

28 February 2019

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd.  
The PRE's Office  
550 Cheung Tung Road, Lantau  
Hong Kong

Attention: Mr. Jason Yu

Dear Sir,

**Re: Agreement No. CE 48/2011 (EP)  
Environmental Project Office for the  
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities,  
and Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2013/03 – HZMB HKBCF – Vehicle Clearance Plazas and  
Ancillary Buildings and Facilities  
Monthly EM&A Report for January 2019**

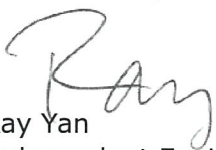
Reference is made to the Environmental Team (ET)'s submission of Monthly EM&A Report for January 2019 certified by the ET Leader (ET's ref.: "MCL/ED/0093/2019/C" dated 27 February 2019) and provided to us via e-mail on 28 February 2019.

We write to verify the captioned submission in accordance with Condition 5.4 of the Environmental Permit No. EP-353/2009/K.

The ET Leader is reminded that it is the ET's responsibility to ensure the report be timely submitted to the Director of Environmental Protection as per Condition 5.4 of EP-353/2009/K.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,  
For and on behalf of  
Ramboll Hong Kong Limited



Ray Yan  
Independent Environmental Checker

c.c.	HyD	Mr. Tony Pang	(By Fax: 3188 6614)
	HyD	Mr. Ken Woo	(By Fax: 3188 6614)
	MCL	Mr. Arthur Cheng	(By Fax: 2450 8032)
	CHEC	Mr. Johnason Ko	(By Fax: 2597 3368)

Internal: DY, YH, DF, HW, ENPO Site



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Date 27 February 2019

Our Ref. MCL/ED/0093/2019/C

Ramboll Hong Kong Limited  
(formerly Ramboll Environ Hong Kong Limited)  
21/F, BEA Harbour View Centre  
56 Gloucester Road, Wan Chai  
Hong Kong

BY HAND

Attn.: Mr. Ray Yan, IEC

Dear Sir,

**EP Condition 5.4 – Monthly EM&A Report for  
Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities –  
Vehicle Clearance Plazas and Ancillary Buildings and Facilities (Contract No. HY/2013/03)**

Pursuant to Condition 5.4 of the Environmental Permit (EP-353/2009/K) for the captioned project, we are pleased to submit the certified Monthly EM&A Report for January 2019 for your verification.

Should you require further information, please do not hesitate to contact our Mr. Vincent Lu at 3565 4158 or the undersigned at 3565 4115.

Yours faithfully,  
for and on behalf of  
MATERIALAB CONSULTANTS LIMITED

Arthur Cheng  
Environmental Team Leader

AC/vl

c.c. AECOM – Mr. P.K. Lee, Mr. C.Y. Yu  
RAMBOLL ENVIRON – Mr. Harris Wong  
CHEC – Mr. Marko Chan



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**Materialab**

Report No.: 0165/15/ED/1156

**MONTHLY ENVIRONMENTAL MONITORING & AUDIT  
REPORT**

**January 2019**

**Client:** China Harbour Engineering Co., Ltd.

**Project:** Contract No. HY/2013/03  
Hong Kong-Zhuhai-Macao Bridge  
Hong Kong Boundary Crossing Facilities -  
Vehicle Clearance Plazas and  
Ancillary Buildings and Facilities

**Report No.:** 0165/15/ED/1156

Prepared by: Vincent Lu

Certified by:   
Arthur Cheng  
Environmental Team Leader

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# **MaterialLab**

Report No.: 0165/15/ED/1156

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### EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. HY/2013/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities” (includes the construction works of Contract No. HY/2013/06 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System” within Contract No. HY/2013/03 works area) (hereafter referred to as “the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR). Contract No. HY/2013/03 was awarded to China Harbour Engineering Co. Limited (construction works of Contract No. HY/2013/06 was awarded to ATAL Technologies Limited within Contract No. HY/2013/03 works area) (hereafter referred to as “the Contractor”) and MaterialLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) by the Contractor.

Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) is part of the “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities” (HZMB HKBCF) Project which is a “Designated Project” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP-353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance Register.

Commencement of Contract No. HY/2013/03 took place on 10 April 2015 while the construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015 while the construction works and the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area commenced on 13 September 2016).

MaterialLab Consultants Limited (MCL) has been appointed by the Contractor to implement the Environmental Monitoring & Audit (EM&A) programme for the Contract in accordance with the Updated EM&A Manual for HKBCF (Version 1.0) and will be providing environmental team services for the Contract.

This is the 41st Monthly EM&A Report for the Contract which summaries findings of the EM&A programme during the reporting period from 1 January 2019 to 31 January 2019 (includes the findings of the EM&A programme of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area during the reporting period from 1 January 2019 to 31 January 2019) (the “reporting period”). The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual for HKBCF (Version 1.0). It should be noted that the air quality and noise monitoring works for the Contract are covered by Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Infrastructure Works Stage II (Southern Portion)” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS2, AMS3C, AMS6 and AMS7B, noise monitoring at NMS2 and NMS3C, water quality monitoring at the locations shown in **Figure 3** and ecological monitoring as shown in **Figure 4** as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/04 and HY/2011/03. However, this is subject to ENPO’s final decision on which ET should carry out the monitoring work at these stations.

The Bi-monthly Landscape Monitoring Report is shown in **Appendix H**.



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As all the sections under Contract No. HY/2013/03 and HY/2013/06 were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no site inspection was conducted except for bi-monthly landscape establishment monitoring.

### Breaches of Action and Limit Levels

Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

There was no Action and Limit Level exceedance recorded on other monitoring dates at station AMS2, AMS3C and AMS7B by the Environmental Team of Contract No. HY/2013/04 during the reporting period.

There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3C by the Environmental Team of Contract No. HY/2013/04 during the reporting period.

There was no Action and Limit Level exceedance for water quality recorded at the monitoring stations shown as shown at **Table 4.1** by the Environmental Team of Contract No. HY/2013/04 during the reporting period

Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/04.

### Complaint Log

There was no complaint received in relation to the environmental impact during the reporting period.

### Notifications of Summons and Successful Prosecutions

There was no notifications of summons or prosecutions received during this reporting period.

### Reporting Changes

There was no reporting change during the reporting period.

### Future Key Issues

The future key issues to be undertaken in the upcoming month are:

#### For Contract No. HY/2013/03

1. Maintenance Works at All Site Area;

#### For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

1. Maintenance Works at Vehicle Kiosk & Building 037

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## 1. INTRODUCTION

### 1.1 Background

1.1.1 Materialab Consultants Limited was commissioned by China Harbour Engineering Co. Limited (also referred to as “the Contractor”) to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for Contract No. HY/2013/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities” (includes the construction works of Contract No. HY/2013/06 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System” within Contract No. HY/2013/03 works area) (“the Contract”) for the Highways Department of Hong Kong Special Administrative Region (HKSAR).

1.1.2 Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) is part of Hong Kong–Zhuhai–Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) which is “Designated Projects”, under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap 499) and for which an EIA Report (Register No. AEIAR-145-2009) was prepared and approved. The current Environmental Permit (EP) for HKBCF, namely No. EP- 353/2009/K, was issued on 11 April 2016. These documents are available through the EIA Ordinance. The general layout of the Project area is shown in **Appendix A**.

1.1.3 This is the forty-first EM&A report to document the findings of site inspection activities and EM&A programme carried out by the Contractor of Contract No. HY/2013/03 (includes the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) from 1 January 2019 to 31 January 2019 (reporting period) under Contract No. HY/2013/03 (from 1 January 2019 to 31 January 2019 for the construction works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) and is submitted to fulfil Condition 5.4 of the EP.

### 1.2 Project Description

1.2.1 The works to be executed under Contract No. HY/2013/03 include the following major items:

- a. Cargo clearance facilities including kiosks for clearance of good vehicles, customs inspection platforms, X-ray building, etc.;
- b. Passenger related facilities including processing kiosks and examination facilities for private cars and coaches, annexure for examination of accompanying passengers of private cars, etc.;
- c. Accommodation/offices for the facilities (like fire station, police station, buildings for Immigration Department [ImmD], Hong Kong Customs and Excise Department [C&ED], Agriculture, Fisheries and Conservation Department [AFCD], Food and Environmental Hygiene Department [FEHD], Department of Health [DofH] etc.) of the Government departments providing services in connection with the HKBCF;
- d. Provision of transport and miscellaneous facilities inside the HKBCF including public transport interchange (PTI), transport drop-off and pick-up areas, vehicle holding areas, passenger queuing areas, road networks, footbridges, fencing, sewerage and drainage

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systems, sewage treatment plant and treated effluent disposal facilities, water supply system, building services works, electronic system, and traffic control and information system including traffic control and surveillance system (TCSS), etc.;

- e. Provision of roads connecting the BCF to the Hong Kong Link Road (HKLR), the Tuen Mun – Chek Lap Kok Link (TM-CLKL) and the Hong Kong International Airport (HKIA), expect the part of road works in HKIA entrusted to the HKLR project; and
- f. Reprovisioning of the affected HKIA’s facilities, expect those affected by the Automated People Mover (APM) system such as the existing east rescue berth.

1.2.2 The works to be executed under Contract No. HY/2013/06 within Contract No. HY/2013/03 works area include the following major items:

- a. The Automatic Vehicle Clearance Support System amid to increasing traffic flow for Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities;
- b. Responsible for designs and develops a set of tailor-made computer monitoring and control systems to for daily security operation; and
- c. The Clearance Workstations at 72 vehicle clearance kiosks, Customs and Excise’s inbound and outbound traffic control centers as well as a Vehicle Tracking System.

### 1.3 Project Organisation

1.3.1 The Project Organisation for Environmental Works of Contract No. HY/2013/03 is shown in **Appendix B**. The contact person and telephone numbers of key personnel for the captioned project are shown in **Table 1.1**:

Table 1.1 Contact Persons and Telephone Numbers of Key Personnel (for Contract No. HY/2013/03)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer’s Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. Jason C. Y. Yu	3152 5102	3902 8800
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
	Independent Environmental Checker (IEC)	Mr. Ray Yan	3465 2836	3465 2899
	Environmental Site Supervisor	Mr. Harris Wong	5181 8709	3465 2899
Contractor (China Harbour Engineering Co. Ltd)	Site Agent	Mr. Paul Pui	9125 0700	2512 0427
	Environmental Officer	Mr. Marko Chan	9427 2879	2512 0427
Environmental Team (MaterialLab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	5236 7111	--

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1.3.2 The Project Organisation for Environmental Works of Contract No. HY/2013/06 within Contract No. HY/2013/03 works area is shown in **Appendix B**. The contact person and telephone numbers of key personnel for the captioned project are shown in **Table 1.2**:

Table 1.2 Contact Persons and Telephone Numbers of Key Personnel (for Contract No. HY/2013/06 within Contract No. HY/2013/03 works area)

Party	Position	Contact Person	Telephone No.	Fax No.
Engineer or Engineer's Representative (AECOM Asia Co. Ltd.)	Chief Resident Engineer	Mr. Jason C. Y. Yu	3152 5102	3902 8800
Environmental Project Office / Independent Environmental Checker (Ramboll Hong Kong Limited)	Environmental Project Office Leader	Mr. Y. H. Hui	3547 2133	3465 2899
	Independent Environmental Checker (IEC)	Mr. Ray Yan	3465 2836	3465 2899
	Environmental Site Supervisor	Mr. Harris Wong	5181 8709	3465 2899
Contractor (ATAL Technologies Limited)	Site Agent	Mr. Eric Yim	2565 3355	3162 5217
	Environmental Officer	Mr. W. Li	2565 3137	3162 5217
Environmental Team (MaterialLab Consultants Limited)	Environmental Team Leader (ETL)	Mr. Arthur Cheng	3565 4115	2450 8032
24-hr Complaint Hotline	--	--	6509 0375	--

1.3.3 The Contract HY/2013/03 has commenced on 10 April 2015. The commencement of construction works and the EM&A programme have commenced on 29 August 2015.

1.3.4 The Contract HY/2013/06 has commenced on 14 August 2015. The commencement of construction works and the EM&A programme have commenced on 13 September 2016 within Contract No. HY/2013/03 works area.

## 1.4 Construction Programme

1.4.1 As all the sections under Contract No. HY/2013/03 and HY/2013/06 were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no construction programme will be provided.

## 1.5 Construction Works Undertaken during the Reporting Period

1.5.1 The construction works of Contract No. HY/2013/03 commenced on 29 August 2015 (includes the construction works of Contract No. HY/2013/06 commenced on 13 September 2016 within Contract No. HY/2013/03 works area). During this reporting period, the following major site activities were commenced:

### For Contract No. HY/2013/03

1. Maintenance Works at All Site Area;

### For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

1. Maintenance Works at Vehicle Kiosk & Building 037



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**2. AIR QUALITY MONITORING**

**2.1 Monitoring Locations**

2.1.1 The air quality monitoring works for the Contract are covered by Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao-Bridge HKBCF – Infrastructure Works Stage II (Southern Portion)” and Contract No. HY/2011/03 “Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between Scenic Hill and HKBCF”. The ET of the Contract or another ET of the HZMB project is required to conduct impact air quality monitoring at AMS2, AMS3C, AMS6 and AMS7B as part of EM&A programme if these air quality monitoring stations are no longer covered under Contract No. HY/2013/04 and HY/2011/03. **Figure 1** shows the locations of air monitoring stations.

Table 2.1 Air Quality Monitoring Location

Air Monitoring Station	Location
AMS2	Thung Chung Development Pier
AMS3C	Ying Tung Estate Market Rooftop
AMS6	Dragonair/CNAC (Group) Building (A80)
AMS7B	3RS Site Offices

**2.2 Monitoring Requirements**

2.2.1 The monitoring requirements, equipment, parameters, frequency and duration, methodology, schedule, and meteorological information are described in the monthly EM&A Reports prepared for Contract No. HY/2013/04 and HY/2011/03.

2.2.2 The Action and Limit levels for 1-hr TSP and 24-hr TSP are summarized in **Table 2.2**.

Table 2.2 Action and Limit Levels for Air Quality

Monitoring Station	Action Level (µg/m³)	Limit Level (µg/m³)
<b>1 hour TSP</b>		
AMS2	374	500
AMS3C	368	
AMS6	360	
AMS7B	370	
<b>24 hours TSP</b>		
AMS2	176	260
AMS3C	167	
AMS6	173	
AMS7B	183	

2.2.3 The event and action plan is provided in **Appendix C**.

2.2.4 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

**2.3 Monitoring Results**

2.3.1 The monitoring results for AMS2, AMS6 and AMS3C and AMS7B are reported in the monthly EM&A Reports prepared for Contract No. HY/2011/03 and HY/2013/04 respectively for the reporting month.

2.3.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.

2.3.3 There was no Action and Limit Level exceedances of 1-hr TSP level and 24-hr TSP level recorded at station AMS2, AMS3C and AMS7B as referred to the Environmental Team of Contract No. HY/2013/04 during the reporting period.

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**3. NOISE MONITORING**

**3.1 Monitoring Locations**

3.1.1 The noise monitoring works for the Contract are covered by Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao Bridge HKBCF – Infrastructure Works Stage II (Southern Portion)”. The ET of the Contract or another ET of the HZMB project is required to conduct noise monitoring at NMS2 and NMS3C as part of EM&A programme if these monitoring stations are no longer covered under Contract No. HY/2013/04. **Figure 2** shows the locations of noise monitoring stations.

Table 3.1 Construction Noise Monitoring Location

ID No.	Description
NMS2	Seaview Crescent
NMS3C	Ying Tung Estate Refuse Collection Point

**3.2 Monitoring Requirements**

3.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology and monitoring schedule are detailed in the monthly EM&A Reports prepared for Contract No. HY/2013/04.

3.2.2 The Action and Limit Levels for construction noise are defined in **Table 3.2**.

Table 3.2 Action and Limit Level for Construction Noise

Monitoring Station	Action Level	Limit Level
<b>For the Time Period 0700-1900 hrs. on Normal Weekdays</b>		
NMS2	When one documented complaint is received	75.0 dB (A) Leq (30 min.)
NMS3C		70.0 dB (A) Leq (30 min.)*

Notes: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

\* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination period

**3.3 Monitoring Results**

3.3.1 The monitoring result for NMS2 and NMS3C is reported in the monthly EM&A Reports prepared for Contract No. HY/2013/04. No noise exceedance was recorded at stations NMS2 and NMS3C by the ET of Contract No. HY/2013/04 during the reporting period.

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## 4. WATER QUALITY MONITORING

### 4.1 Monitoring Locations

4.1.1 The water monitoring works for the Contract are covered by Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao-Bridge HKBCF – Infrastructure Works Stage II (Southern Portion)”. The ET of the Contract or another ET of the HZMB project is required to conduct impact water quality monitoring at the stations shown in **Table 4.1** and **Figure 3**.

Table 4.1 Water Quality Monitoring Stations

Station	Description	Easting	Northing
IS5	Impact Station (Close to HKBCF construction site)	811579	817106
IS(Mf)6	Impact Station (Close to HKBCF construction site)	812101	817873
IS7	Impact Station (Close to HKBCF construction site)	812244	818777
IS8	Impact Station (Close to HKBCF construction site)	814251	818412
IS(Mf)9	Impact Station (Close to HKBCF construction site)	813273	818850
IS10(N)	Impact Station (Close to HKBCF construction site)	812942	820881
IS(Mf)11	Impact Station (Close to HKBCF construction site)	813562	820716
IS(Mf)16	Impact Station (Close to HKBCF construction site)	814328	819497
IS17	Impact Station (Close to HKBCF construction site)	814539	820391
SR3(N)	Sensitive receivers (San Tau SSSI)	810689	816591
SR4(N)	Sensitive receivers (Tai Ho)	814705	817859
SR5(N)	Control Station	812569	821475
SR6	Sensitive receivers (Sha Chau and Lung Kwu Chau Marine Park)	805837	821818
SR7	Sensitive receivers (Tai Mo Do)	814293	821431
SR10A(N) <sup>(1)</sup>	Sensitive receivers (Ma Wan FCZ) 1	823644	823484
SR10B(N2) <sup>(1)</sup>	Sensitive receivers (Ma Wan FCZ) 2	823689	823159
CS(Mf)3(N)	Control Station	808814	822355
CS(Mf)5	Control Station	817990	821129
CS4	Control Station	810025	824004
CS6	Control Station	817028	823992
CSA <sup>(2)</sup>	Control Station	818103	823064

Note:

<sup>(1)</sup> Additional monitoring station for Ma Wan FCZ<sup>(2)</sup> Additional control monitoring station for Ma Wan FCZ

Remarks:

The ET of the Contract should conduct impact water quality monitoring at the WQMs listed in the table as part of EM&A programme according to latest notification from ENPO if water quality monitoring is no longer covered by another ET of the HZMB project. The ET of the Contract shall communicate and share the monitoring data to the ET(s) of the other contracts if the water quality monitoring station(s) is/are as part of EM&A programme.

