments below 4.0m	I		
				5.0									
				5.45									
				6.0									
				6.50									
				7.0									
				7.50									
				8.0									
				8.80									
				9.20									
				9.60									
				10.0									
20-7-1987	HX	M101		3.4, 4.6.6.7, N=23	5.0					Medium dense, brown & dark brown, Clayey silty SAND (C.D.G.)	I		
				5.45									
				6.0									
				6.50									
				7.0									
				7.50									
				8.0									
				8.80									
				9.20									
				9.60									
				10.0									
				20-7-1987	HX	M101		3.4, 4.6.6.7, N=23	8.0				
8.80													
9.20													
9.60													
10.0													
10.80													
11.20													
11.60													
12.00													
12.40													
12.80													
13.20													
20-7-1987	HX	M101		3.4, 4.6.6.7, N=23	9.20	+47.60				to coarse grained, moderately decomposed	III		
				9.60									
				10.0									
				10.80									
				11.20									
				11.60									
				12.00									
				12.40									
				12.80									
				13.20									
				13.60									
				14.00									
20-7-1987	HX	M101		3.4, 4.6.6.7, N=23	10.0	+46.40				GRANITE with highly fractured zone at 10.0-10.85m	III		
				10.80									
				11.20									
				11.60									
				12.00									
				12.40									
				12.80									
				13.20									
				13.60									
				14.00									
				14.40									
				14.80									

LEGEND (Lengths and positions of symbols are to scale)

Sample • Small disturbed • Large disturbed U76 Undisturbed type & dia. M = triple tube U = tube NWX Core & size Δ Water sample	Tests & instruments ↓ Standard Penetration Test (SPT) X Permeability test I Water absorption test	Results & observations N Standard Penetration Test m Moisture content k Permeability I Water absorption W Water return t Coring rate RQD Rock quality designation
---	--	--

Piezometer Tip Details

A (lower)	B (upper)
mPD.	mPD.
mPD.	mPD.
mPD.	mPD.

Gammon (Hong Kong) Limited
 CIVIL ENGINEERS & CONTRACTORS
 33rd Floor, Moonwell Centre, 183 Queen's Road, East, Hong Kong
 Tel: 5 8732823 Cable: GAMMONCO Telex: HK 73826 Fax: 5 201824

Scale 1:50
 Logged by _____
 Checked by _____
 Date: _____

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V Equipment & Methods: ROTARY										DRILLHOLE NO. DB Sheet 2 of 2		
Hong Kong Metric Grid Reference: E N Ground level: mPD Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal: 90° Bearing: *E of N												
Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level mP.D.	Total core recovery %	RQD	FRACTURE INDEX	Legend	Description	Grade
20-7-1987			TNW 1 T2101		10.0	+46.40				...	Joints are shallow dipping, extremely closely to medium spaced, very narrow to narrow. Smooth to rough undulating. limonite and manganese stained Subvertical joint at 10.85-11.03m (M.D.G.)	III
					10.85		100	47	N.I.	...		
					11.0				92	...		
					11.55					...		
					12.0		100	30	N.I.	...		
					12.15		88	0	N.I.	...		
					12.55					...		
					13.0		100	60	6.0	...		
					14.0	+42.35				...		
		Nil				14.05						
				15.0					...	Feldspar phenocrysts in a fine grained groundmass, moderately to slightly decomposed		
				16.0					...	PORPHYRIC GRANITE with shallow dipping, closely spaced, very narrow to narrow, rough		
				17.0					...	Chlorite filled joints (M/S.D.G.)		
				18.0					...	End of hole at 14.05m		
				19.0					...			
					20.0					...		

LEGEND (Lengths and positions of symbols are to scale)

• Sample ○ Small disturbed ⊖ Large disturbed — U76 Undisturbed type & dia. - M = triple tube - U = tube - NWX Core & size - Δ Water sample	- Tests & instruments - Standard Penetration Test (SPT) - Permeability test - Water absorption test	- Results & observations - N Moisture content - m Moisture content - k Permeability - l Water absorption - W Water return - t Coring rate - RQD Rock quality designation
---	--	---

Piezometer Tip Details

A (lower)	B (upper)
+46.90mP.D.	— mP.D.
+48.10mP.D.	— mP.D.
+47.60mP.D.	— mP.D.

Scale 1:50

Logged by _____

Checked by _____

Date: _____

Gammon (Hong Kong) Limited
 CIVIL ENGINEERS & CONTRACTORS
 33rd Floor, Moemart Centre, 183 Queen's Road, East, Hong Kong
 Tel: 5 8232823 Cable: GAMMONCO Telex: HK 73876 Fax: 5 301824

Consulting Engineers



Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V
Equipment & Methods:

DRILLHOLE NO. 16C

Sheet 2 of 2

Hong Kong Metric Grid Reference: E N Ground level: mPD
Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal: Bearing: ° E of N

Drilling progress, core barrel	Casing size depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return Caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	Fracture INDEX	Legend	Description	Grade
26-8-87			T5101		10.10	+49.39	84	0	8.0	+++	Moderately strong, greenish brown, coarse grained, moderately to slightly decomposed GRANITE, with medium to widely spaced, shallow & occasional subvertical dipping, smooth planar, narrow, slightly Fe & Mn stained joints below 13.90m	II
					10.60		0					
					10.80							
					11.75		89	48	11.6	+++		
					12.50		100	<60	4.0	+++		
					13.45		93	84	6.3	+++		
27-8-87			TNW		14.55		97	<75	3.6	+++	Slightly decomposed & strong, highly decomposed at 10.60-10.80m	II
					16.05	+43.44	99	93	3.3	+++		
					16.05					+++	End of Hole at 16.05m	

LEGEND (Lengths and positions of symbols are to scale)

Sample
• Small disturbed
• Large disturbed
U76 Undisturbed type & dia.
M = triple tube
U = tube
NWX Core & size
Δ Water sample

Tests & Instruments
↓ Standard Penetration Test (SPT)
X Permeability test
I Water absorption test

Results & observations
N Standard Penetration Test
m Moisture content
k Permeability
l Water absorption
W Water return
t Coring rate
RQD Rock quality designation

Piezometer Tip Details

A (lower) +50.49 m.P.D.
B (upper) - m.P.D.
+49.89 m.P.D.
+49.39 m.P.D.

Scale 1:50

Logged by

Checked by

Date:



Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS

33rd Floor Hopewell Centre, 183 Queen's Road, East, Hong Kong
Tel: 5 8232823 Cable: GAMMONCO Telex: HK 73626 Fax: 5 201824

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay -- Phase V Equipment & Methods: ROTARY										DRILLHOLE NO. 18B Sheet 1 of 1						
Hong Kong Metric Grid Reference: E 19031.48N 18769.23 Ground level: +54.54 mPD Diameters are in mm. Lengths, levels & thickness are in m Angle to horizontal: 90° Bearing: *E of N																
Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return casing instrumentation, tests	Depth	Reduced level m P.D.	Total core recovery %	RQD	Fracture INDEX	Legend	Description	Grade				
19-8-1987	PX 2.5m HX		Mia 1 2	5, 6, 8, 11, 11, 10, N=40	0.0	+54.54					+++	Dense, light pinkish brown with yellowish brown, Silty fine to coarse SAND (C.D.G.)	V			
					1.0									+++		
					1.50											
					2.0		98									
					2.50											
					2.95											
					3.0											
					3.50	+51.04										
					4.0		100	91	0							
					4.20	+50.34	0									
20-8-1987	Nil		TNW		4.95		96	96	1.3	+++	Very strong to strong, light pinkish grey, with white & brown, Speckle black, Coarse grained, Slightly decomposed GRANITE, Closely to medium Spaced, narrow joints, joints. Surface with limonite stained and infilled with some Calcite, chlorite & greyish brown silt dip 20° & 80°, Slightly rough to rough, moderately to slightly decomposed below 8.5m	II				
					5.0		100	100	0							
					5.23											
					6.0		99	99	3.6	+++						
					6.35											
					7.0		99	99	1.3	+++						
					7.10											
					8.0		99	76	1.4	+++						
					8.50											
					8.57											
21-8-1987	3.5m				9.0	+45.25	100	100	0	+++		End of Hole at 9.29m				
					9.29											
					10.0											

LEGEND (Lengths and positions of symbols are to scale)

- Small disturbed - Large disturbed - U76 Undisturbed - type & dia. - M = triple tube - U = tube - NWX Core & size - Water sample	- Tests & instruments - Standard Penetration Test (SPT) - Permeability test - Water absorption test
--	--

Results & observations

N	Standard Penetration Test
m	Moisture content
k	Permeability
i	Water absorption
w	Water return
t	Coring rate
RQD	Rock quality designation

Piezometer Tip Details

	A (lower)	B (upper)
	m.P.D.	m.P.D.
	m.P.D.	m.P.D.

Scale 1:50

Logged by _____

Checked by _____

Date: _____

Gammon (Hong Kong) Limited
 CIVIL ENGINEERS & CONTRACTORS
 33rd Floor, Hopewell Centre, 183 Queen's Road, East Hong Kong
 Tel: 5-8732823 Cable: GAMMONCO Telex: HK 73876 Fax: 5-201874

Consulting Engineers

Binnie & Partners(Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development of Discovery Bay — Phase V

Equipment & Methods: **ROTARY**

DRILLHOLE NO. 48A

Sheet 2 of 3

Hong Kong Metric Grid Reference: E N Ground level: mPD
Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal 90° Bearing: *E of N

Drilling program / core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	FRAC- TURE INDEX	Legend	Description	Grade
5-8-1987	HX		• 8	56.78, 200	10.0 10.19	+32.01				+++	AS SHEET 1 of 3 Below 11.50m becoming sandy gravel of highly decomposed GRANITE	V
					11.0					+++		
					11.50	+37.51				+++		
					12.0		73	0	N.I.	+++	Weak to moderately weak, brownish yellow & light pink, fine and coarse grained, moderately to highly decomposed FELDSPAR PORPHYRY, with extremely closely spaced joints	IV
					12.70					+++		
					13.0		65	0	N.I.	+++		IV / III
					14.0		89	0	N.I.	+++		
					14.80							
					15.0		50	0	N.I.	+++		
					15.40		50	0	N.I.	+++		
					16.0		0			+++	Highly decomposed between 16.0-16.5m and 17.5-18.0m and slickensided joints at 12.7-14.0m	IV
					16.50							
					17.0		75	30	N.I. 60	+++		IV / III
					17.50		0			+++		IV
					18.0	+31.01						
					18.30				N.I.	+++	AS SHEET 3 of 3	III
					19.0		95	53	5.0	+++		
					19.50	+29.51				+++		

LEGEND (Lengths and positions of symbols are to scale)			Piezometer Tip Details		Scale 1:50
Sample	Tests & instruments	Results & observations	A (lower)	B (upper)	Logged by
• Small disturbed	Standard Penetration Test (SPT)	N Standard Penetration Test	m.P.D.	m.P.D.	Checked by
• Large disturbed	Permeability test	m Moisture content	m.P.D.	m.P.D.	Date:
U76 Undisturbed type & dia.	Water absorption test	k Permeability	m.P.D.	m.P.D.	
M = triple tube		l Water absorption			
U = tube		W Water return			
NWX Core & size		t Coring rate			
Water sample		RQD Rock quality designation			



Gammon (Hong Kong) Limited

CIVIL ENGINEERS & CONTRACTORS

33rd Floor, Hopewell Centre, 183 Queen's Road, East, Hong Kong
Tel: 5-6232823 Cable: GAMMONCO Telex: HK 73810 Fax: 8 204824

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V

Equipment & Methods: ROTARY

DRILLHOLE NO. 48A

Sheet 3 of 3

Hong Kong Metric Grid Reference.

E 19045.11 N 18735.06 Ground level: +49.01 mPD

Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal.

90°

Bearing: * E of N

Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	Fracture INDEX	Legend	Description	Grade
7-8-1987	4.10m	TNW			19.50	+29.51	100	67	7.0	+++	Strong to Very strong, greenish grey. light pink & grey, fine to coarse grained, moderately (18.0-18.60m) & slightly decomposed to fresh FELDSPAR PORPHYRY, with medium to widely spaced, shallow dipping 5°-20°, extremely narrow, smooth planar, slightly Mn, Fe stained, and clean joints Subvertical joint at 23.23-23.60m End of Hole at 24.50m	II I
					20.50		98	98	3.3	+++		
					21.0							
					21.40							
					22.0		97	97	2.9	+++		
					22.45							
					23.0		96	96	3.5	+++		
					23.60							
					24.0		100	93	4.4	+++		
					24.50	+24.51						
					25.0							
					26.0							
					27.0							
					28.0							
					29.0							
					30.0							

LEGEND (Lengths and positions of symbols are to scale)

Sample	Tests & instruments
Small disturbed	Standard Penetration Test (SPT)
Large disturbed	
U76 Undisturbed	Permeability test
type & dia.	
M = triple tube	Water absorption test
U = tube	
NWX Core & size	
Water sample	

Results & observations
N Standard Penetration Test
m Moisture content
k Permeability
I Water absorption
W Water return
c Coring rate
RQD Rock quality designation

Piezometer Tip Details

A (lower)	B (upper)
+32.0 m.P.D.	m.P.D.
+31.21 m.P.D.	m.P.D.
+30.71 m.P.D.	m.P.D.