### 4.2 Monitoring Requirements

4.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared by Contract No. HY/2013/04.

4.2.2 The event and action plan is provided in **Appendix C**.

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4.2.3 The Action and Limit Levels for Water Quality are provided in **Table 4.2**.

Table 4.2 Action and Limit Levels for Water Quality

Parameters	Action	Limit
DO in mg/L (Surface, Middle & Bottom)	Surface and Middle 5.0 Bottom 4.7	Surface and Middle = 4.2 (except 5 mg/L for FCZ) Bottom = 3.6
SS in mg/L (depth-averaged) at all monitoring stations and control stations	23.5 and 120% of upstream control station's SS at the same tide of the same day*	34.4 and 130% of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes*
Turbidity in NTU (depth-averaged)	27.5 and 120% of upstream control station's turbidity at the same tide of the same day*	47.0 and 130% of upstream control station's turbidity at the same tide of the same day*

\* Remarks: Reference is made to EPD approval of adjustment of water quality assessment criteria issued and became effective on 18 February 2013.

Notes:

- "depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.
- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
- The 1%-ile of baseline data for dissolved oxygen (surface and middle) and dissolved oxygen (bottom) are 4.2mg/L and 3.6mg/L respectively.

4.2.4 If exceedance(s) at these stations is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

### 4.3 Monitoring Results

4.3.1 The monitoring and investigation results for the monitoring stations showed in **Table 4.1** are reported in the monthly EM&A Report prepared for Contract No. HY/2013/04. There was no Action and Limit Level exceedance during the reporting period.



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**5. ECOLOGY MONITORING**

**5.1 Monitoring Locations**

5.1.1 The ecological monitoring works for the Contract are covered by Contract No. HY/2013/04 “Hong Kong-Zhuhai-Macao-Bridge HKBCF – Infrastructure Works Stage II (Southern Portion)”. The ET of the Contract or another ET of the HZMB project is required to conduct dolphin monitoring at 24 transects as part of EM&A programme if these transects are no longer covered under Contract No. HY/2013/04. The ecological monitoring should adopt line-transect vessel survey method. The survey follows pre-set and fixed transect lines in the two areas defined by AFCD as: Northeast Lantau survey area; and Northwest Lantau survey area. **Figure 4** shows the co-ordinates for the transect lines and layout map.

Remarks:

The ET of this Contract should conduct impact ecological monitoring as part of EM&A programme according to latest notification from ENPO when the monitoring transect(s) is/are no longer covered by another ET of the HZMB project.

**5.2 Monitoring Requirements**

5.2.1 The monitoring requirements, monitoring equipment, monitoring parameters, frequency and duration, monitoring methodology, monitoring schedule, meteorological information are detailed in the monthly EM&A Reports prepared by Contract No. HY/2013/04.

5.2.2 The event and action plan is provided in **Appendix C**.

5.2.3 The Action and Limit Levels for Chinese White Dolphin Monitoring are provided in **Table 5.1(a) & Table 5.1(b)**.

**Table 5.1(a)** Action and Limit Levels for Chinese White Dolphin Monitoring - Approach to Define Action Level (AL) and Limit Level (LL)

	North Lantau Social Cluster	
	NEL	NWL
Action Level	(STG < 70% of baseline) & (ANI < 70% of baseline)	(STG < 70% of baseline) & (ANI < 70% of baseline)
Limit Level	[(STG < 40% of baseline) & (ANI < 40% of baseline)] AND [(STG < 40% of baseline) & (ANI < 40% of baseline)]	

For North Lantau Social Cluster, action level will be trigger if either NEL or NWL fall below the criteria; limit level will be triggered if both NEL and NWL fall below the criteria.

**Table 5.2(b)** Derived Value of Action Level (AL) and Limit Level (LL) for Chinese White Dolphin Monitoring

	North Lantau Social Cluster	
	NEL	NWL
Action Level	(STG < 4.2) & (ANI < 15.5)	(STG < 6.9) & (ANI < 31.3)
Limit Level	[(STG < 2.4) & (ANI < 8.9)] AND [(STG < 3.9) & (ANI < 17.9)]	

5.2.4 If exceedance(s) at these transects is/are recorded by the ET of the Contract or referred by the other ET under the HZMB project to the Contract, the ET of the Contract will carry out an investigation and findings will be reported in the monthly EM&A Report.

**5.3 Monitoring Result**

5.3.1 The dolphin survey results for all transects are reported in the monthly EM&A Reports prepared by Contract No. HY/2013/04.

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## **6. DISPOSAL OF MARINE SEDIMENT EXTRACTED FROM BORED PILING WORKS**

### **6.1 Background**

- 6.1.1 After the acceptance of the review of the approved Sediment Quality Report (SQR) for this Project under EPD letter dated 19 August 2015, an approval to dispose the marine sediment extracted from bored piling for this Project was then approved under memo from Secretary, Marine Fill Committee of CEDD dated 20 August 2015 for the disposal of marine sediment extracted from bored piling works. The disposal site allocated to this Project is the Mud Pit CMP Vd of the Confined Marine Sediment Disposal Facility to the East of Sha Chau (ESC) during this reporting period.
- 6.1.2 No extracted marine sediment was treated using cement solidification/stabilisation (Cement S/S) techniques under Contract No. HY/2013/03 during this reporting period. The marine sediment extracted from this Contract was disposed to the MFC allocated disposal sites directly without treatment during this reporting period. As a practical means, the disposal operation is managed by one contractor who is also responsible for applying dumping permit and its subsequent extension applications from EPD. Contract No. HY/2013/03 has been assigned to coordinate and arrange for disposal of extracted marine sediment from all three Contracts (Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04).

### **6.2 Dumping Arrangements**

- 6.2.1 The barge for disposal of marine sediment was morn at the temporary loading and unloading at the east shore of the HKBCF Island, which has been being used by reclamation contractor (Contract No. HY/2010/02) for reclamation activities. In terms of safety consideration and to avoid mixing of sediment between contracts, each dumping date was allocated to one Contract. The quantity of marine sediment disposed on each date was from one Contract.
- 6.2.2 During dumping, Contractor of Contract No. HY/2013/03 is responsible for transporting the marine sediment from the site area of Contract No. HY/2013/03 to the barge. The estimated quantity of marine sediment in each truck is confirmed by Resident Site Staff of Contract Nos. HY/2013/02, HY/2013/03 and HY/2013/04. The trip tickets for transportation and disposal of marine sediment are collected and checked. Contract No. HY/2013/03 as the dumping permit holder is responsible for reporting to EPD the quantity disposed of as the condition stipulated in the dumping permit. The disposal site allocated to this Project is the Mud Pit CMP Vd of the Confined Marine Sediment Disposal Facility to the East of Sha Chau (ESC) during this reporting period.

### **6.3 Quantity Disposed**

- 6.3.1 No marine sediment extracted from bored piling from this Contract was disposed to allocated dumping site in September 2017. As confirmed by RSS, all marine sediments extracted from HY/2013/02, HY/2013/03 and HY/2013/04 have been completed with the last batch disposal on 30 August 2017. The total disposed quantity up to the last batch is 114.088 (in'000m<sup>3</sup>). The summary of marine sediment disposed up to end August 2017 is shown in the following table:

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Table 6.1 Summary of Marine Sediment Disposed to Dumping Site

Month/Year	Quantity disposed (in'000m <sup>3</sup> )			
	HY/2013/02	HY/2013/03	HY/2013/04	Total
Jan 2016	1.272	1.950	0.800	4.022
Feb 2016	2.816	2.328	0.704	5.848
Mar 2016	0.600	2.464	3.942	7.006
Apr 2016	5.128	5.602	5.028	15.758
May 2016	0.000	0.000	0.000	0.000
Jun 2016	1.200	4.584	1.578	7.362
<b>Sub-Total</b>	<b>11.016</b>	<b>16.928</b>	<b>12.052</b>	<b>39.996</b>
Jul 2016	0.728	10.728	3.690	15.146
Aug 2016	1.784	1.544	4.428	7.756
Sep 2016	2.328	6.816	3.888	13.032
Oct 2016	1.096	2.376	5.286	8.758
Nov 2016	0.000	0.000	0.000	0.000
Dec 2016	1.568	4.960	2.538	9.066
Cat L in Dec 2016	0.000	2.792	3.570	6.362
<b>Sub-Total</b>	<b>18.520</b>	<b>46.144</b>	<b>35.452</b>	<b>100.116</b>
Jan 2017	0.000	0.656	6.552	7.208
Feb 2017	0.088	0.264	1.380	1.732
Mar 2017	0.000	0.000	0.000	0.000
Apr 2017	0.624	1.288	0.000	1.912
May 2017	0.000	1.440	0.000	1.440
June 2017	1.432	0.000	0.000	1.432
July 2017	0.000	0.000	0.000	0.000
August 2017	0.000	0.248	0.000	0.248
<b>Total</b>	<b>20.664</b>	<b>50.040</b>	<b>43.384</b>	<b>114.088</b>

Note: All sediments are in Type II disposal method except Cat L (in Type I)

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**7. ENVIRONMENTAL SITE INSPECTION AND AUDIT****7.1 Site Inspection**

7.1.1 As all the sections under Contract No. HY/2013/03 were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no site inspection was conducted except for bi-monthly landscape establishment monitoring.

7.1.2 The landscape work of green roof for Contract No. HY/2013/03 was commenced on 7 November 2017. The landscape work of all areas at ground level for Contract No. HY/2013/03 was commenced at early February 2018. Detail commencement date of each building were shown in **Table 7.1**.

Table 7.1 Commencement date of green roof for each building

Building No. of Green Roof	Commencement dates of planting for roof greening
037	7 Nov 2017
043	20 Dec 2017
041	27 Dec 2017
026	22 Jan 2018
039	22 Jan 2018
All areas at ground level	Early Feb 2018
031	8 Mar 2018
046	8 Mar 2018

**7.2 Landscape Establishment Monitoring**

7.2.1 During the reporting period, bi-monthly landscape establishment monitoring for Contract No. HY/2013/03 was conducted on 25 January 2019. The corresponding landscape monitoring report is presented in **Appendix H**.

**7.3 Advice on the Solid and Liquid Waste Management Status**

7.3.1 The Contractor of Contract No. HY/2013/03 registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

7.3.2 The monthly summary of waste flow table for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) are detailed in **Appendix D**.

7.3.3 Contract No. HY/2013/03 has been assigned to arrange for delivery of surplus filling materials from Contract No. HY/2013/03 to other projects, including Tuen Mun - Chek Lap Kok Link (TM-CLKL) project of HZMB, the Airport Authority Hong Kong's Three Runway (3RS) Project, Wan Chai Development Phase II project, Contract No. HY/2013/02 of HKBCF and Hong Kong Link Road (HKLR) project of HZMB. As confirmed by RSS, all surplus filling materials delivery to other projects have been completed with the last batch on 7 May 2018. The total transported quantity up to the last batch is 379.48358 (in'000m<sup>3</sup>). The summary of surplus filling materials delivered to other projects up to the end of May 2018 is shown in **Table 7.2**.



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Table 7.2 Summary of Surplus Filling Materials Delivered from Contract No. HY/2013/03 to other projects

Month/Year	Density (in tonnes/m <sup>3</sup> )	Quantity disposed (in '000m <sup>3</sup> )					Total
		To HY/2013/02	To TM-CLKL Project	To 3RS Project	To WDII Project	To HKLR Project	
May 2017	2.3	0	12.637	0	0	0	12.637
June 2017	2.63925	0	14.769	11.238	0	0	26.007
July 2017	1.9	0	4.406	34.875	10.048	0.760	50.089
August 2017	1.9	0.480	0	67.942	2.761	7.455	78.638
September 2017	1.9	5.544	0	62.770	0	4.648	72.962
October 2017	/	3.384	0	45.92809	0	0	49.31209
November 2017	/	5.412	0	5.507	0	0	10.919
December 2017	/	12.57173	0	0	0	0	12.57173
January 2018	/	10.228	0	0	0	0	10.228
February 2018	/	0	0	0	0	0	0
March 2018	/	0.45276	0	0	0	0	0.45276
April 2018	/	0	42.544	0	0	0	42.544
May 2018	/	0	13.123	0	0	0	13.123
<b>Total</b>	/	<b>38.07249</b>	<b>87.479</b>	<b>228.26009</b>	<b>12.809</b>	<b>12.863</b>	<b>379.48358</b>

Remarks:

- The variation in density is due to different compositions of surplus filling materials
- There may be discrepancies in the total quantities with the quantities of inert C&D materials stated in Appendix D and section 7.2.4, due to rounding errors
- No density was given from October 2017 to May 2018 due to the direct volume figures as provided and confirmed by the RSS

7.3.4 0.000 (in'000m<sup>3</sup>) of excavated marine sediment (from Contract No. HY/2013/03), 0.000 (in'000m<sup>3</sup>) of Inert C & D Wastes and 0.000 (in'000m<sup>3</sup>) of Non-inert C & D Wastes were generated (from Contract No. HY/2013/03) in this reporting period. 0.000 (in'000m<sup>3</sup>) of Inert C & D Wastes were reused in other projects and 0.000 (in'000m<sup>3</sup>) of Inert C & D Wastes was disposed as public fill. 0.000 (in tonnes) of Inert C & D Wastes and 0.000 (in tonnes) of Non-inert C & D Wastes were generated (from Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) in this reporting period. 0.000 (in tonnes) metals were generated and recycled (from Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) in this reporting period.

7.3.5 The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

## 7.4 Environmental Licenses and Permits

7.4.1 The valid environmental licenses and permits for Contract No. HY/2013/03 (includes Contract No. HY/2013/06 within Contract No. HY/2013/03 works area) during the reporting period are summarized in **Appendix E**. The Contractor of Contract No. HY/2013/06 was advised to register as a chemical waste producer when chemical waste is expected to generate for the foreseeable future from the operations (For Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation).

## 7.5 Implementation Status of Environmental Mitigation Measures

7.5.1 In response to the site audit findings, the Contractor carried out corrective actions.

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- 7.5.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix F**. All necessary mitigation measures at this stage of works were implemented properly.
- 7.5.3 As confirmed by RSS, all surplus filling materials transported from Contract No. HY/2013/03 to other projects by marine vessels have been completed with the last batch delivered on 24 March 2018.
- 7.5.4 With respect to condition 3.26A of EP-353/2009/K approved by EPD on 11 April 2016, the numbers and operating periods of floating grout production facilities and floating concrete batching plants on-site to review on the compliance to this EP condition were checked. Under Contract No. HY/2013/03, no floating concrete batching plant was operated on-site during the reporting period.
- 7.5.5 As all the works in Box Culvert B had been completed, the silt curtain was uninstalled in July 2018. The Dolphin Watching Plan (DWP) is no longer applicable.

## **7.6 Summary of Exceedance of the Environmental Quality Performance Limit**

- 7.6.1 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 7.6.2 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS2, AMS3C and AMS7B by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 7.6.3 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and station NMS3C by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 7.6.4 Summary of Action and Limit Level exceedance of water quality at the monitoring stations shown as shown at **Table 4.1** shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/04.
- 7.6.5 There was no Action and Limit Level exceedance of water quality recorded at the monitoring stations as shown at **Table 4.1** by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 7.6.6 Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/04.

## **7.7 Summary of Complaints, Notification of Summons and Successful Prosecution**

- 7.7.1 There was no complaint received in relation to the environmental impact during the reporting period. The details of cumulative statistics of Environmental Complaints are provided in **Appendix G**.
- 7.7.2 There was no notification for summons or prosecutions received in relation to the environmental impact during this reporting period.
- 7.7.3 Statistics on environmental complaints, notifications of summons and successful prosecutions are provided in **Appendix G**.

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## **8. FUTURE KEY ISSUES**

### **8.1 Construction Programme for the Coming Months**

8.1.1 As informed by the Contractor, the following are the major construction activities anticipated in February 2019:

For Contract No. HY/2013/03

1. Maintenance Works at All Site Area;

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

1. Maintenance Works at Vehicle Kiosk & Building 037.

### **8.2 Environmental Site Inspection Schedule for the Coming Month**

8.2.1 As all the sections under Contract No. HY/2013/03 and HY/2013/06 were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area, no site inspection will be conducted.

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**9. CONCLUSIONS**

- 9.1 Commencement of Contract No. HY/2013/03 took place on 10 April 2015. The commencement date for construction works and the EM&A programme of Contract No. HY/2013/03 commenced on 29 August 2015 (commencement of Contract No. HY/2013/06 took place on 14 August 2015. The commencement date for construction works and the EM&A programme of Contract No. HY/2013/06 commenced on 13 September 2016 within Contract No. HY/2013/03 works area).
- 9.2 Summary of Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level at AMS6 shall be referred to the monthly EM&A report prepared by Contract No. HY/2011/03.
- 9.3 There was no Action and Limit Level exceedance of 1-hr TSP level and 24-hr TSP level recorded at station AMS2, AMS3C and AMS7B by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 9.4 There was no Action and Limit Level exceedance for noise recorded at station NMS2 and NMS3C by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 9.5 Summary of Action and Limit Level exceedance of water quality at the monitoring stations shown as shown at **Table 4.1** shall be referred to the monthly EM&A report prepared by Contract No. HY/2013/04.
- 9.6 There was no Action and Limit Level exceedance of water quality recorded at the monitoring stations shown as shown at **Table 4.1** by the Environmental Team of Contract No. HY/2013/04 during the reporting period.
- 9.7 Ecological monitoring results at all transects are reported in the EM&A report prepared by Contract No. HY/2013/04.
- 9.8 No site inspection except for bi-monthly landscape establishment monitoring was carried out during the reporting period as all the sections under Contract No. HY/2013/03 and HY/2013/06 were handed over to the relevant authorities on 24 October 2018 and the site had been changed to a closed area.
- 9.9 The Bi-monthly Landscape Monitoring Report is shown in **Appendix H**.
- 9.10 There was no complaint received in relation to the environmental impact during the report period.
- 9.11 There were no notifications of summons or prosecutions received during the reporting period.