Scale 1:50

Logged by

Checked by

Date:



Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS

33rd Floor, Hopewell Centre, 183 Queen's Road, East, Hong Kong.
Tel: 5-8237823 Cable: GAMMAHONG Telex: HK 73826 Fax: 5-201824

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V
Equipment & Methods: ROTARY

DRILLHOLE NO. 49A
Sheet 2 of 2

Hong Kong Metric Grid Reference: E N Ground level: mPD Bearing *E of N
Diameters are in mm. Lengths, levels & thickness are in m Angle to horizontal 90°

Drilling process/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return Caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	FRACTURE INDEX	Legend	Description	Grade
11-8-1987	HX		4	4.6, 19.53, 200 = 272/350mm	9.70	+34.79	65			+++	Very dense, light yellowish brown, with pink & black, fine to coarse sandy fine GRAVEL (H.D.G.)	IV
			5		10.70					+++		
					11.0	+33.44				+++		
					11.05					+++		
					11.70	+32.79	94	88	5.0	+++		
					12.0					+++		
					12.25					+++		
					13.0					+++		
					13.05					+++		
					13.75					+++		
					14.0					+++		
					15.0					+++		
					15.10					+++		
					15.65					+++		
					16.0					+++		
					17.0					+++		
					17.10					+++		
					18.0	+26.39				+++		
					18.10					+++		
					19.0					+++		
					20.0					+++		

LEGEND (Lengths and positions of symbols are to scale)

Sample	Tests & Instruments	Results & observations
Small disturbed	Standard Penetration Test (SPT)	N
Large disturbed		m
U76 Undisturbed		k
type & dia.	Permeability test	i
M = triple tube		W
U = tube	Water absorption test	c
NWX Core & size		RQD
Water sample		

Piezometer Tip Details

A (lower)	B (upper)
m.P.D.	m.P.D.
m.P.D.	m.P.D.
m.P.D.	m.P.D.

Scale 1:50

Logged by

Checked by

Date:



Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS

33rd Floor, Hopwood Centre, 183 Queen's Road, East Hong Kong
Tel: 5 8232823 Cable: GAMMONCO Telex: HK 73828 Fax: 5 201824

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development at Discovery Bay — Phase V Equipment & Methods: ROTARY										DRILLHOLE NO. 50A Sheet 1 of 2		
Hong Kong Metric Grid Reference: E19053.24N 18749.91 Ground level: +48.48 mPD Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal: 90° Bearing: *E of N												
Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	Fracture INDEX	Legend	Description	Grade
14-8-1987	HX				0.0	+48.48				+++	Very dense, brownish yellow, Silty medium to fine SAND with some rock fragments (H.R.G.) Moderately to highly decomposed core stone at 246-3.90m	IV IV
					1.0				+++			
					2.0	90			+++			
					2.30				+++			
					2.38	46.10			+++			
					2.46				+++			
					3.0	15	0	35	+++			
					3.90				+++			
					4.0	90			+++			
					5.0				+++			
15-8-1987					5.06	+43.42				+++	Moderately strong to strong, light grey, with pink, white & brown, coarse grained, moderately decomposed PORPHYRITIC GRANITE Closely spaced narrow joints, with limonite stains & infilled with some greyish white silt dip 20°, 45° & 70°, rough, moderately to highly decomposed joints	III II
					5.06	100	63	12.0	+++			
					5.10				+++			
					5.50	100	95	6.2	+++			
					6.0				+++			
					6.80	95	92	6.1	+++			
					6.80				+++			
					7.45	100	97	6.3	+++			
					7.70				+++			
					8.0	100	100	6.5	+++			
17-8-1987					8.70					+++	AS SHEET 2 OF 2	
					9.0				+++			
					9.95	100	96	5.6	+++			
									+++			
									+++			
									+++			
									+++			
									+++			
									+++			
									+++			

LEGEND (Lengths and positions of symbols are to scale)

Sample	Tests & instruments
Small disturbed	Standard Penetration Test (SPT)
Large disturbed	Permeability test
U76 Undisturbed type & dia.	Water absorption test
M = triple tube	
U = tube	
NWX Core & size	
Water sample	

Results & observations
N Standard Penetration Test
m Moisture content
k Permeability
l Water absorption
w Water return
c Coring rate
RQD Rock quality designation

Piezometer Tip Details

A (lower)	B (upper)
m.P.D.	m.P.D.
m.P.D.	m.P.D.
m.P.D.	m.P.D.

Scale 1:50

Logged by

Checked by

Date:



Gammon (Hong Kong) Limited

CIVIL ENGINEERS & CONTRACTORS

33rd Floor, Hopewell Centre, 183 Queen's Road, East, Hong Kong
 Tel: 5 8232823 Cables: GAMMONCO Telex: HX 73878 Fax: 5 201824

Binnie & Partners (Hong Kong)

Consulting Engineers

Location: Discovery Bay Project: Proposed Development of Discovery Bay — Phase V

Equipment & Methods: **ROTARY**

DRILLHOLE NO. **50A**

Sheet **2** of **2**

Hong Kong Metric Grid Reference: **E**

N

Ground level: **90°**

mPD

Diameters are in mm. Lengths, levels & thickness are in m. Angle to horizontal: **90°**

Bearing: ***E of N**

Drilling progress/ core barrel	Casing depth, size	Water level	Sample type, no.	Notes e.g. Colour Water return caving instrumentation, tests	Depth	Reduced level m.P.D.	Total core recovery %	RQD	FRACTURE INDEX	Legend	Description	Grade
17-8-1987					9.95	+38.53				+++	Strong to Very strong, light whitish grey, with pink.	
18-8-1987	2.20m 5.88m		TNX		11.0		91	70	7.0	+++	brown & dark grey, coarse grained, moderately to slightly decomposed	III/II
					12.0		95	86	4.3	+++	POPHYRIC GRANITE	
					12.25					+++	Closely spaced, narrow joints, with limonite stains and infilled with some calcite, dip 40°, 60° & 80° slightly rough to rough. moderately decomposed joints	
	2.5m				12.85	+35.63	91	68	8.3	+++	End of Hole at 12.85m	
					13.0							
					14.0							
					15.0							
					16.0							
					17.0							
					18.0							
					19.0							
					20.0							

LEGEND (Lengths and positions of symbols are to scale)

Sample
• Small disturbed
• Large disturbed
U76 Undisturbed
type & dia.
M = triple tube
U = tube
NWX Core & size
△ Water sample

Tests & Instruments
↓ Standard Penetration
Test (SPT)
⌵ Permeability test
⌵ Water absorption test

Results & observations
N Standard Penetration Test
m Moisture content
k Permeability
I Water absorption
W Water return
I Coring rate
RQD Rock quality designation

Piezometer Tip Details

A (lower) B (upper)
m.P.D. m.P.D.
m.P.D. m.P.D.
m.P.D. m.P.D.