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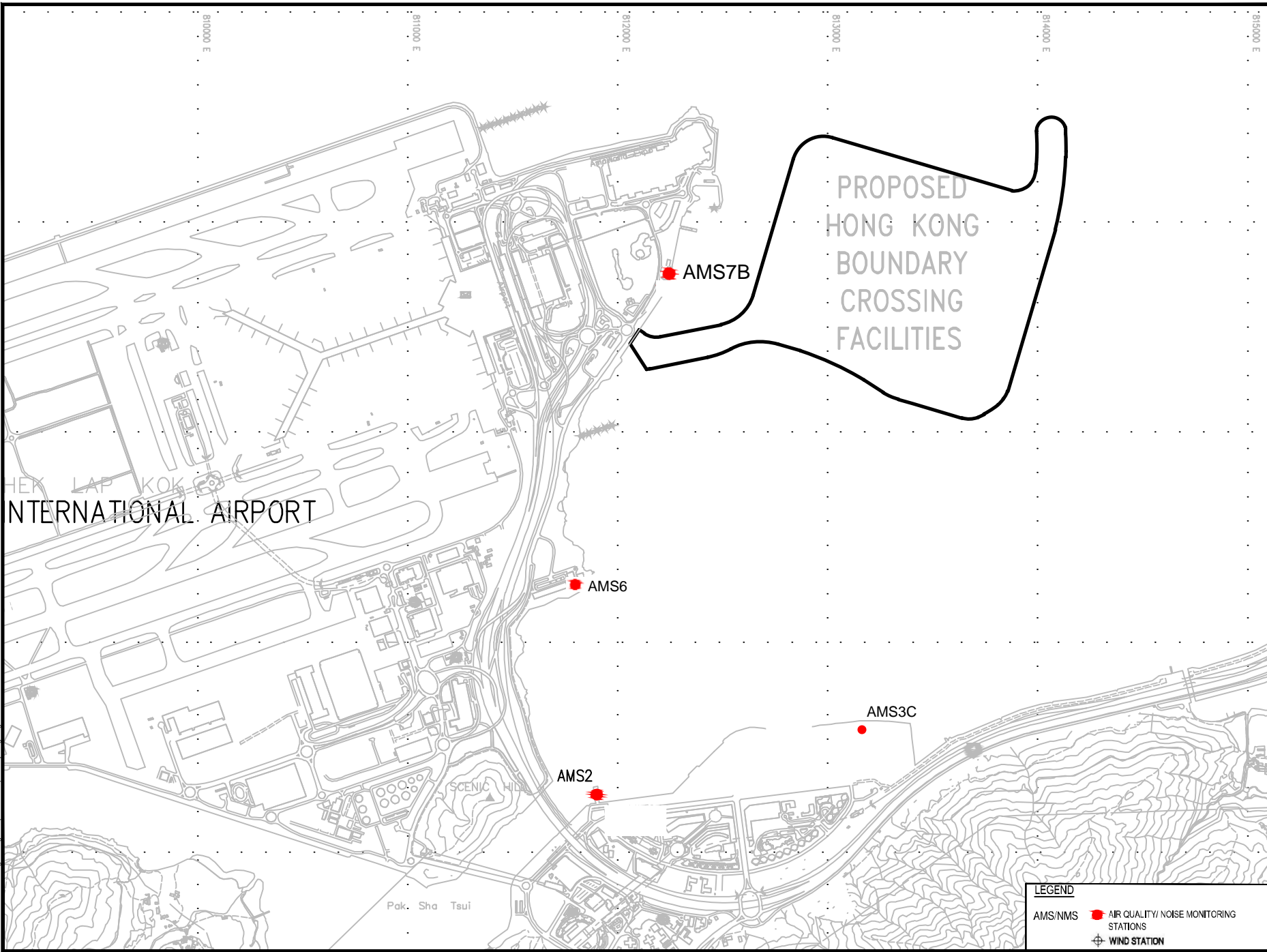
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## Figure 1

### Air Quality Monitoring Stations



LEGEND	
AMS/NMS	AIR QUALITY/ NOISE MONITORING STATIONS
	WIND STATION

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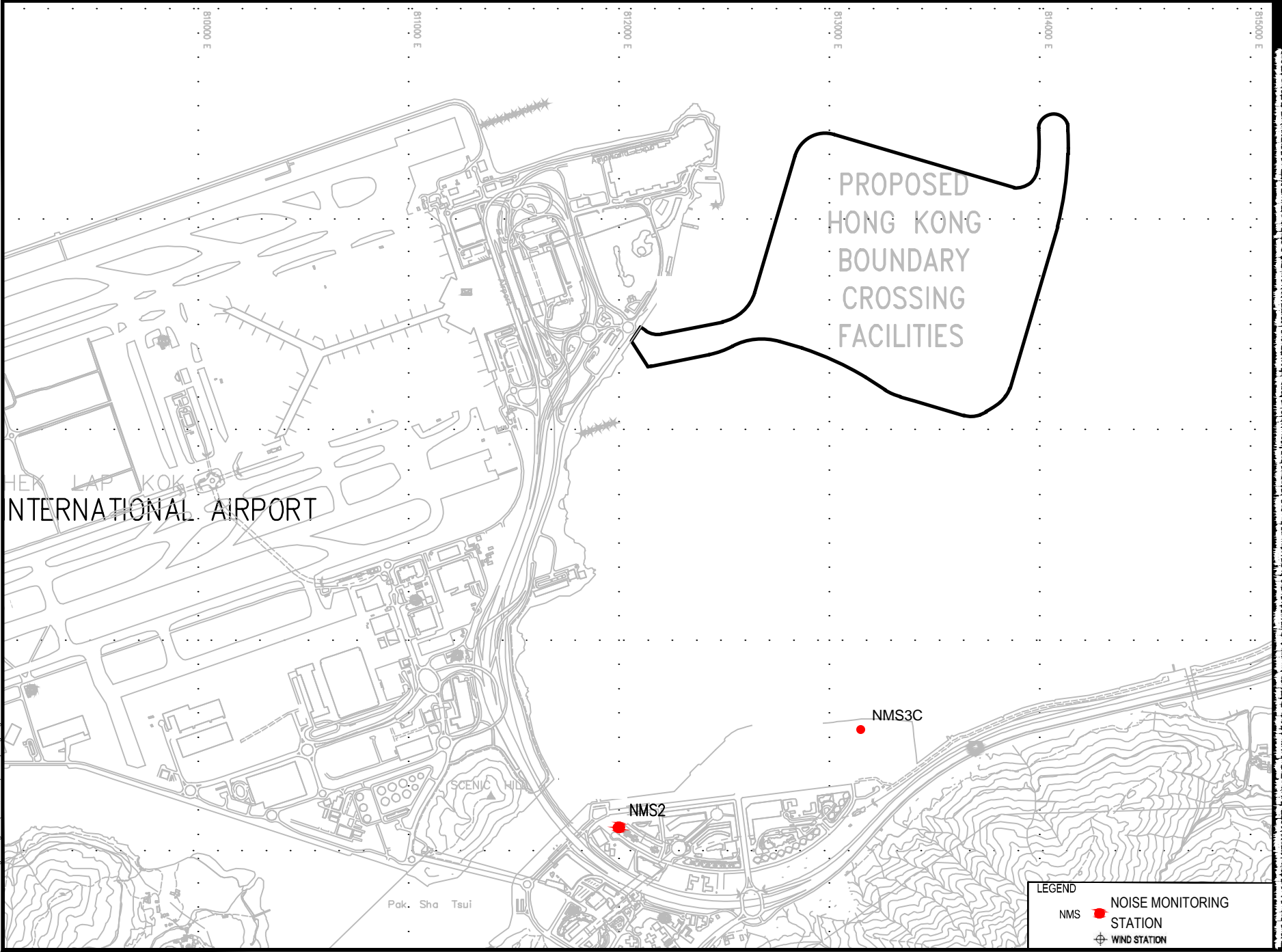
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### **Figure 2**

### **Noise Monitoring Stations**





LEGEND	
NMS	NOISE MONITORING STATION
⊕	WIND STATION

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### **Figure 3**

#### **Water Quality Monitoring Stations**





**LEGEND**

- IS IMPACT STATIONS
- CS CONTROL / FAR FIELD STATIONS
- △ SR SENSITIVE RECEIVERS STATIONS

FIGURE 4.1— LOCATION OF WATER QUALITY MONITORING STATIONS

SETTING OUT SCHEDULE

MONITORING STATIONS	CO-ORDINATES	
	EASTING	NORTHING
IS5	811579	817106
IS(MF)6	812101	817873
IS7	812244	818777
IS8	814251	818412
IS(MF)9	813273	818850
IS10	812577	820670
IS10(N)	812942	820455
IS(MF)11	813562	820716
IS(MF)16	814328	819497
IS17	814539	820391
SR3(N)	<b>810689</b>	<b>816591</b>
SR4(N)	814705	817859
SR5	811489	820455
SR5(N)	812569	821475
SR6	805837	821818
SR7	814293	821431
SR10A(N)	<b>823644</b>	<b>823484</b>
SR10B(N2)	<b>823689</b>	<b>823159</b>
CS(MF)3	809989	821117
CS(MF)3(N)	808814	822355
CS(MF)5	817990	821129
CS4	810025	824004
CS6	817028	823992
CSA	818103	823064



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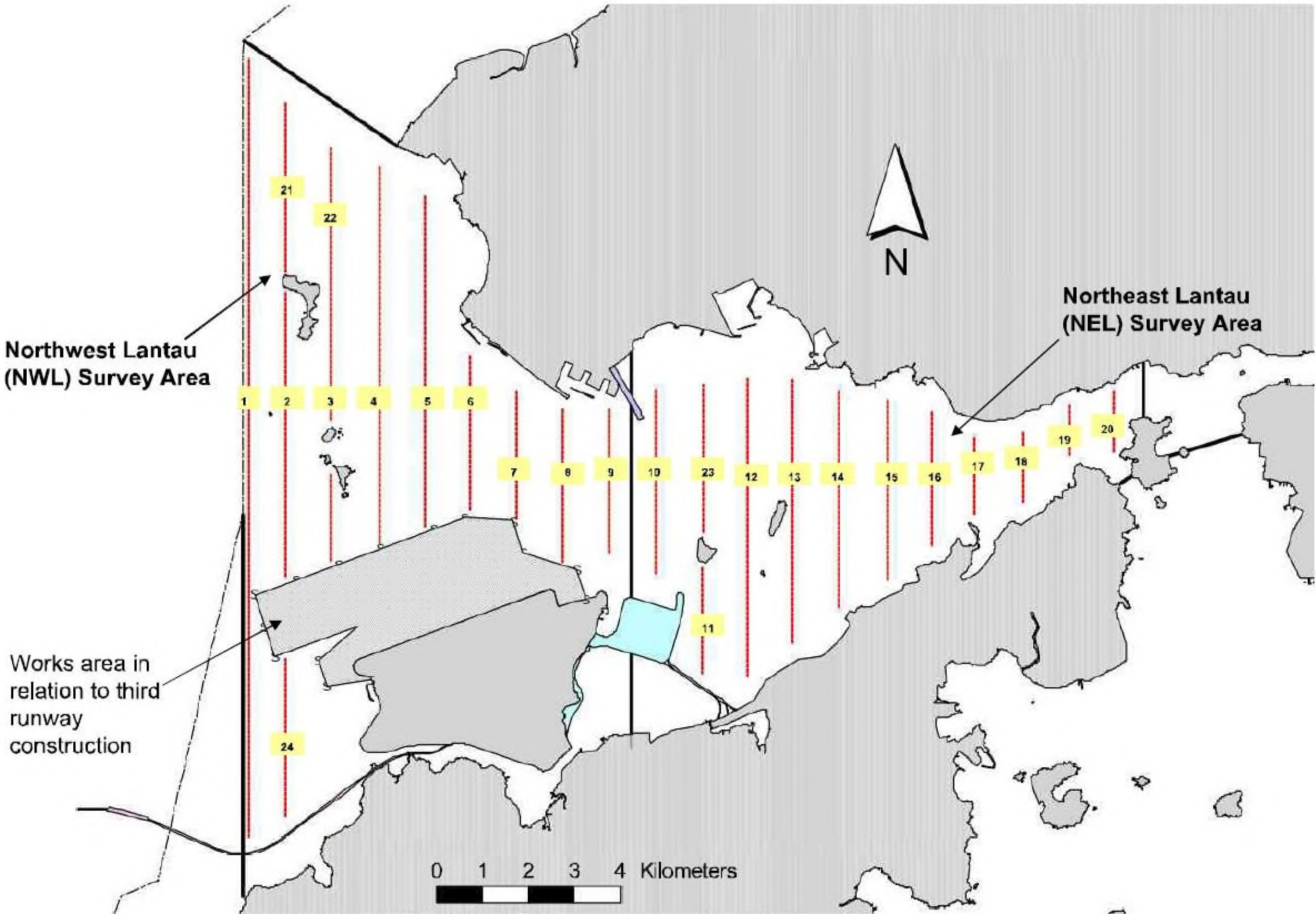
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### **Figure 4**

#### **Ecological Monitoring Transect Line and Layout Map**



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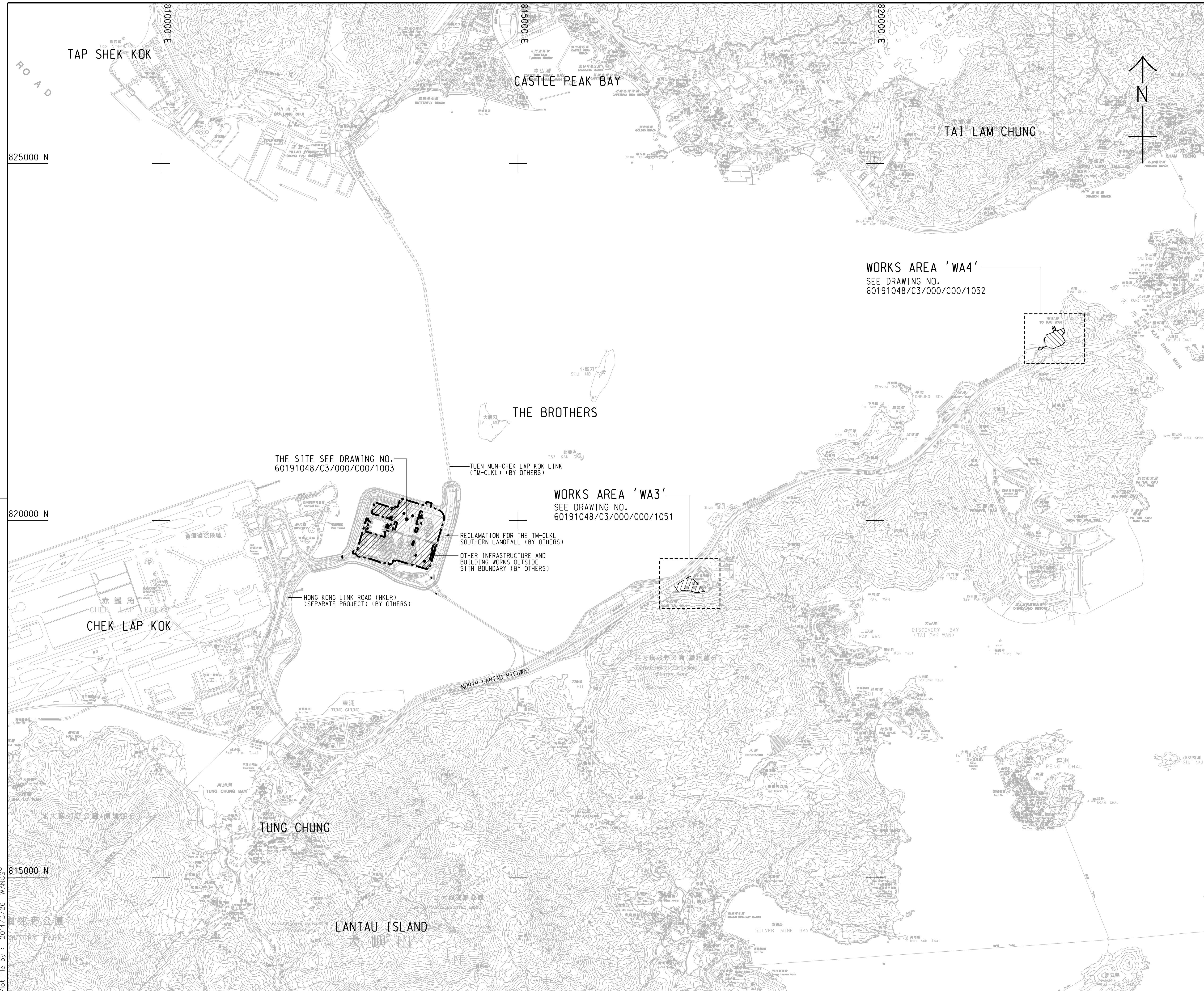
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### **Appendix A**

#### **Location of Works Areas**





- NOTES:**
1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
  2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
  3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C3/000/C00/1051 TO 1053.

- LEGEND:**
- SITE BOUNDARY
  - ▨ WORKS AREA

THE SITE SEE DRAWING NO. 60191048/C3/000/C00/1003

TUEN MUN-CHEK LAP KOK LINK (TM-CLKL) (BY OTHERS)

**WORKS AREA 'WA3'**  
SEE DRAWING NO. 60191048/C3/000/C00/1051

RECLAMATION FOR THE TM-CLKL SOUTHERN LANDFALL (BY OTHERS)  
OTHER INFRASTRUCTURE AND BUILDING WORKS OUTSIDE SITE BOUNDARY (BY OTHERS)

HONG KONG LINK ROAD (HKLR) (SEPARATE PROJECT) (BY OTHERS)

**WORKS AREA 'WA4'**  
SEE DRAWING NO. 60191048/C3/000/C00/1052

- TENDER DRAWING		BSC	SCI	MAR. 14
REV. 修改	DESCRIPTION 內容摘要	D.C. 檢閱	C.C. 查閱	DATE 日期

**路政署 HIGHWAYS DEPARTMENT**  
港珠澳大橋香港工程管理處  
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- VEHICLE CLEARANCE PLAZAS AND  
ANCILLARY BUILDINGS AND FACILITIES

**SITE LOCATION PLAN**

**AECOM** + +  
Rogers Stirk Harbour + Partners  
BURO HAPPOLD ATKINS ADI + +  
**Aedas**

DRG. NO. 60191048/C3/000/C00/1000  
圖紙編號

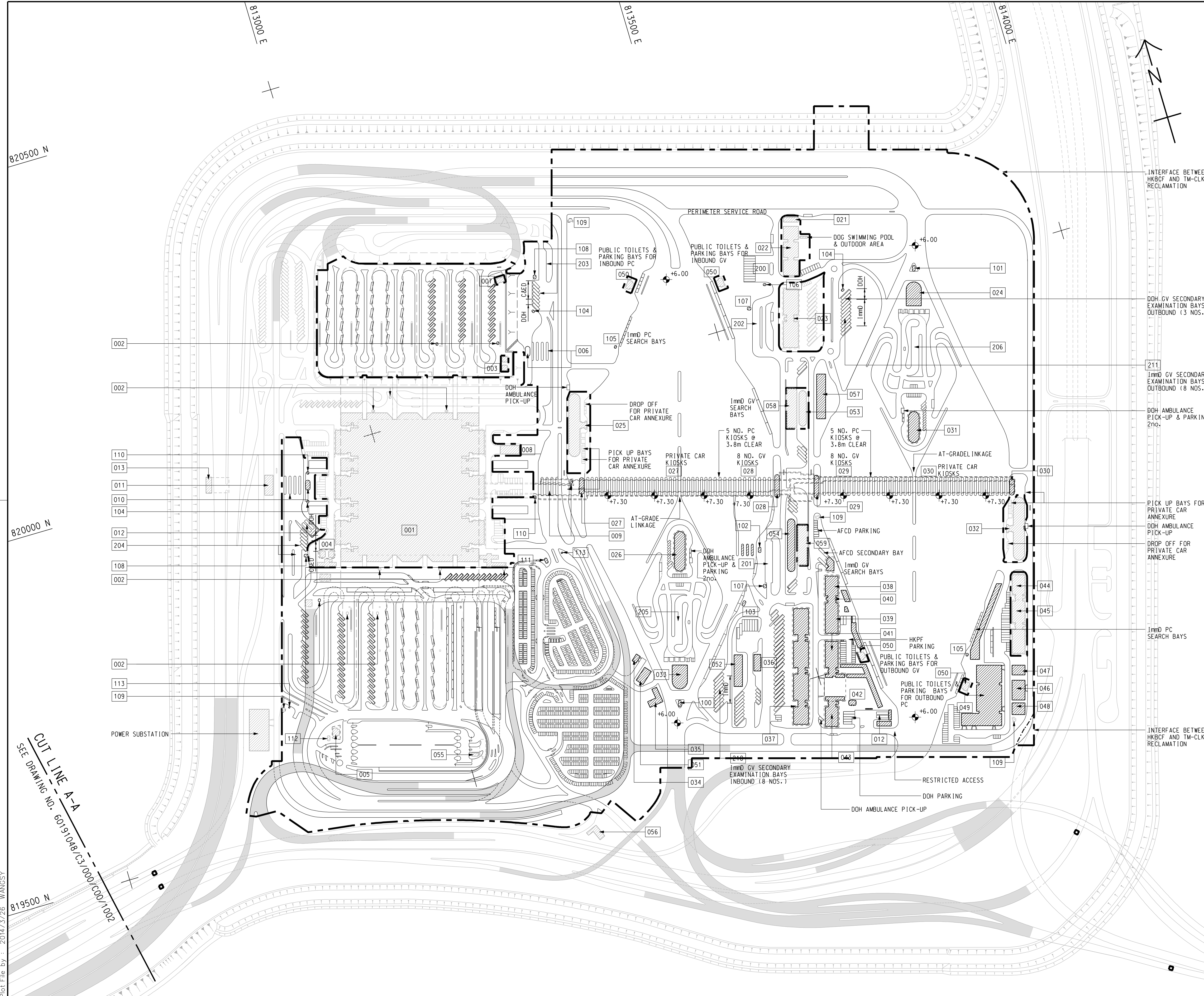
DESIGNED BY 設計	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人
BWCW	HY/2013/03	TKH

DRAWN BY 繪圖	STATUS 階段
WSY	

SCALE 比例 A1 1 : 25000  
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Plot File by : 2014/3/26 WANGSY





**NOTE:**

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. 60191048/C3/000/C00/1003.

**LEGEND:**

- SITE BOUNDARY
- VIADUCT
- BUILDING/FACILITIES

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

DOH GV SECONDARY EXAMINATION BAYS OUTBOUND (3 NOS.)

1mm0 GV SECONDARY EXAMINATION BAYS OUTBOUND (8 NOS.)

DOH AMBULANCE PICK-UP & PARKING 2no.

PICK UP BAYS FOR PRIVATE CAR ANNEXURE

DOH AMBULANCE PICK-UP

1mm0 PC SEARCH BAYS

INTERFACE BETWEEN HKBCF AND TM-CLKL RECLAMATION

CUT LINE A-A  
SEE DRAWING NO. 60191048/C3/000/C00/1002

Plot File by : 2014/3/26 WANGSY

- TENDER DRAWING		BWC SCI	MAR. 14
REV. 修改	DESCRIPTION 内容摘要	D.C. 设计/校核	DATE 日期

**路政署 HIGHWAYS DEPARTMENT**  
**港珠澳大桥香港工程管理处**  
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - VEHICLE CLEARANCE PLAZAS AND  
 ANCILLARY BUILDINGS AND FACILITIES

**Figure 1-1**  
**Current Layout Plan**

SHEET 1 OF 2

**AECOM** **Aedas**  
 Rogers Stirk Harbour + Partners  
 BURO HAPPOLD ATKINS ADI

DRG. NO. 60191048/C3/000/C00/1001  
 圖紙編號

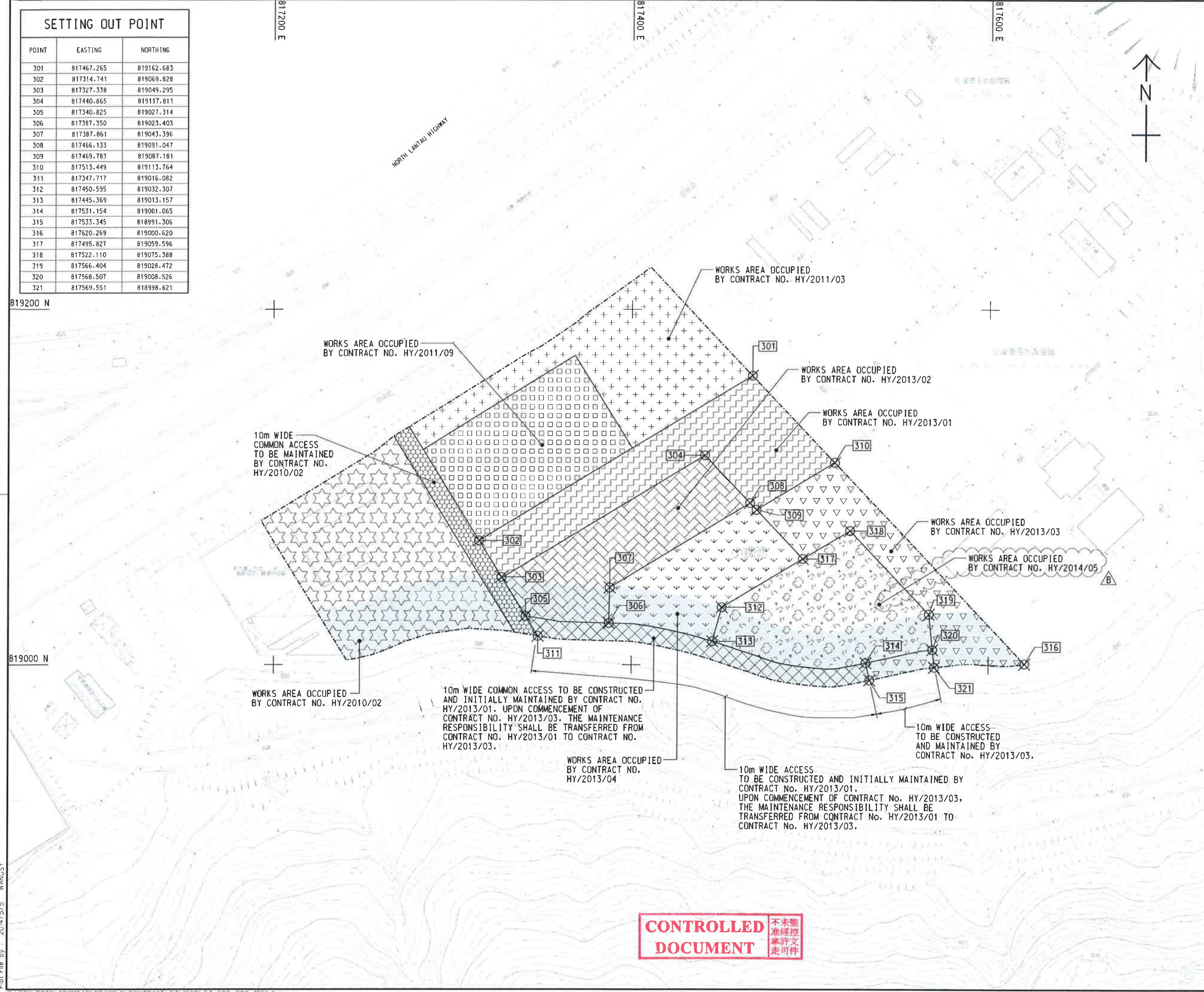
DESIGNED BY 设计 BWC CONTRACT NO. 合約編號 HY/2013/03 P. DIR. APPROVED 批准人 TKH

DRAWN BY 繪圖 WSY STATUS 階段 初步 SCALE 比例 A1 1 : 2500

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SETTING OUT POINT		
POINT	EASTING	NORTHING
301	817467.265	819162.683
302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817450.595	819032.307
313	817445.369	819013.157
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620
317	817495.827	819059.596
318	817522.110	819075.388
319	817566.404	819028.472
320	817568.507	819008.526
321	817569.551	818998.621



**NOTES:**

- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
- DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

**LEGEND:**

	WORKS AREA BOUNDARY
	PORTION 3.1
	PORTION 3.2
	PORTION 3.3
	PORTION 3.4
	PORTION 3.5
	PORTION 3.6
	PORTION 3.7
	PORTION 3.8
	PORTION 3.9
	PORTION 3.10
	NON-BUILDING AREA 8200m <sup>2</sup> (WHOLE)

**FOR CONSTRUCTION**

C	WORKING DRAWING	BWCW SCI	MAY. 15
B	TENDER ADDENDUM NO. 2	BWCW SCI	MAY. 14
A	TENDER ADDENDUM NO. 1	BWCW SCI	APR. 14
-	TENDER DRAWING	BWCW SCI	MAR. 14
REV.	DESCRIPTION	REV. NO.	DATE

**HONG KONG HIGHWAYS DEPARTMENT**  
 香港路政處  
 香港、珠海、澳門大橋工程管理局  
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 VEHICLE CLEARANCE PLAZAS AND  
 ANCILLARY BUILDINGS AND FACILITIES

**WORKS AREA WA3**

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**Aedas** +  
 Rogers Stirk Harbour + Partners  
 BURO HAPPOLD ATKINS ADI +

DRG. NO. 60191048/C3/000/C00/1051C  
 圖紙編號

DESIGNED BY BWCW	CONTRACT NO. HY/2013/03	A. Dir. APPROVED TKH
DRAWN BY WSY	STATUS R/D	<b>WORKING DRAWING</b>
SCALE A1 1 : 1000	© COPYRIGHT RESERVED	
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 不准未經核准修改  
 不准未經核准修改

Plot File by 2014/5/5 WANGSY



SETTING OUT POINT

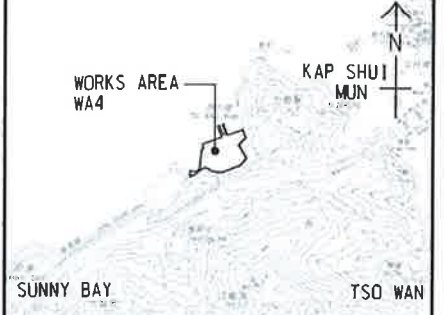
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403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
415	822651.725	822508.856
416	822644.758	822521.192

822600 N

822400 N

822400 E

822600 E



LOCATION PLAN  
SCALE 1 : 25000

NOTES:

- COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
- DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- [Pattern 1] PORTION 4.1
- [Pattern 2] PORTION 4.2
- [Pattern 3] PORTION 4.3
- [Pattern 4] PORTION 4.4
- [Pattern 5] PORTION 4.5
- [Pattern 6] PORTION 4.6
- [Pattern 7] PORTION 4.7
- [Pattern 8] PORTION 4.8
- [Pattern 9] PORTION 4.9

**CONTROLLED DOCUMENT**  
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准許文  
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走可作

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REV. NO.	DESCRIPTION	DATE	BY	CHECKED	DATE
C	WORKING DRAWING	15 MAY 15	BWCW	SCI	
B	TENDER ADDENDUM NO. 2	MAY 14	BWCW	SCI	
A	TENDER ADDENDUM NO. 1	APR 14	BWCW	SCI	
-	TENDER DRAWING	MAR 14	BWCW	SCI	

**HIGHWAYS DEPARTMENT**  
港珠澳大橋香港工程管理局  
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- VEHICLE CLEARANCE PLAZAS AND  
ANCILLARY BUILDINGS AND FACILITIES

WORKS AREA WA4

**AECOM** **Aedas**  
Rogers Stirk Harbour + Partners  
BURO HAPPOLD ATKINS ADI

DRGNO. 圖紙編號: 60191048/C3/000/C00/1052C

DESIGNED BY 設計人	BWCW	CONTRACT NO. 合約編號	HY/2013/03	APPROVED BY 校核人	TKH
DRAWN BY 繪圖人	WSY	STATUS 圖則	<b>WORKING DRAWING</b>		
SCALE 比例	A1 1 : 1000	DIMENSIONS ARE IN METRES 尺寸單位: 公尺			
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Plot File by: 2014/5/5 WANGSY

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Report No.: 0165/15/ED/1156

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### **Appendix B**

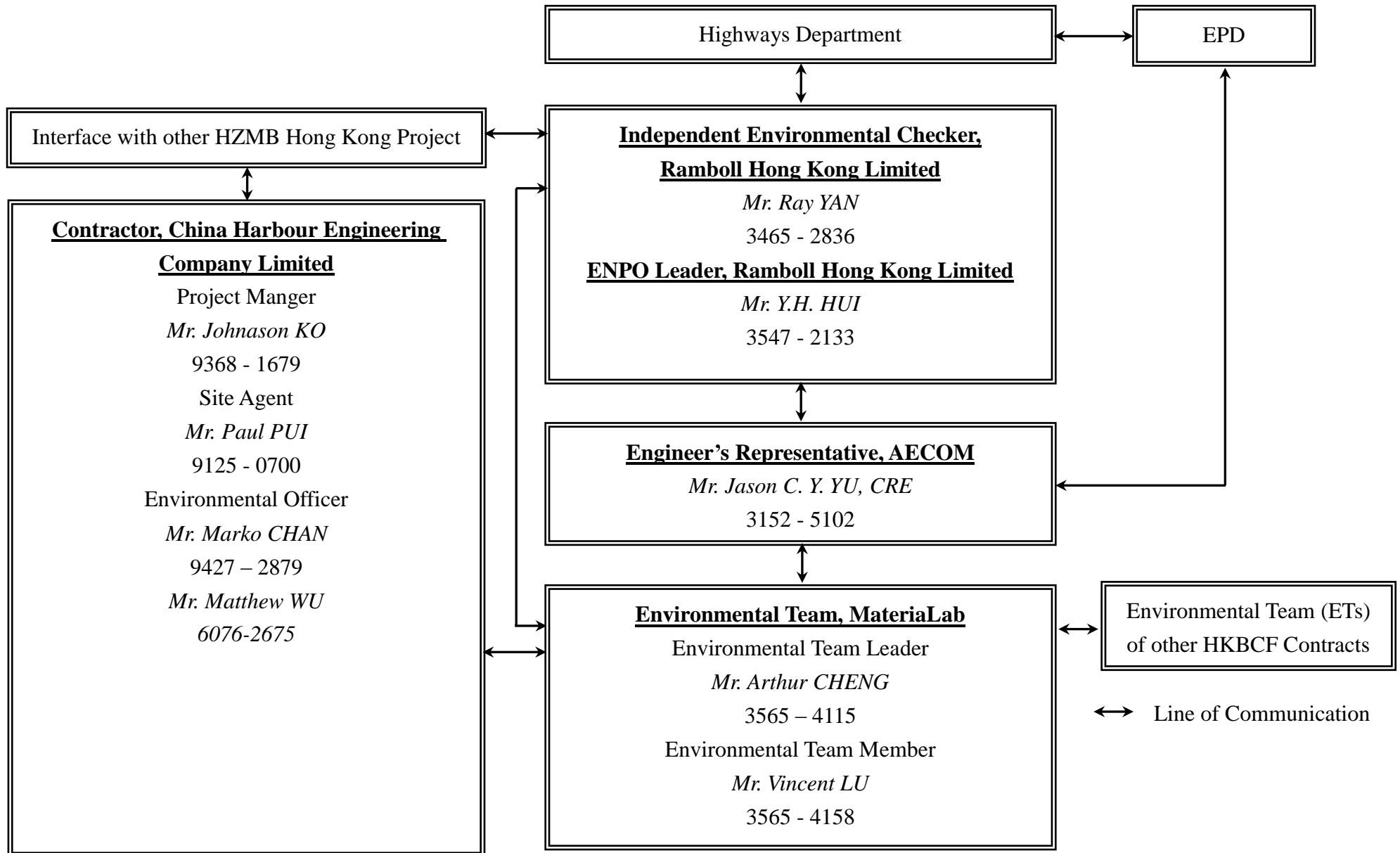
#### **Project Organization for Environmental Works**

# CHINA HARBOUR ENGINEERING COMPANY LIMITED



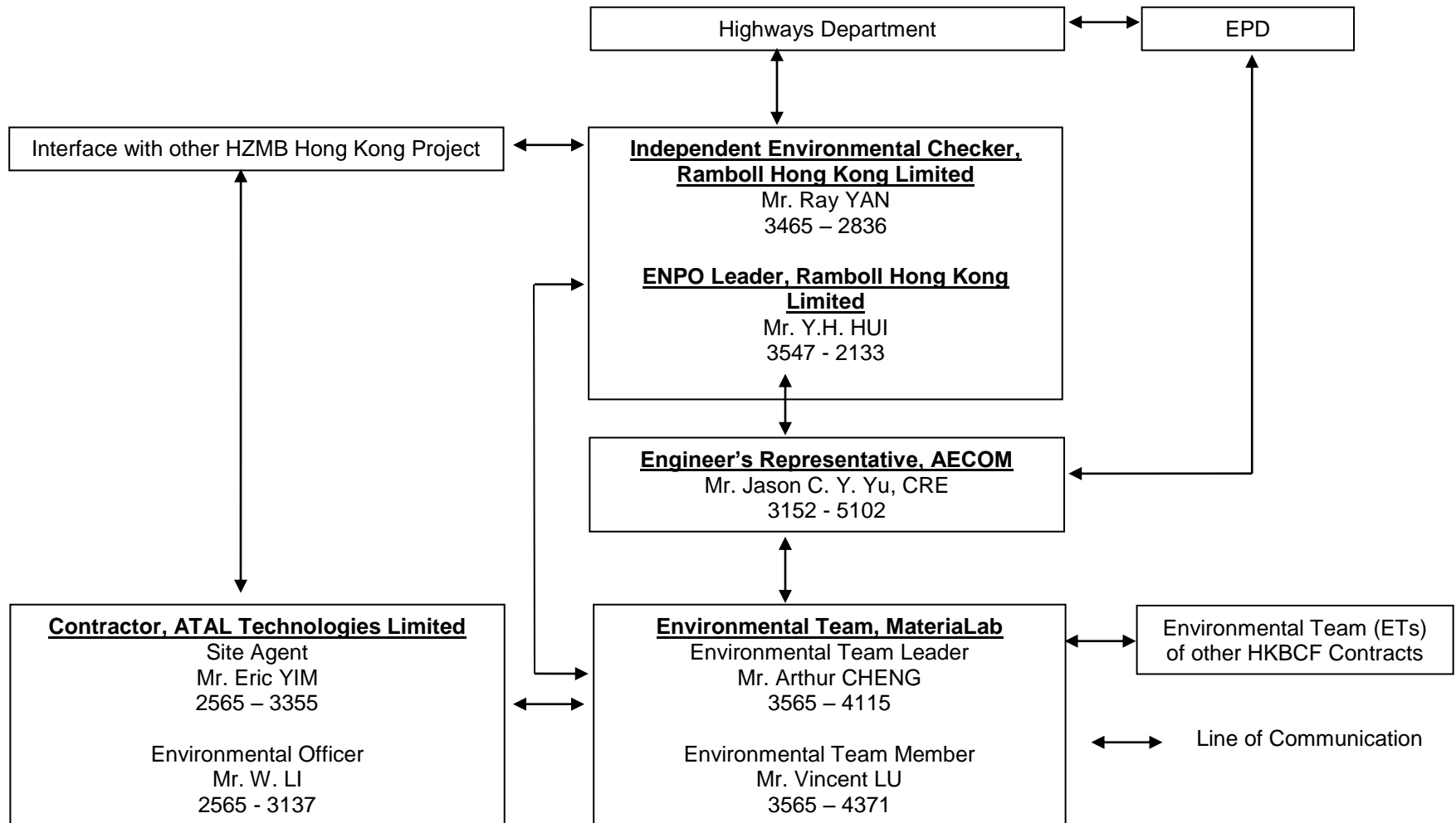
Contract No. HY/2013/03 Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities – Vehicle Clearance Plazas and Ancillary Buildings and Facilities