Scale 1:50

Logged by

Checked by

Date:



Gammon (Hong Kong) Limited

CIVIL ENGINEERS & CONTRACTORS

23rd Floor, Hopwood Centre, 183 Queen's Road, East, Hong Kong.
Tel: 5-8132813 Cable: GAMMONG Tel/Fax: 5-201824



DRILLHOLE RECORD

HOLE No.

DH 3

CONTRACT No. GE/2006/02

SHEET 1 of 5

PROJECT Agreement No. 54/2005 (WS) Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works

METHOD Rotary

CO-ORDINATES

WORKS ORDER No. GE/2006/02.56

MACHINE & No. BM51

E 818311.38
N 819068.11

DATE from 04/10/2007 to 13/10/2007

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 60.46 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description	
									No.	Type	Depth						
04/10/2007	HX	08:00														Greyish brown (10YR 5/2), silty fine to medium SAND with some angular fine to coarse gravel sized rock fragments and with occasional rootlets. (COLLUVIUM)	
									A	•	0.45						
									B	•	0.95						
									C	•	1.45	58.96	1.50				
04/10/2007	HX	Dry at 18:00							D	•	1.95	58.46	2.00		V	Extremely weak to very weak, light brown (7.5YR 6/4), completely decomposed RHYOLITE. (Clayey silty fine to medium SAND with some angular fine to coarse gravel sized rock fragments)	
05/10/2007	2.00	Dry at 08:00		98	0	0	>20										
				98	52	37	9.8		T2101		2.63				III		
							>20					57.44	3.02		III	Moderately strong, light brownish grey (10YR 6/2) and brown (10YR 5/4), spotted pink, moderately decomposed feldsparphyric RHYOLITE. Joints are closely to very closely spaced, rough planar, extremely to very narrow, iron stained, dipping 30°-40°, 60°-70° and 80°-90°.	
				100	17	17	14.0				3.50						
							>20		T2101								
				100	57	51	8.5				4.74					Moderately strong, light pinkish brown (5YR 6/3) and light greyish brown (10YR 6/3), spotted pink, black and light grey, moderately decomposed feldsparphyric RHYOLITE. Joints are closely, locally medium and very closely spaced, rough planar, extremely to very narrow, iron and manganese stained, dipping 0°-10°, 30°-40°, 60°-70° and 80°-90°.	
							>20		T2101			55.13	5.33				
							9.3					54.66	5.80				
				100	87	80	6.2				6.22					5.33 - 5.80m: Calcite vein (20mm) dipping 80°-90°.	
							9.1		T2101								
				100	91	83	6.0				7.23						
				100	100	100					8.09					8.39 - 8.89m: Strong, dark grey, dappled pink and spotted light grey, slightly decomposed.	
05/10/2007		1.03m at 18:00							T2101			52.07	8.39		II		
06/10/2007		1.11m at 08:00		100	96	80	4.5				8.69						
							10.5		T2101			51.57	8.89		III		
												50.46	10.00				

• Small disturbed sample

Large disturbed sample

SPT liner sample

U76 undisturbed sample

U100 undisturbed sample

Mazier sample

Piston sample

▲ Water sample

Piezometer / standpipe tip

Standard penetration test

Pressuremeter test

Permeability test

Impression packer test

In-situ vane shear test

LOGGED W K SIU

DATE 15/10/2007

CHECKED KEN MA

DATE 16/10/2007

REMARKS

1. Inspection pit was dug to 2.00m depth.

2. Televue survey was carried out at 15.00m-44.91m depth.

3. Packer (Water Absorption) tests were carried out at 19.50m-24.50m, 34.50m-39.50m and 38.00m-43.00m depths.

4. Standpipe was installed at 13.00m depth.

t:\gin\library\1may2006\gib3110 geo drillhole



DRILLHOLE RECORD

HOLE No.

DH 3

CONTRACT No. GE/2006/02

SHEET 2 of 5

PROJECT Agreement No. 54/2005 (WS) Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works

METHOD Rotary

CO-ORDINATES

WORKS ORDER No. GE/2006/02.56

MACHINE & No. BM51

E 818311.38
N 819068.11

DATE from 04/10/2007 to 13/10/2007

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 60.46 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
No.	Type	Depth	50.46	10.00										
			100	96	80	10.5			T2101	10.20		+	III	As sheet 1 of 5.
			100	69	51				T2101	10.69		+		
			100	100	63				T2101	10.88	49.58	10.88	+	
			100	100	100	6.9			T2101	11.08	49.38	11.08	+	II
									T2101				+	III
			100	100	89				T2101	11.45			+	
			100	100	95				T2101	11.92			+	
							3.8		T2101	12.22	48.24	12.22	+	II
									T2101				+	
			100	100	95	5.3			T2101	13.38			+	
									T2101				+	
			50	100	98	93	3.5		T2101	14.89			+	
									T2101	15.70	44.76	15.70	+	III
									T2101				+	
			1.05m at 18:00	100	70	48	8.9		T2101	16.40			+	
			1.62m at 08:00	100	96	96	3.9		T2101	17.20			+	
				100	100	90	7.4		T2101	18.23			+	
									T2101				+	
				100	100	89	3.3		T2101	19.72			+	
									T2101	20.00	40.46	20.00	+	

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazler sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Pressuremeter test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED W K SIU
DATE 15/10/2007
CHECKED KEN MA
DATE 16/10/2007

REMARKS



DRILLHOLE RECORD

HOLE No.