## Projects Organization for Environmental Works



Contract No. HY/2013/06 (within Contract No. HY/2013/03 works area)  
 Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities – Automatic Vehicle Clearance Support System

**Projects Organization for Environmental Works**



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**MaterialLab**

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Report No.: 0165/15/ED/1156

### **Appendix C**

#### **Event / Action Plan**

**Appendix C –**

**Event / Action Plan for Air Quality and Noise Monitoring**

Event / Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
<b>Action Level</b>				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures;  2. Inform IEC and ER;  3. Repeat measurement to confirm finding;  4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET;  2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice;  2. Amend working methods if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>



Event	Action			
	ET	IEC	ER	Contractor
<b>Limit Level</b>				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedances abated.</li> </ol>

Event / Action Plan for Construction Noise Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor;</li> <li>2. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>3. Report the results of investigation to the IEC,ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>

Event	Action			
	ET	IEC	ER	Contractor
Limit Level	<ol style="list-style-type: none"> <li>1. Inform IEC, ER, EPD and Contractor;</li> <li>2. Identify source;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

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Report No.: 0165/15/ED/1156

### **Appendix D**

#### **Waste Flow Table**



### Monthly Summary of Waste Flow Table for 2019 (year)

Name of Person completing the Record: Marko Chan

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
		(see Note 1)						(see Note 2)		
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000 Kg)	(in '000m <sup>3</sup> )
Jan	0	0	0	0	0	0	0	0	0	0
Feb										
Mar										
Apr										
May										
Jun										
Jul										
Aug										
Sept										
Oct										
Nov										
Dec										
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

Notes:

(1) Broken concrete for recycling into aggregates.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

ATAL Technologies Ltd.  
Contract: HY/2013/06 HKBCF- Automatic Vehicle Clearance Support System  
Location: Artificial Island of HKBCF (C3 Area)

### Monthly Summary Waste Flow Table for 2019

Month	Inert C&D Waste disposal / 墮性廢物 (in tonnes) (see Note 1)						Non-inert C&D Waste disposal 非墮性廢物 (in tonnes)		Waste to be recycled and returned / 可再循環利用或回收的廢物								Total Quantity Generated 總生產量			
	Reused in the Work Package (e.g. backfilling) 再用於工程 (如回填)		Reused in other Projects 再用於其他工程		Inert Waste (e.g. soil, broken concrete, rubble, fill material etc.) 墮性廢物 (如泥, 石矢頭, 石, 填料等)		Others (e.g. general refuse, broken formwork etc) 其他 (如垃圾, 廢板枋等)		Metals 金屬		Plastic 塑膠		Paper/cardboard packaging 廢紙/包裝紙類		Chemical Waste 化學廢物					
	(b)		(c)		(d)		(e)		(in tonnes)		(in tonnes)		(in tonnes)		(in litre)				(a)= (b+c+d+e)	
	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量	Est. Qty. 估計數量	Act. Qty. 實際數量			Est. Qty. 估計數量	Act. Qty. 實際數量
January	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
February																				
March																				
April																				
May																				
June																				
July																				
August																				
September																				
October																				
November																				
<b>December</b>																				
<b>Total</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>		

Notes: (1) The quantiles of C&D Materials, in tonne, was calculated by multiply the estimated volume, in m3, with the density of the soil, which is 1.5 gcm<sup>-3</sup>.

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Report No.: 0165/15/ED/1156

### **Appendix E**

#### **Environmental Licenses and Permits**



**Environmental Permit / Licences Summary for Contract No. HY/2013/03**

(update: 07/11/2018)

Item	Permit/Licence Registration	Permit No.	Work Area	Application Date	Issue Date	Valid Date		Status	Remark
						From	To		
1	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/H	HKBCF	16-Jan-15	19 Jan 15	19 Jan 15	Nil	Superseded	
2	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387703	Main Site Area	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
3	Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust) Regulation	Ref No. 387735	Works Area WA3	15-Apr-15	15-Apr-15	15-Apr-15	Nil	Valid	
4	Billing A/C for Construction Waste Disposal Pursuant to Section 6 & 9 of the Waste Disposal (Charges for Disposal of Construction waste) Regulation	A/C No. 7022228	Main Site Area, WA3 & 4	15-Apr-15	06-May-15	06-May-15	Nil	Valid	
5	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0477-15	Works Area WA3	20-Apr-15	04-May-15	18-May-15	17-Nov-15	Expired	
6	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-951-C1186-28	Main Site Area	28-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
7	Registration as Waste Producer Pursuant to Waste Disposal (Chemical Waste) (General) Regulation	5213-974-C3597-03	Works Area WA4	28-Apr-15	01-Jun-15	01-Jun-15	Nil	Valid	
8	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022180-2015	Works Area WA3	29-Apr-15	04-Aug-15	03-Aug-15	31-Aug-20	Valid	
9	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00022391-2015	Main Site Area	06-May-15	04-Sep-15	04-Sep-15	30-Sep-20	Superseded	
10	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0566-15	Box Culvert D	08-May-15	22-May-15	08-Jun-15	07-Nov-15	Expired	
11	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0674-15	CUE	05-Jun-15	19-Jun-15	19-Jun-15	18-Aug-15	Expired	
12	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/I	HKBCF	30-Jun-15	17-Jul-15	17-Jul-15	Nil	Superseded	
13	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-15	Drill Tower	06-Jul-15	20-Jul-15	01-Aug-15	30-Nov-15	Expired	
14	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0999-15	CUE	28-Aug-15	11-Sep-15	14-Sep-15	10-Dec-15	Superseded	
15	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1065-15	Portion A1	15-Sept-15	29-Sep-15	30-Sep-15	31-Dec-15	Superseded	

16	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1203-15	CUE	20-Oct-15	03-Nov-15	02-Nov-15	31-Jan-16	Superseded	
17	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-121	South of Brothers (CMP2)	26-Oct-15	17-Dec-15	18-Dec-15	17-Jan-16	Expired	
18	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1315-15	Portion G	12-Nov-15	26-Nov-15	28-Nov-15	28-Feb-16	Expired	
19	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0029-15	Drill Tower	27-Nov-15	11-Dec-15	14-Dec-15	13-Apr-16	Expired	
20	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1388-15	Main Site Area	27-Nov-15	16-Dec-15	21-Dec-15	18-Mar-16	Superseded	
21	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0035-16	Main Site Area	31-Dec-15	14-Jan-16	18-Jan-16	17-Mar-16	Superseded	
22	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-161	South of Brothers (CMP2)	31-Dec-15	15-Jan-16	20-Jan-16	19-Feb-16	Expired	
23	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-177	South of Brothers (CMP2)	26-Jan-16	11-Feb-16	20-Feb-16	19-Mar-16	Expired	
24	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/J	HKBCF	18-Feb-16	25-Feb-16	25-Feb-16	Nil	Superseded	
25	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0009-16	Portion G	02-Mar-16	16-Mar-16	21-Mar-16	20-Jul-16	Expired	
26	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0244-16	Main Site Area	03-Mar-16	17-Mar-16	18-Mar-16	18-Jun-16	Expired	
27	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0249-16	Main Site Area	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
28	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0269-16	Floating Concrete Batching Plant	03-Mar-16	17-Mar-16	19-Mar-16	18-Jun-16	Superseded	
29	Permit issued Under the Dumping at Sea Ordinance	EP/MD/16-202	East of Sha Chau (CMP Vd)	09-Mar-16	18-Mar-16	24-Mar-16	23-Apr-16	Expired	
30	Environmental Permit Pursuant to Environmental Impact Assessment Ordinance	EP-353/2009/K	HKBCF	24-Mar-16	11-Apr-16	11-Apr-16	Nil	Valid	
31	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0348-16	Main Site Area	29-Mar-16	12-Apr-16	15-Apr-16	14-Jul-16	Superseded	
32	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-007	East of Sha Chau (CMP Vd)	08-Apr-16	19-Apr-16	24-Apr-16	23-May-16	Expired	
33	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-029	East of Sha Chau (CMP Vd)	09-May-16	19-May-16	24-May-16	23-Jun-16	Expired	

34	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-040	East of Sha Chau (CMP Vd)	31-May-16	13-Jun-16	14-Jun-16	13-Jul-16	Expired	
35	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0607-16	Main Site Area	02-Jun-16	16-Jun-16	19-Jun-16	18-Sep-16	Superseded	
36	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0629-16	Floating Concrete Batching Plant	02-Jun-16	16-Jun-16	19-Jun-16	18-Dec-16	Superseded	
37	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0639-16	Main Site Area	02-Jun-16	16-Jun-16	15-Jul-16	14-Oct-16	Superseded	
38	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-062	East of Sha Chau (CMP Vd)	30-Jun-16	12-Jul-16	14-Jul-16	13-Aug-16	Expired	
39	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0020-16	Portion A, G & H	13-Jul-16	27-Jul-16	28-Jul-16	24-Jan-17	Superseded	
40	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-075	East of Sha Chau (CMP Vd)	27-Jul-16	05-Aug-16	14-Aug-16	31-Aug-16	Expired	
41	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-088	East of Sha Chau (CMP Vd)	16-Aug-16	26-Aug-16	01-Sep-16	30-Sep-16	Expired	
42	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0933-16	Main Site Area	18-Aug-16	01-Sep-16	05-Sep-16	31-Dec-16	Expired	
43	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0960-16	Main Site Area	06-Sep-16	15-Sep-16	19-Sep-16	18-Dec-16	Expired	
44	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-105	East of Sha Chau (CMP Vd)	15-Sep-16	27-Sep-16	01-Oct-16	31-Oct-16	Expired	
45	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0028-16	Portion A, G, H & N	15-Sep-16	29-Sep-16	03-Oct-16	02-Apr-17	Expired	
46	Water Discharge License Pursuant to Water Pollution Control Ordinance (Cap 358)	WT00025384-2016	Main Site Area	09-Mar-16	10-Nov-16	10-Nov-16	30-Sep-20	Valid	
47	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-132	East of Sha Chau (CMP Vd)	03-Nov-16	30-Nov-16	05-Dec-16	04-Jan-17	Expired	
48	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-140	East of Sha Chau (CMP Va) or South of Brothers (CMP2)	14-Nov-16	30-Nov-16	30-Nov-16	29-Dec-16	Expired	
49	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-146	East of Sha Chau (CMP Va) or South of Brothers (CMP2)	28-Nov-16	16-Dec-16	16-Dec-16	29-Dec-16	Expired	
50	Construction Noise Permit	GW-RS1267-16	Main Site Area	02-Dec-16	16-Dec-16	19-Dec-16	18-Mar-17	Expired	

	Pursuant to Section 8(6) of the Noise Control Ordinance								
51	Specified Process Licence for Tar and Bitumen Works Pursuant to Section 14 of the Air Pollution Control Ordinance	L-15-039(1)	Temporary Asphalt Mixing Facility	05-Dec-16	16-Mar-17	16-Mar-17	15-Mar-19	Surrendered	
52	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS1329-16	Main Site Area	09-Dec-16	23-Dec-16	01-Jan-17	30-Apr-17	Superseded	
53	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-161	East of Sha Chau (CMP Vd)	15-Dec-16	04-Jan-17	05-Jan-17	04-Feb-17	Expired	
54	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-170	East of Sha Chau (CMP Vd)	12-Jan-17	24-Jan-17	05-Feb-17	04-Mar-17	Expired	
55	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0205-17	Main Site Area	01-Mar-17	15-Mar-17	19-Mar-17	18-Jun-17	Expired	
56	Permit issued Under the Dumping at Sea Ordinance	EP/MD/17-190	East of Sha Chau (CMP Vd)	01-Mar-17	17-Mar-17	20-Mar-17	19-Apr-17	Expired	
57	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	PP-RS0008-17	Box Culvert B	06-Apr-17	20-Apr-17	21-Apr-17	19-Jul-17	Expired	
58	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-005	East of Sha Chau (CMP Vd)	10-Apr-17	24-Apr-17	25-Apr-17	24-May-17	Expired	
59	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0382-17	Main Site Area	10-Apr-17	25-Apr-17	27-Apr-17	24-Jul-17	Expired	
60	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-018	East of Sha Chau (CMP Vd)	19-May-17	01-Jun-17	02-Jun-17	01-Jul-17	Expired	
61	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0516-17	Main Site Area	31-May-17	14-Jun-17	19-Jun-17	18-Sep-17	Expired	
62	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-037	East of Sha Chau (CMP Vd)	19-Jun-17	06-Jul-17	07-Jul-17	06-Aug-17	Expired	
63	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0632-17	Main Site Area	07-Jul-17	21-Jul-17	25-Jul-17	24-Nov-17	Superseded	
64	Permit issued Under the Dumping at Sea Ordinance	EP/MD/18-052	East of Sha Chau (CMP Vd)	25-Jul-17	07-Aug-17	09-Aug-17	31-Aug-17	Expired	
65	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0771-17	Main Site Area	28-Aug-17	11-Sep-17	19-Sep-17	18-Jan-18	Expired	
66	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0778-17	Main Site Area	28-Aug-17	11-Sep-17	14-Sep-17	13-Mar-18	Superseded	
67	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0834-17	Main Site Area	12-Sep-17	26-Sep-17	28-Sep-17	27-Mar-18	Superseded	
68	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0901-17	Main Site Area	25-Sep-17	11-Oct-17	13-Oct-17	12-Apr-18	Expired	

69	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0271-18	Main Site Area	15-Mar-18	29-Mar-18	13-Apr-18	12-Oct-18	Expired	
70	Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance	GW-RS0888-18	Main Site Area	15-Sep-18	02-Oct-18	13-Oct-18	12-Apr-19	Valid	



**Environmental License/ Permits /Notification Register**

LCAL H2642

**Contract: HY/2013/06 – Hong Kong Zhuhai and Macao Bridge - HKBCF – Automatic Vehicle Clearance Support System**

Date: 31 October 2018									Remark
Item No.	Permit/License or Registration Application			Permit/License/ Notification/ Registration Description	Permit/License/ Registration Number	Issue/Start Date	Expiry Date	Issuing Office	
	Work Area	Date	Reference						
1	HZMB-HK Boundary Crossing Facilities	31 July 2015	WFG14980	Disposal of Construction Waste Billing Account	7023015	20 August 2015	--	EPD	

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The logo for MaterialLab, featuring the word "MaterialLab" in a bold, sans-serif font. The text is centered between two thick, horizontal black bars.

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### **Appendix F**

#### **Implementation Schedule for Environmental Mitigation Measures (EMIS)**

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## Appendix F – Implementation Schedule of Environmental Mitigation Measures (EMIS)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
<b>Air Quality</b>				
S5.5.6.1	A1	1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	All construction sites	V
S5.5.6.2	A2	2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>• Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> </ul>	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials,</li> <li>• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</li> <li>• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</li> <li>• Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top</li> </ul>	All construction sites	V
S5.5.6.2	A2	<ul style="list-style-type: none"> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high</li> </ul>	All construction sites	N/A



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		level alarm which is interlocked with the material filling line and no overfilling is allowed; <ul style="list-style-type: none"> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies</li> </ul>		
S5.5.6.3	A3	3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase.	All construction sites	V
S5.5.6.4	A4	4) Engineer to incorporate the controlled measures into the Particular Specification (PS) for the civil work. The PS should also draw the contractor's attention to the relevant latest Practice Notes issued by EPD.	All construction sites	V
S5.5.6.4	A5	5) Implement regular dust monitoring under EM&A programme during the construction stage.	Selected Representative dust monitoring station	V (Conducted by Contract No. HY/2013/04 and HY/2011/03)
S5.5.7.1	A6	The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant; <ul style="list-style-type: none"> <li>• Loading, unloading, handling, transfer or storage of any dusty materials should be carried out in totally enclosed system;</li> <li>• All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP;</li> <li>• Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system;</li> <li>• The materials which may generate airborne dusty emissions should be wetted by water spray system;</li> <li>• All receiving hoppers should be enclosed on three sides up to 3m above unloading point;</li> <li>• All conveyor transfer points should be totally enclosed;</li> <li>• All access and route roads within the premises should be paved and wetted; and</li> <li>• Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body</li> </ul>	Selected Representative dust monitoring station	N/A
S5.5.2.7	A7	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: <ul style="list-style-type: none"> <li>• All road surface within the barging facilities will be paved;</li> <li>• Dust enclosures will be provided for the loading ramp;</li> <li>• Vehicles will be required to pass through designated wheels wash facilities; and</li> <li>• Continuous water spray at the loading points</li> </ul>	All construction sites	V
<b>Construction Noise (Air borne)</b>				
S6.4.10	N1	1) Use of good site practices to limit noise emissions by considering the following: <ul style="list-style-type: none"> <li>• only well-maintained plant should be operated on-site and plant should be serviced regularly during</li> </ul>	All construction sites	V

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		<p>the construction programme;</p> <ul style="list-style-type: none"> <li>• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>• mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>		
S6.4.11	N2	2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	All construction sites	V
S6.4.12	N3	3) Install movable noise barriers (typically density@14kg/m acoustic mat or full enclosure close to noisy plants including compressor, generators, saw.	For plant items listed in Appendix 6D of the EIA report at all construction sites	N/A
S6.4.13	N4	4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	For plant items listed in Appendix 6D of the EIA report at all construction site	V
S6.4.14	N5	5) Sequencing operation of construction plants where practicable	All construction sites where practicable	V
S5.1	N6	6) Implement a noise monitoring under EM&A programme.	Selected representative noise monitoring station	V (Conducted by Contract No. HY/2013/04)
<b>Sediment</b>				
S7.3	S1	1) The requirements as recommended in ETWB TC 34/2002 Management of Dredged/Excavated Sediment shall be included in the Particular Specification as appropriate.	All construction sites	V
<b>Waste Management (Construction Waste)</b>				
S8.3.8	WM1	<p><u>Construction and Demolition Material</u></p> <p>The following mitigation measures should be implemented in handling the waste:</p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>• Implement an enhanced Waste Management Plan similar to E7WBTC (Works) No. 19/2005 - "Environmental Management on Construction Sites" to encourage on-site sorting of C&amp;D</li> </ul>	All construction sites	V