DH 3

CONTRACT No. GE/2006/02

SHEET 3 of 5

PROJECT Agreement No. 54/2005 (WS) Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works

METHOD Rotary

CO-ORDINATES

WORKS ORDER No. GE/2006/02.56

MACHINE & No. BM51

E 818311.38

N 819068.11

DATE from 04/10/2007 to 13/10/2007

FLUSHING MEDIUM WATER

ORIENTATION

Vertical

GROUND LEVEL + 60.46 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
				100	100	89	3.3			T2101		40.46	20.00	+	III	As sheet 2 of 5.
				100	100	80	6.2			T2101	20.62			+		
				100	94	85	4.8			T2101	21.26			+		
							14.3			T2101				+		
							2.5							+		
08/10/2007 09/10/2007		1.35m at 18:00 1.65m at 08:00		100	97	93				T2101	22.70			+		
							7.9							+		
							15.0			T2101				+		
							3.0							+		
				100	100	100				T2101	24.17			+		
			50							T2101				+		
				100	100	97				T2101	25.64			+		
							0.8			T2101				+		
				100	100	100				T2101	27.13			+		
														+		
				100	100	77	3.5			T2101	28.65			+		
														+		
							8.8			T2101				+		
												30.46	30.00	+		

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Pressuremeter test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED W K SIU
DATE 15/10/2007
CHECKED KEN MA
DATE 16/10/2007

REMARKS



DRILLHOLE RECORD

HOLE No.

DH 3

CONTRACT No. GE/2006/02

SHEET 4 of 5

PROJECT Agreement No. 54/2005 (WS) Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works

METHOD Rotary

CO-ORDINATES

WORKS ORDER No. GE/2006/02.56

MACHINE & No. BM51

E 818311.38
N 819068.11

DATE from 04/10/2007 to 13/10/2007

FLUSHING MEDIUM WATER

ORIENTATION Vertical

GROUND LEVEL + 60.46 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples			Reduced Level	Depth (m)	Legend	Grade	Description
									No.	Type	Depth					
02/10/2007 10/10/2007	1.38m at 18:00 1.64m at 08:00	50	100	100	100	2.6	7.1	1.2	T2101		30.13	30.46	30.33	30.13	II	As sheet 2 of 5. Strong, light pinkish brown (5YR 6/3), dappled pink, spotted light green and light grey, slightly decomposed feldsparphyric RHYOLITE. Joints are medium, locally widely and closely spaced, smooth planar, extremely narrow, chlorite coated, dipping 10°-20°, 30°-40° and 60°-70°.
									T2101		31.64					
									T2101		33.12	27.34	33.12		III	Moderately strong, light pinkish brown (5YR 6/3), dappled pink and spotted light grey, moderately decomposed feldsparphyric RHYOLITE. Joints are widely spaced, rough planar, extremely narrow, clean, dipping 10°-20°.
									T2101		33.75					
									T2101		34.64	25.82	34.64		III	Moderately strong, light pink (2.5YR 7/6) and light green (5G 6/2), dappled pink, moderately decomposed chloritized feldsparphyric RHYOLITE. Joints are very closely spaced, smooth planar, very narrow, chlorite coated, dipping 60°-70° and 80°-90°.
									T2101		35.75	25.71	34.75		II	34.64 - 34.75m: Moderately weak, moderately decomposed. Strong, light pinkish brown (5YR 6/3) and dark grey (N3), dappled pink, spotted black, light green and light grey, slightly decomposed feldsparphyric RHYOLITE. Joints are widely to medium, locally closely spaced, slickensided planar, extremely to very narrow, chlorite coated, dipping 10°-20°, 30°-40°, 60°-70° and 80°-90°.
									T2101		37.01					
									T2101		37.54					
									T2101		38.52					
									T2101		39.57					
10/10/2007 11/10/2007	1.45m at 18:00 2.07m		100	100	100	1.2			T2101		40.00	20.46	40.00			

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Pressuremeter test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED W K SIU

DATE 15/10/2007

CHECKED KEN MA

DATE 16/10/2007

REMARKS



DRILLHOLE RECORD

HOLE No.

DH 3

CONTRACT No. GE/2006/02

SHEET 5 of 5

PROJECT Agreement No. 54/2005 (WS) Integration of Siu Ho Wan and Silver Mine Bay Water Treatment Works

METHOD Rotary

CO-ORDINATES

WORKS ORDER No. **GE/2006/02.56**

MACHINE & No. BM51

E 818311.38
N 819068.11

DATE from 04/10/2007 to 13/10/2007

FLUSHING MEDIUM WATER

ORIENTATION **Vertical**

GROUND LEVEL + 60.46 mPD

Drilling Progress	Casing depth/size	Water Depth (m)	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples No. Type Depth	Reduced Level	Depth (m)	Legend	Grade	Description
		08:00		100	100	100	1.2		T2101 40.38	20.46	40.00	+	II	As sheet 4 of 5.
				100	100	100			T2101 40.93			+		
				100	100	100				19.17	41.29	+		
				100	86	57	3.1		T2101 42.14			+	II	Strong, dark grey (N3), dappled pink, spotted light green and light grey, slightly decomposed feldsparphyric RHYOLITE. Joints are widely to medium spaced, rough planar, extremely to very narrow, iron stained, dipping 0°-10°, 30°-40° and 80°-90°.
				100	100	79	1.0		T2101 43.24			+		
				100	100	100			T2101 43.67			+		
		1.65m at 18:00		100	100	100			T2101 44.37			+		
11/10/2007 13/10/2007		1.99m at 08:00		100	100	100			T2101 45.19			+		
		2.11m at 18:00								15.27	45.19	+		End of hole at 45.19m depth.
13/10/2007														

- Small disturbed sample
- Large disturbed sample
- SPT liner sample
- U76 undisturbed sample
- U100 undisturbed sample
- Mazier sample
- Piston sample
- Water sample
- Piezometer / standpipe tip
- Standard penetration test
- Pressuremeter test
- Permeability test
- Impression packer test
- In-situ vane shear test

LOGGED **W K SIU**
DATE **15/10/2007**
CHECKED **KEN MA**
DATE **16/10/2007**

REMARKS

Appendix D

Schedule Area



香港國際機場
Hong Kong International Airport

MATCH LINE X-X

Legend:

 Pit Locations

MTR CORPORATION
RAILWAY PROTECTION AREA PLAN
KEY PLAN
SHEET 2 OF 2

SCALE 1 : 30000 @ A2
0 300 600

DRAWING NO.

MTR/AG/3

REV

A

DATE SEPT. 2004

MTR CAD REFERENCE NO.