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		<p>materials and to minimize their generation during the course of construction.</p> <ul style="list-style-type: none"> <li>In addition, disposal of the C&amp;D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation</li> </ul>		
S8.3.9- S8.3.11	WM2	<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</li> </ul>	All construction sites	V
S8.2.12- S8.3.15	WM3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation.</li> <li>The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</li> <li>Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.</li> </ul>	All construction sites	V
S8.3.16	WM4	<p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state which will not deter the workers from utilizing these portable</li> </ul>	All construction sites	V

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Report No.: 0165/15/ED/1156

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		toilets. Night soil should be collected by licensed collectors regularly.		
S8.3.17	WM5	<p>General Refuse</p> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</li> <li>Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> <li>Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.</li> </ul>	All construction sites	V
<b>Water Quality ( Construction Phase)</b>				
S9.11.1.1- S9.11.1.2	W1	<ul style="list-style-type: none"> <li>Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&amp;A Manual</li> <li>Construction of seawalls to be advanced by at least 100-200m before the main reclamation dredging and filling can commence. It should be noted that the protection by advanced seawall is a dynamic process depending on the progress of the construction activities and the stage when such protection could be realised is illustrated in Figure 9.2 and detailed in Appendix 9D6 of the EIA Report. The part of the works where such measures can be undertaken for the majority of the time includes the following locations: <ul style="list-style-type: none"> <li>TMCLKL northern reclamation;</li> <li>TMCLKL southern reclamation (after formation of the nips);</li> <li>Reclamation dredging and filling for Portion B of HKBCF;</li> <li>Reclamation filling for Portion C of HKBCF;</li> <li>Reclamation filling for Portion D of HKBCF;</li> <li>Reclamation filling for FSD berth of HKBCF; and</li> <li>Reclamation dredging and filling for Portion 1 of HKLR;</li> </ul> </li> <li>Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts;</li> <li>For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing;</li> <li>A maximum of 30% public fill shall be used for all backfilling below -2.5mPD for the southern reclamation of TMCLKL, HKBCF and HKLR projects;</li> <li>where public fill is proposed for filling below -2.5mPD, the fine content in the public fill will be</li> </ul>	Marine-based works area	N/A

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		<p>controlled to 25%;</p> <ul style="list-style-type: none"> <li>• silt curtains (cage type) will be applied round all grab dredgers during the HKBCF, HKLR and TMCLKL southern reclamation works;</li> <li>• single layer silt curtains will be applied around all works;</li> <li>• when constructing Portion D of the HKBCF, one side of the seawall crossing the channel should be constructed first and prior to the other works. This would reduce the maximum flow speed across the channel and enhance the effectiveness of other mitigation measures such as silt curtain system;</li> <li>• during the first two months of dredging work for HKBCF and HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established, taking account of the Contractor's proposed actual locations of his initial period of dredging work.</li> <li>• a sheet piled wall shall be constructed north of the HKBCF island ,in order to allow the use of silt curtains during Phase 2 works; and</li> <li>• silt curtain shall be fully maintained throughout the works.</li> </ul> <p>In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract.</p> <ul style="list-style-type: none"> <li>• trailer suction hopper dredgers shall not allow mud to overflow;</li> <li>• use of Lean Material Overboard (LMOB) systems shall be prohibited;</li> <li>• mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted;</li> <li>• barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>• any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes;</li> <li>• loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;</li> <li>• excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved;</li> <li>• adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;</li> <li>• all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and</li> <li>• the works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.</li> </ul>		
S9.11.1.3	W2	<p><u>Land Works</u> General construction activities on land should also be governed by standard good working practice.</p>	Land-based works area	V

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		<p>Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> <li>wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters;</li> <li>sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided;</li> <li>storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks;</li> <li>silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm;</li> <li>temporary access roads should be surfaced with crushed stone or gravel;</li> <li>rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</li> <li>measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system;</li> <li>open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms;</li> <li>manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers;</li> <li>discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system;</li> </ul>		
S9.11.1.7	W2	<ul style="list-style-type: none"> <li>all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit;</li> <li>wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain;</li> <li>the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel;</li> <li>wastewater generated from concreting, plastering, Internal decoration, cleaning work and other similar activities, shall be screened to remove large objects;</li> <li>vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal;</li> <li>the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up</li> </ul>	Land-based works area	V

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		immediately; • waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; • all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and • surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.		
S9.14	W3	Implement a water quality monitoring programme	Selected representative WQM stations	V (Conducted by Contract No. HY/2013/04)
<b>Ecology (Construction Phase)</b>				
S10.7	E4	• Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater	Land-based works areas	V
S10.7	E5	• Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time	Land-based works areas	V
S10.7	E6	• Dolphin Exclusion Zone • Dolphin watching plan	Marine works	N/A
S10.7	E7	• Decouple compressors and other equipment on working vessels • Proposal on design and implementation of acoustic decoupling measures applied during dredging and reclamation works • Avoidance of percussive piling	Marine works	N/A
S10.7	E8	• Control vessel speed • Skipper training • Predefined and regular routes for working vessels; avoid Brother Islands.	Marine Traffic	N/A
S10.10	E9	Vessel based dolphin monitoring	Northeast and Northwest Lantau	V (Conducted by Contract No. HY/2013/04)
<b>Fisheries</b>				
S11.7	F4	• Maritime Oil Spill Response Plan (MOSRP); • Contingency plan.	HKBCF	V
<b>Landscape &amp; Visual (Detailed Design Phase)</b>				
S14.3.3.1	LV1	General design measures include: • Roadside planting and planting along the edge of the HKBCF Island is proposed; • Transplanting of mature trees in good health and amenity value where appropriate and reinstatement of areas disturbed during construction by compensatory hydro-seeding and planting; • Protection measures for the trees to be retained during construction activities; • Optimizing the sizes and spacing of the bridge columns; • Fine-tuning the location of the bridge columns to avoid visually-sensitive locations; • Providing planting area around peripheral of HKBCF for tree planting screening effect; • Providing salt-tolerant native trees along the planter strip at affected seawall and newly reclaimed coastline; • For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport	HKBCF	V

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Location of the measures	Implementation Status
		<p>buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF; and</p> <ul style="list-style-type: none"> <li>• Fine-tuning the sizes of the structural members to minimize the bulkiness of buildings and adjustment of building arrangement to minimise disturbance to surrounding vegetation in the HKBCF.</li> </ul>		
<b>Landscape &amp; Visual (Construction Phase)</b>				
S14.3.3.3	LV2	<p>Mitigate both Landscape and Visual Impacts</p> <p>G1. Grass-hydroseed bare soil surface and stock pile areas.</p> <p>G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge footbridge to screen bridge and traffic.</p> <p>G3. Not applicable as this is for HKLR.</p> <p>G4. For HKBCF, providing aesthetic architectural design on the related buildings (e.g. similar materials for PCB building facade to Airport buildings, roof planting and subtle materials for other facilities buildings and so on), and the related infrastructure (e.g. parapet planting and transparent cover for elevated footbridges) to provide harmonious atmosphere of the HKBCF</p> <p>G5. Vegetation reinstatement and upgrading to disturbed areas</p> <p>G6. Maximizing new tree shrub and other vegetation planting to compensate tree felled and vegetation removed</p> <p>G7. Providing planting area around peripheral of HKBCF for tree planting screening effect;</p> <p>G8. Plant salt-tolerant native and shrubs etc along the planter strip at affected seawall.</p> <p>G9. Reserve of loose natural granite rocks for re-use, Provide new coastline to adopt "natural-look" by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance "natural-look" of the new coastline.</p>	Building 026, 031, 037, 039, 041, 043, 046 and all areas at ground level	N/A
S14.3.3.3	LV3	<p><u>Mitigate Visual Impacts</u></p> <p>V1. Minimize time for construction activities during construction period.</p> <p>V2. Not applicable for HKBCF.</p>	Building 026, 031, 037, 039, 041, 043, 046 and all areas at ground level	N/A
<b>EM&amp;A</b>				
S15.2.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual	All construction sites	V
S15.5 – S15.6	EM2	<ol style="list-style-type: none"> <li>1) An Environmental Team needs to be employed as per the EM&amp;A Manual.</li> <li>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</li> <li>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ol>	All construction sites	V

Legend: V = implemented; x = not implemented; N/A = not applicable



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### **Appendix G**

#### **Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions**

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### Appendix G –

#### Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

For Contract No. HY/2013/03

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	15	0	0

For Contract No. HY/2013/06 within Contract No. HY/2013/03 works area

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period	0	0	0
From commencement date of construction to end of reporting month	0	0	0

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### **Appendix H**

### **Bi-monthly Landscape Monitoring Report**

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**Contract No. HY/2013/03****Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities –  
 Vehicle Clearance Plazas and Ancillary Buildings and Facilities****Bi-monthly Landscape Monitoring Site Audit Checklist**

Covering period:	2018/12/24 – 2019/02/23
Site Auditor:	Vincent Lu

Description	N.A.	Yes	No	Remarks
<b>Portions A1, A2 &amp; Q</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>Portion B</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		

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Description	N.A.	Yes	No	Remarks
<b>Portions C, E &amp; F</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>Portions D &amp; G</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>Portions H &amp; R</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		

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Description	N.A.	Yes	No	Remarks
<b>Portion J</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>Portions K, L, M, S &amp; T</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
Are tree stakes, guys and ties provided properly for safety and avoid chaffing of bark?		√		
Are trees or limb overhanging branches pruned?		√		
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>Portion N</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		

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Description	N.A.	Yes	No	Remarks
<b>Portion P</b>				
Is watering provided to all plants to ensure satisfactory growth and health (manual and automatic irrigation)?		√		The information provided by RSS was reviewed.
After exceptional weather conditions, are proper action implemented to replace dead plants, repair damaged plants, bed in all plants that have blown over, firm up all other plants and immediately thereafter, remove dead plants and plant debris from the site?	√			
Are litter and debris removed?		√		
Are planting areas matched with the approved landscape plan?		√		
Is planting pattern matched with the approved landscape plan?		√		
Are planting locations and spacing matched with the approved landscape plan?		√		
Are the planting species on site matched with Figure 3.6 of the approved landscape plan?		√		
Are the plants in satisfied condition?		√		
<b>General Document</b>				
Are the records of watering, fertilizing, weeding, pruning and mowing kept for checking?		√		The information provided by RSS was reviewed.

**MATERIALAB CONSULTANTS LIMITED**

Room 723 & 725, 7/F, Block B,  
Profit Industrial Building,  
1-15 Kwai Fung Crescent, Kwai Fong,  
Hong Kong.

Tel : (852)-24508238  
Fax : (852)-24508032  
Email : mcl@fugro.com.hk



Contract No. HY/2013/03  
**Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities –  
Vehicle Clearance Plazas and Ancillary Buildings and Facilities**

**Remarks / Recommendations for Contractor**

Date of Site Audit: 25/1/2019

**Observation and/or Recommended Measures:**

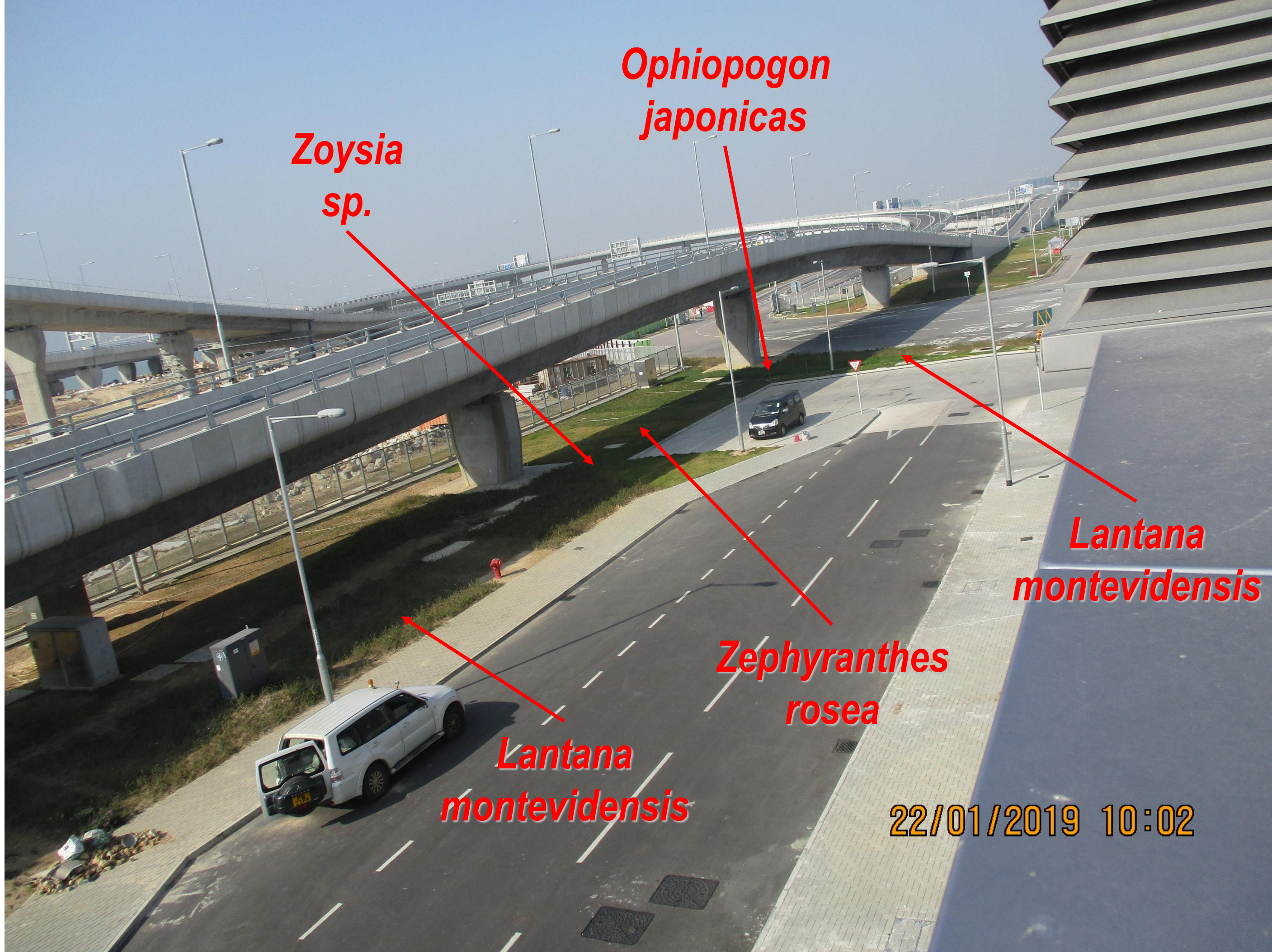
No particular finding

Target Date of Completion: N/A

**Signatures:**

	Name	Signature
ET's Representative	Vincent Lu	
Contractor's Representative	Habo Chan	
ER's Representative	CHAN Pak Kin	
IEC's Representative	Ray Yan	





*Zoysia  
sp.*

*Ophiopogon  
japonicas*

*Lantana  
montevidensis*

*Zephyranthes  
rosea*

*Lantana  
montevidensis*

22/01/2019 10:02

Photo 1: Portion A1+A2+Q (1)



*Parthenocissus dalzielii*

+

*Pyrostegia venusta*

*Rhododendron pulchrum*

11/01/2019 14:16

Photo 2: Portion A1+A2+Q (2)



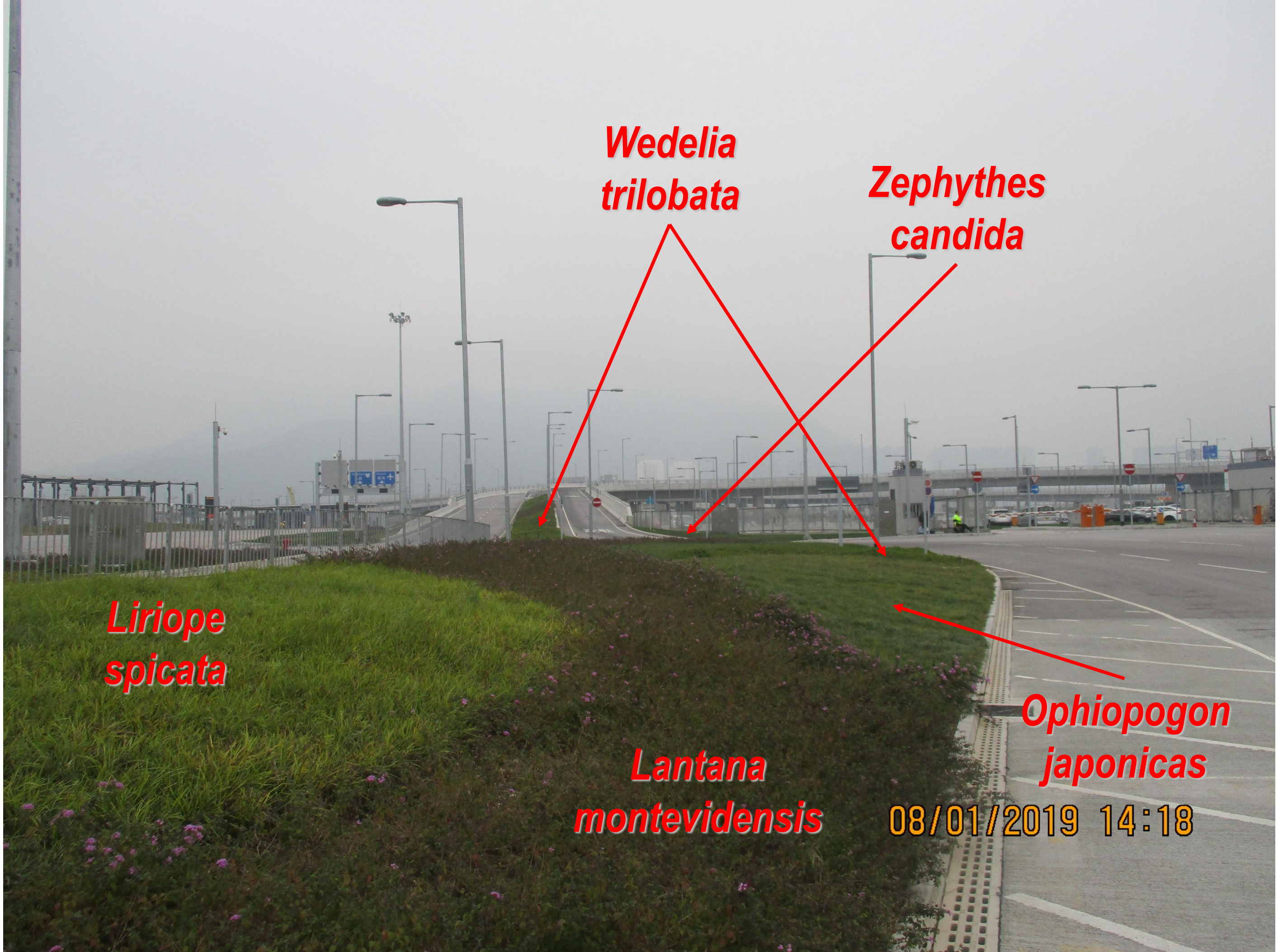


*Zoysia  
sp.*

15/02/2019

Photo 3: Portion B (1)