Mtr_AG_3.dgn

Appendix E

Geological Map

Compiled by :

Drawn by :

Checked by :



LEGEND :

- PROPOSED LAUNCHING PIT / RECEIVING PIT
- GEOLOGICAL BOUNDARY, SUPERFICIAL DEPOSIT
- * GEOLOGICAL BOUNDARY, SOLID ROCK
- * FAULT (CROSSMARK INDICATES DOWNTROW SIDE)
- ISOPACH OF HANG HAU FORMATION
- LIMIT OF DUMPED MATERIAL OUTSIDE GAZETTED DUMPING GROUND
- PHOTOGEOLOGICAL LINEAMENT
- JOINTING (INCLINED)
- JOINTING (VERTICAL)
- MINERAL VEIN
- Qb SAND (BEACH DEPOSITS)
- Qd MUD SHOWING ACOUSTIC TURBIDITY (GAS BLANKING)
- Qd SAND, GRAVEL, COBBLES AND BOULDERS IN SILT MATRIX (DEBRIS FLOW DEPOSITS)
- gf FINE-GRAINED GRANITE, <2 MM
- gm MEDIUM-GRAINED GRANITE, 2-6 MM
- ap APLITE
- rf FELDSPARPHYRIC RHYOLITE

NOTE:
BROKEN LINES ON MAP FACE DENOTE UNCERTAINTY



Project
**GEOTECHNICAL PLANNING REVIEW REPORT
FOR CONSTRUCTION OF HORIZONTAL
DIRECTIONAL DRILLING (HDD) WORKS NEAR
DISCOVERY BAY TUNNEL**

Drawing Title
REGIONAL GEOLOGICAL MAP
(H.K. Geological Survey, Series HGM20, Sheet 10, 1991 Edition)

Job No.
220171.023

Figure
4

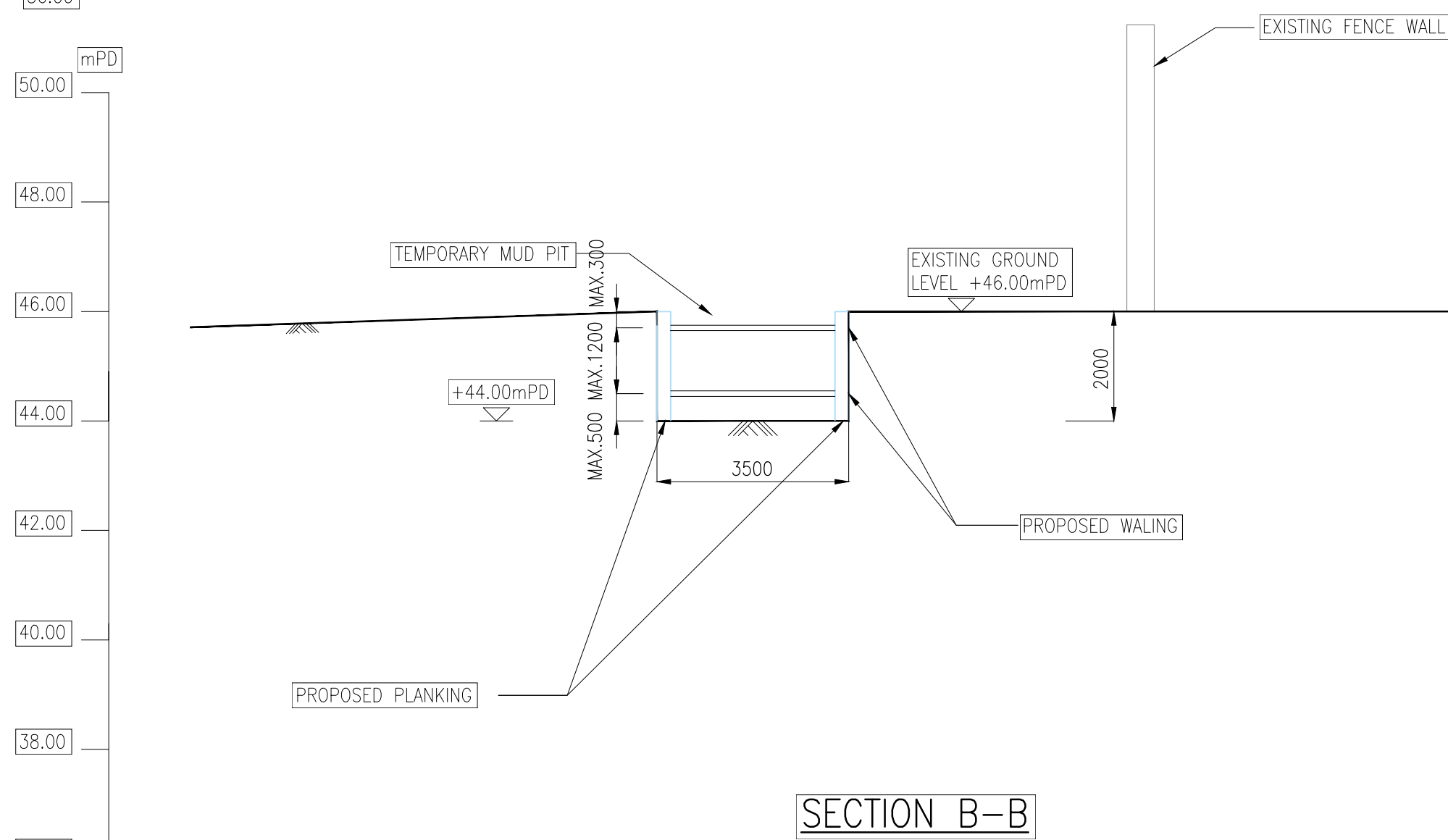
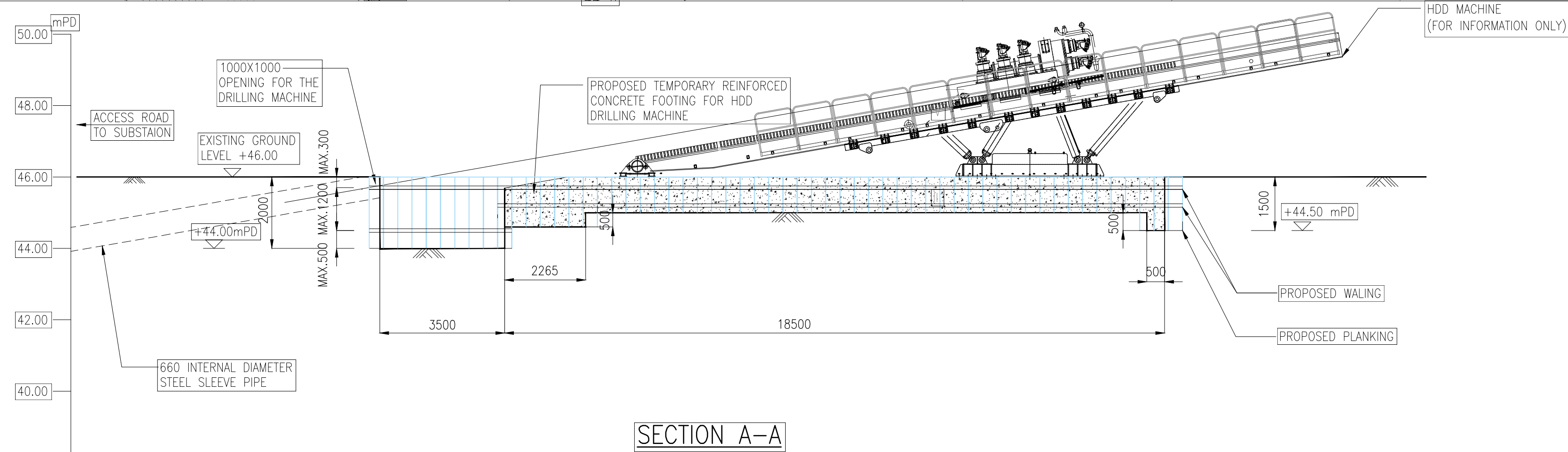
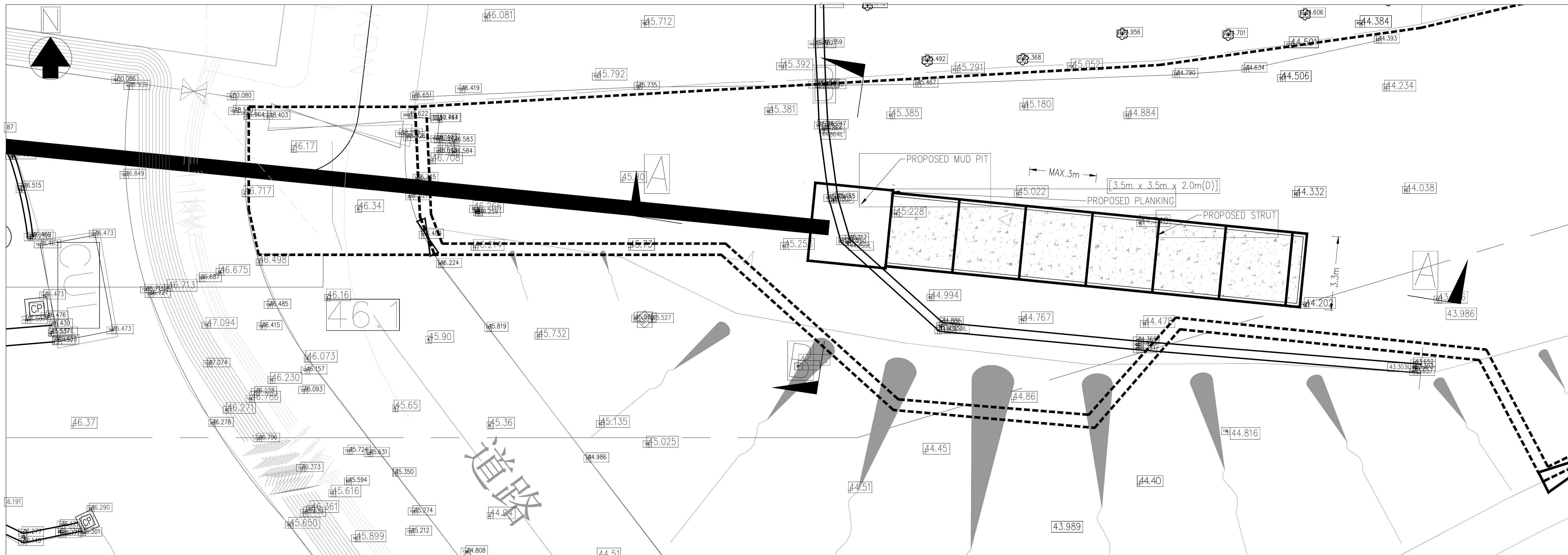
Scale
1 : 20000