*Wedelia trilobata*

*Zephyrthes candida*

*Liriope spicata*

*Lantana montevidensis*

*Ophiopogon japonicas*

08/01/2019 14:18

Photo 4: Portion B (2)





*Zephythys  
candida*

*Zoysia sp.*

28/12/2018

Photo 5: Portion C+E+F (1)





*Rhododendron pulchrum*

*Jacaranda mimosifolia*

*Zoysia sp.*

22/01/2019 11:06

Photo 6: Portion C+E+F (2)





Photo 7: Portion C+E+F (3)





*Rhododendron pulchrum*

*Ophiopogon japonicus*

18/01/2019 11:12

Photo 8: Portion D+G (1)





12/02/2019

Photo 9: Portion D+G (2)





Photo 10: Portion H+R (1)





*Spathiphyllum  
commutatum*

*Wedelia  
trilobata*

31/01/2019 14:40

Photo 11: Portion H+R (2)





Photo 12: Portion H+R (3)





*Wedelia  
trilobata*

08/02/2019

Photo 13: Portion H+R (4)



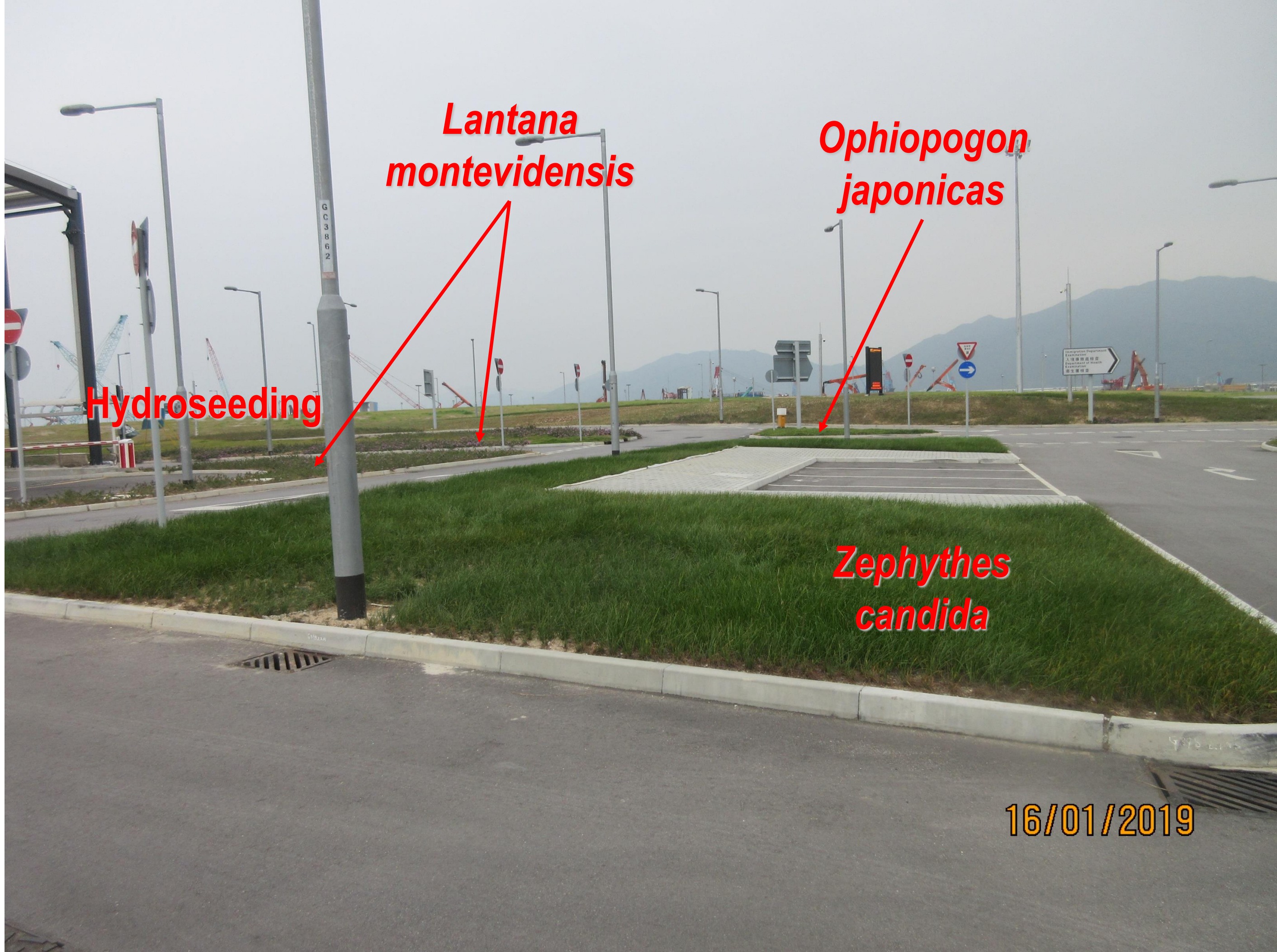


Photo 14: Portion J (1)





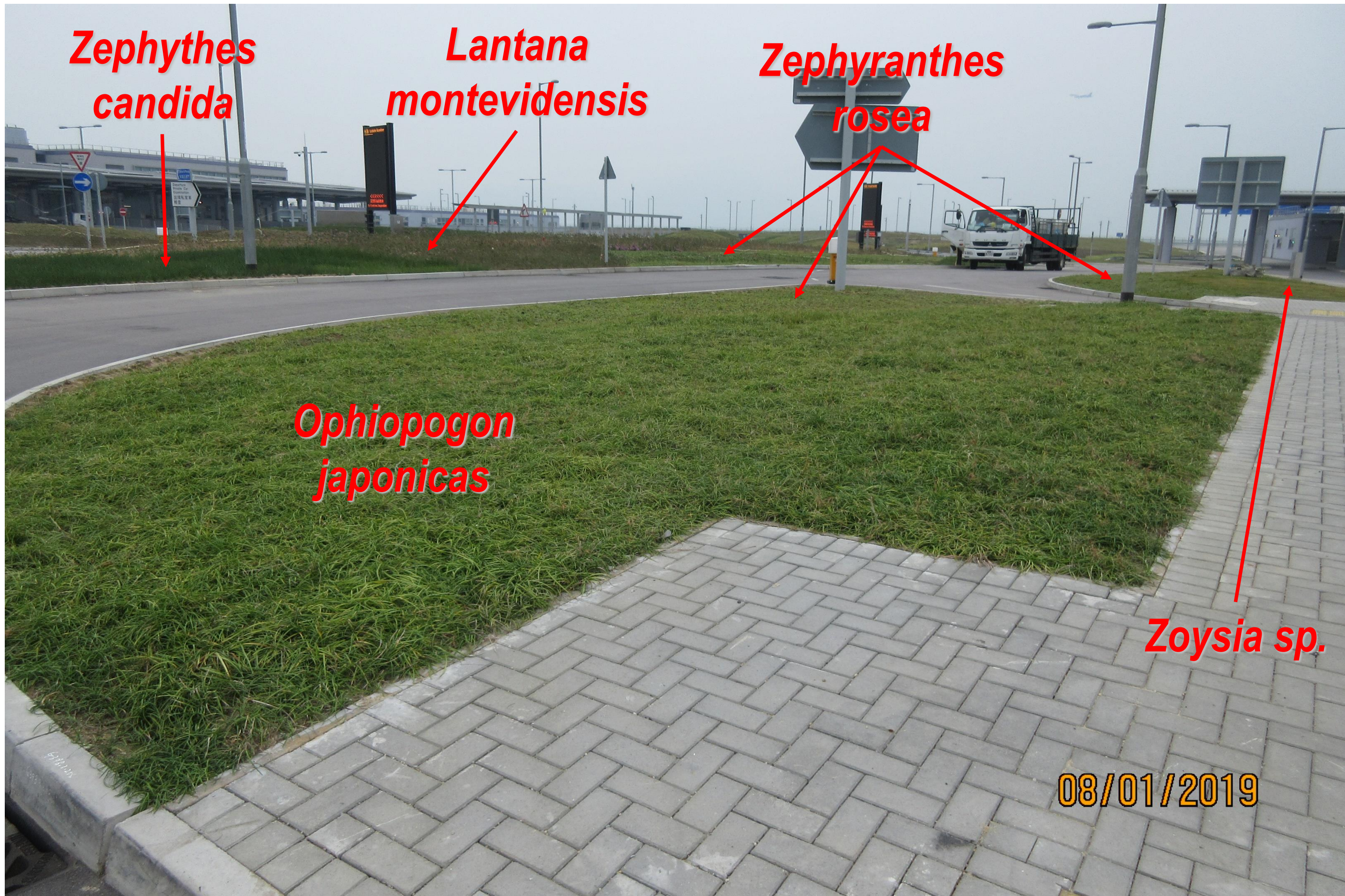
*Zephyrthes  
candida*

*Ophiopogon  
japonicas*

29/01/2019

Photo 15: Portion J (2)





*Zephyrthes  
candida*

*Lantana  
montevidensis*

*Zephyranthes  
rosea*

*Ophiopogon  
japonicas*

*Zoysia sp.*

08/01/2019

Photo 16: Portion J (3)



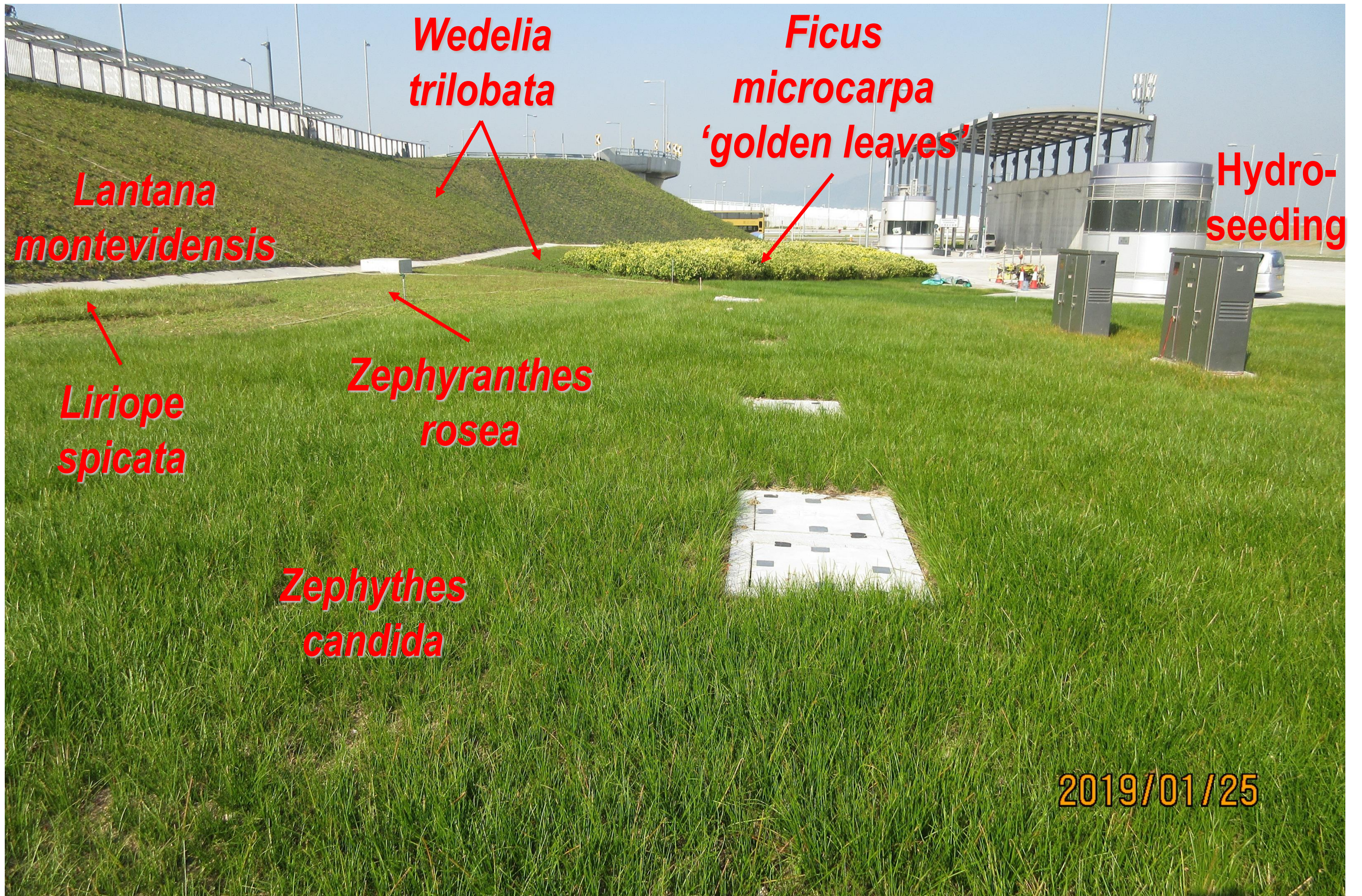


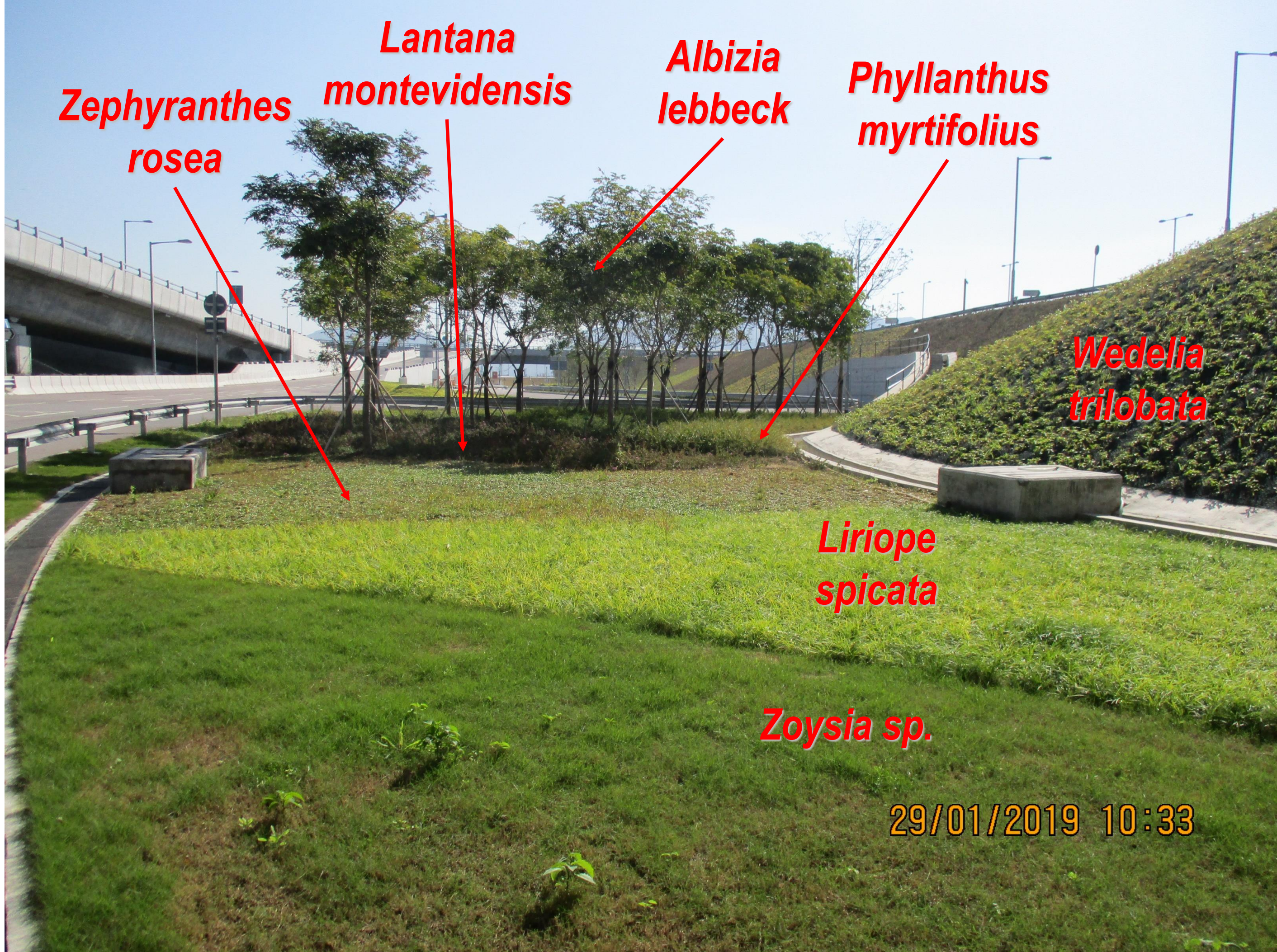
Photo 17: Portion K+L+M+S+T (1)





Photo 18: Portion K+L+M+S+T (2)





*Zephyranthes  
rosea*

*Lantana  
montevidensis*

*Albizia  
lebeck*

*Phyllanthus  
myrtifolius*

*Wedelia  
trilobata*

*Liriope  
spicata*

*Zoysia sp.*

29/01/2019 10:33

Photo 19: Portion K+L+M+S+T (3)