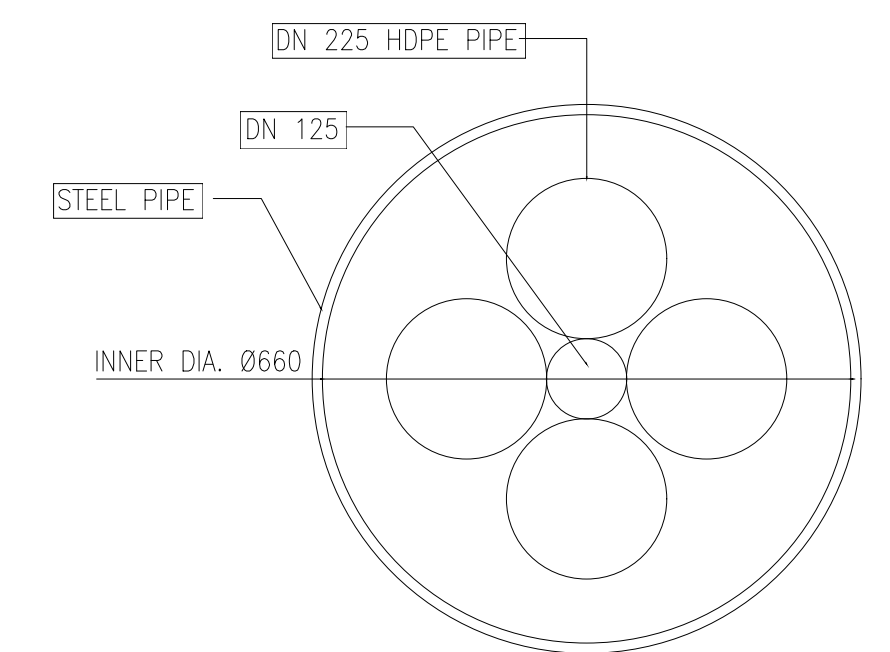
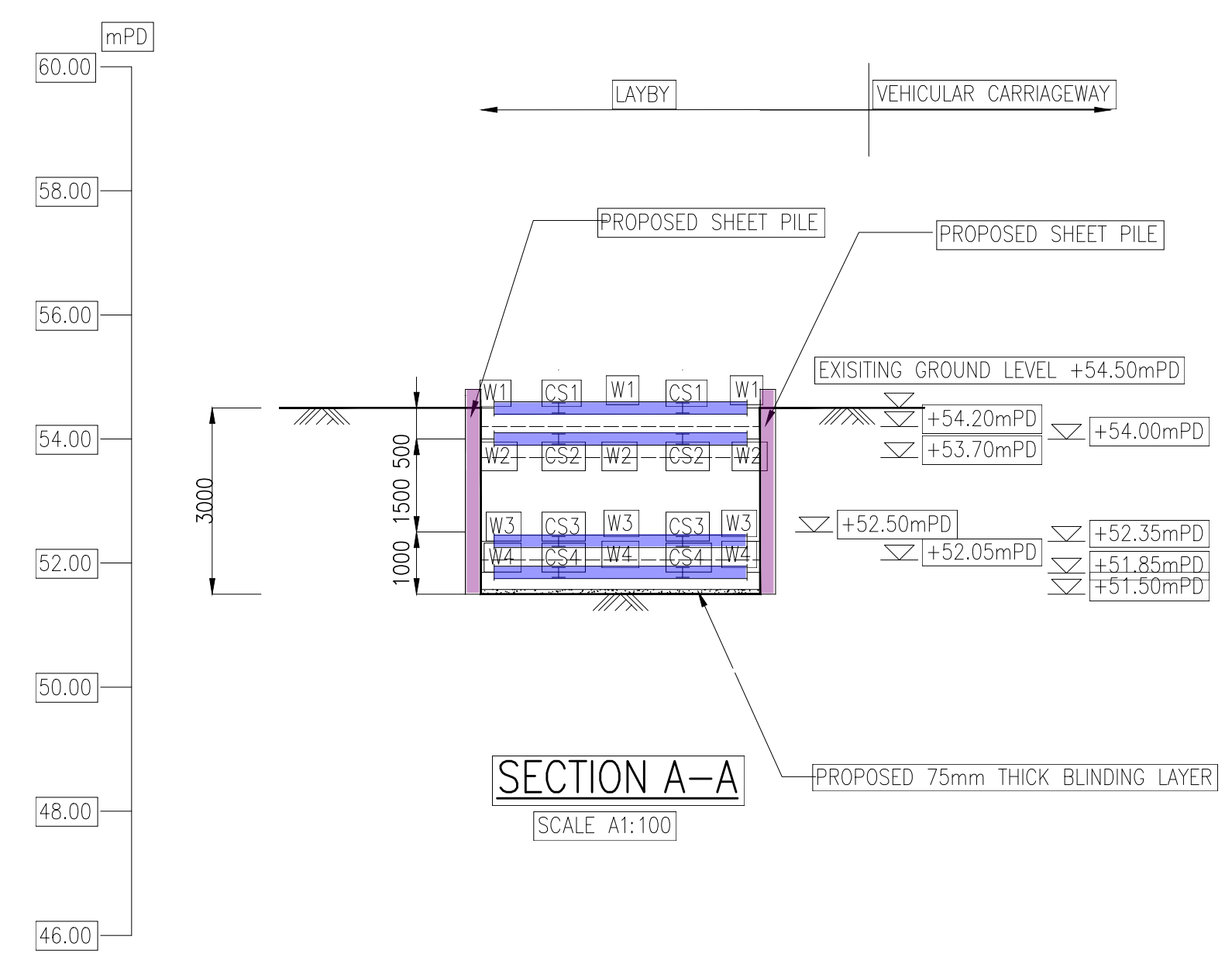
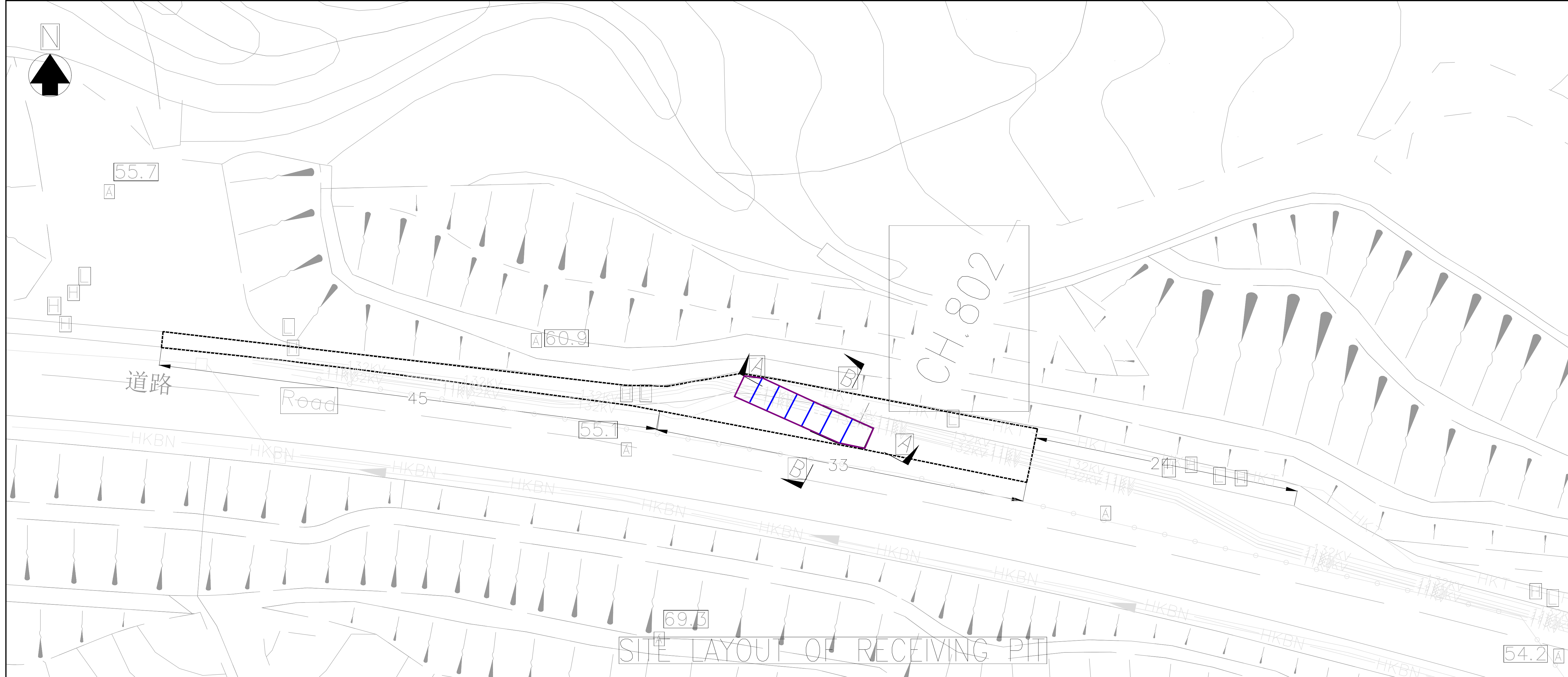
Date

Rev.

Appendix F

Scheme of Proposed Site Formation Works





TYPICAL SECTION OF HDPE PIPES
IN STEEL SLEEVE PIPE