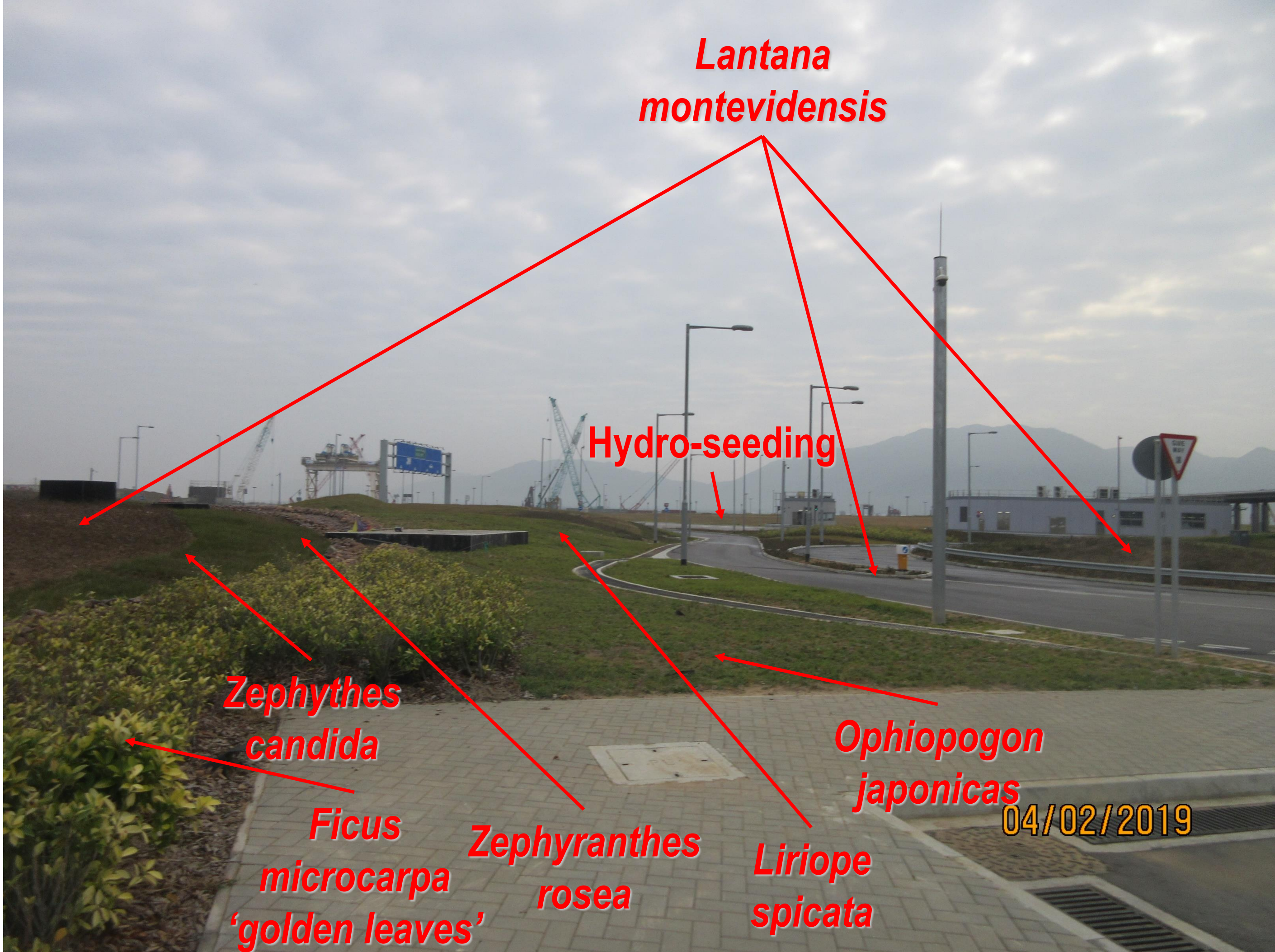
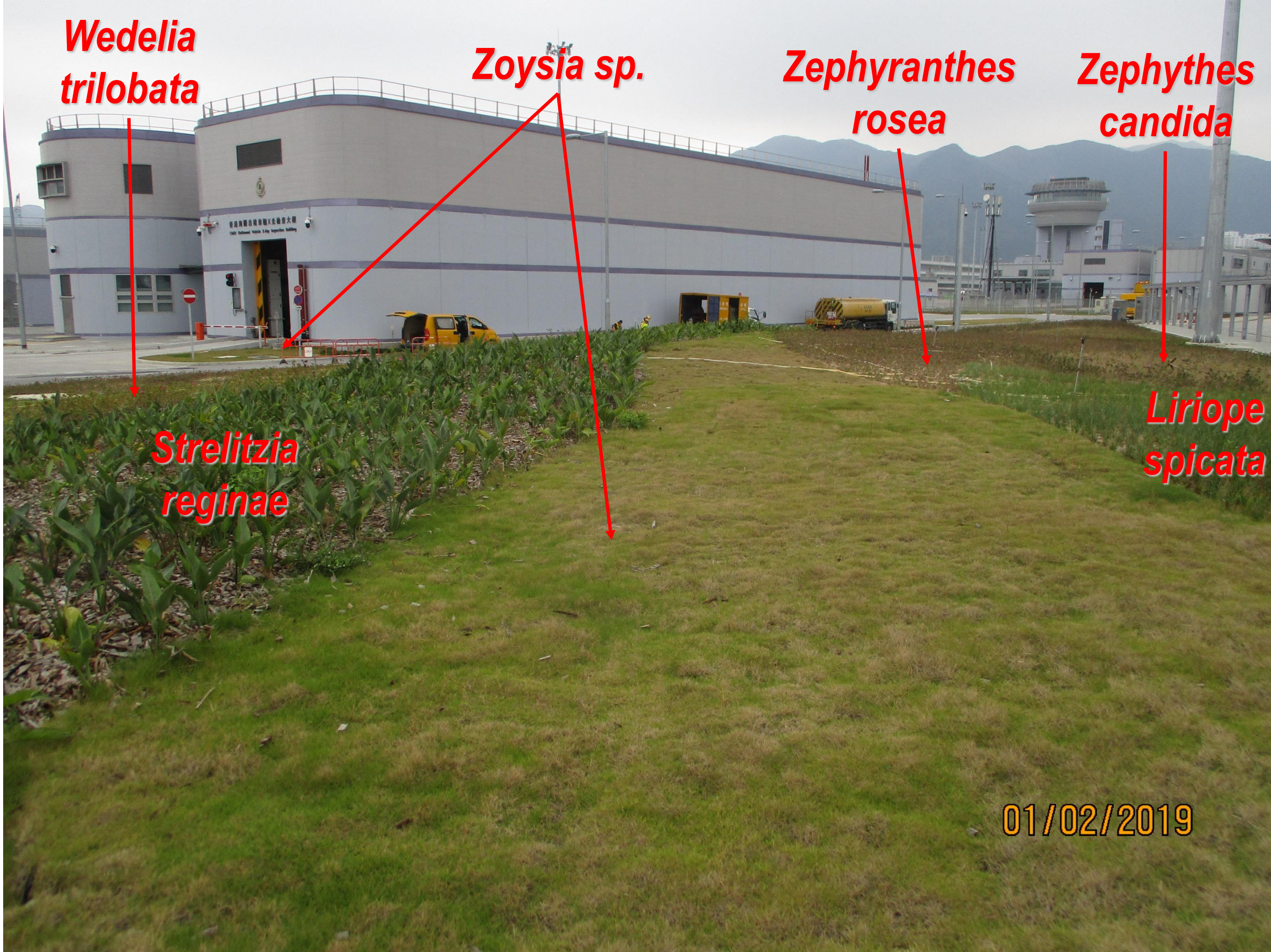


Photo 20: Portion N (1)





*Wedelia trilobata*

*Zoysia sp.*

*Zephyranthes rosea*

*Zephythys candida*

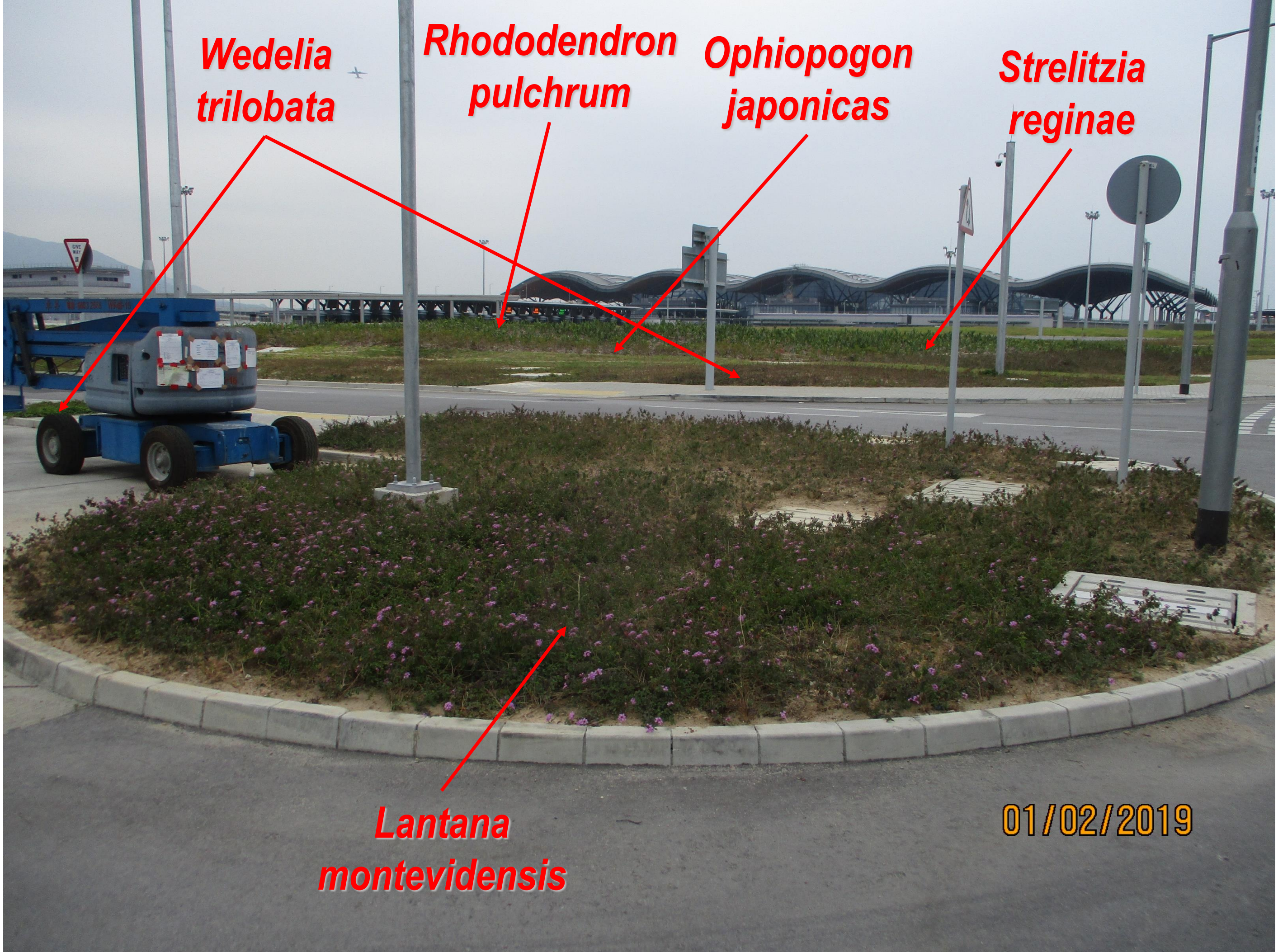
*Strelitzia reginae*

*Liriope spicata*

01/02/2019

Photo 21: Portion N (2)





*Wedelia trilobata*

*Rhododendron pulchrum*

*Ophiopogon japonicas*

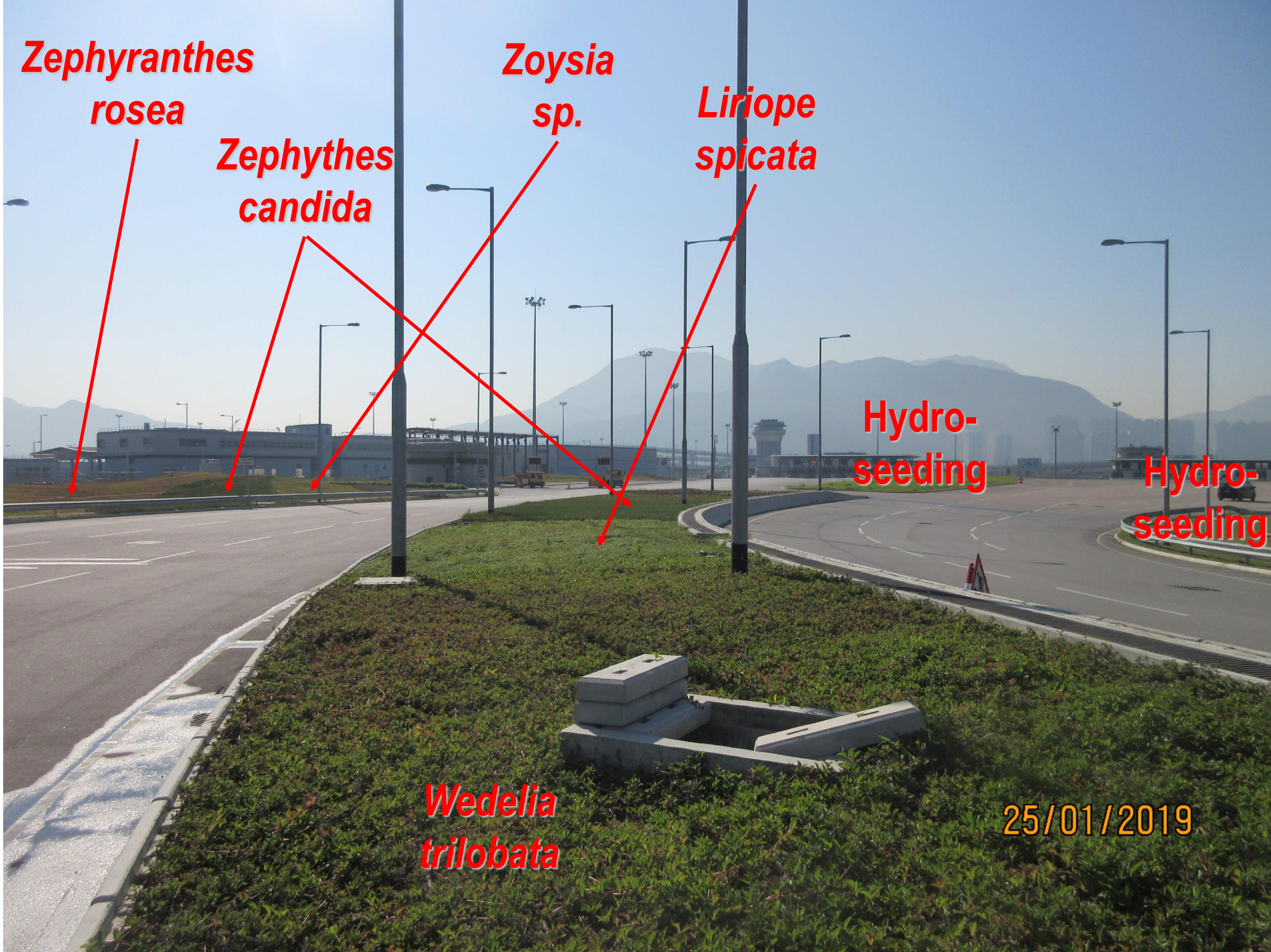
*Strelitzia reginae*

*Lantana montevidensis*

01/02/2019

Photo 22: Portion N (3)





*Zephyranthes  
rosea*

*Zephythos  
candida*

*Zoysia  
sp.*

*Liriope  
spicata*

Hydro-  
seeding

Hydro-  
seeding

*Wedelia  
trilobata*

25/01/2019

Photo 23: Portion P (1)





**Malvaviscus  
arboreus**

**Lantana  
montevidensis**

**Zoysia  
sp.**

**Zephyranthes  
rosea**

**Wedelia  
trilobata**

**Zephythes  
candida**

01/02/2019

Photo 24: Portion P (2)



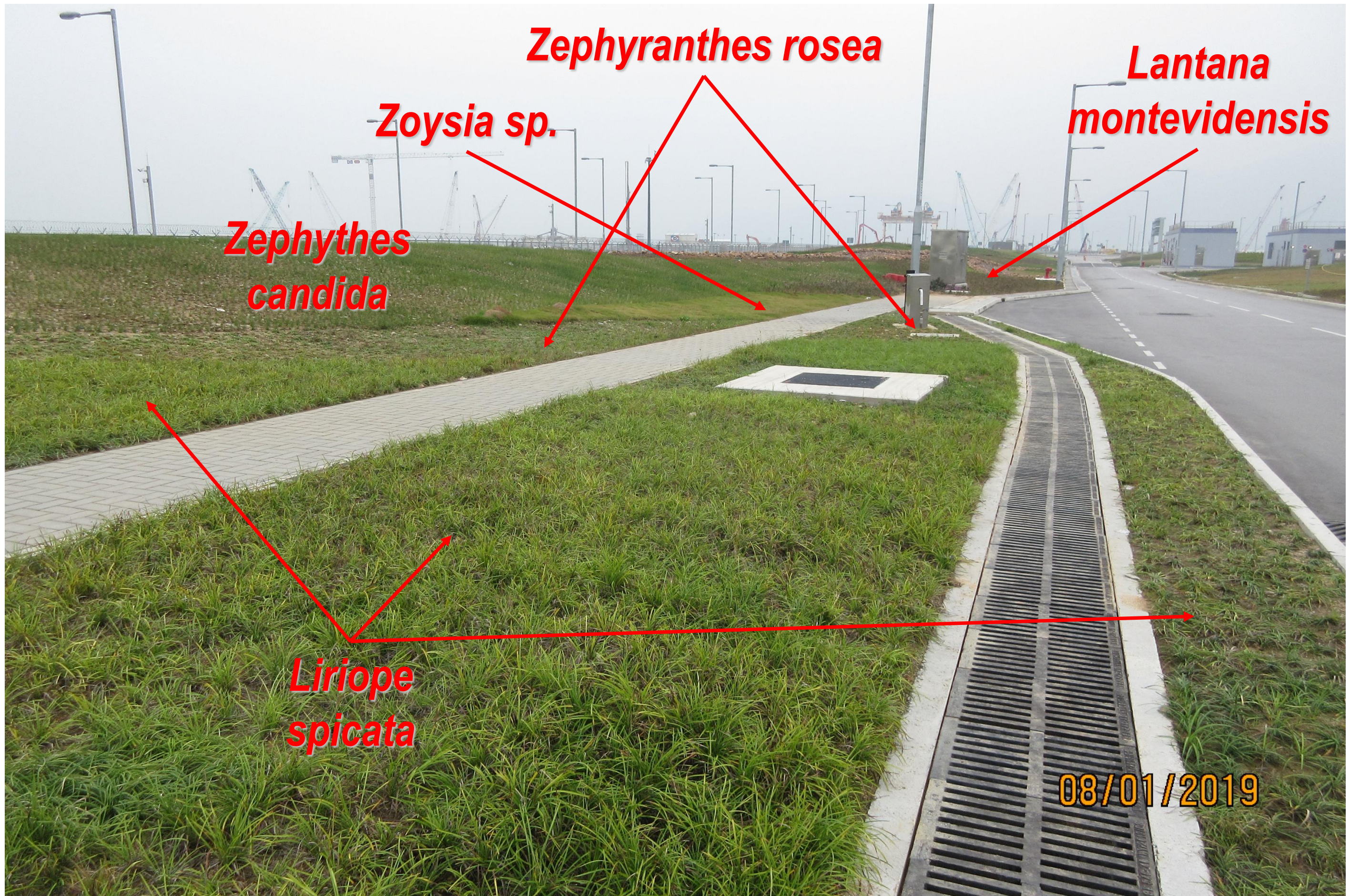


Photo 25: Portion P (3)


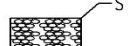
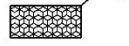


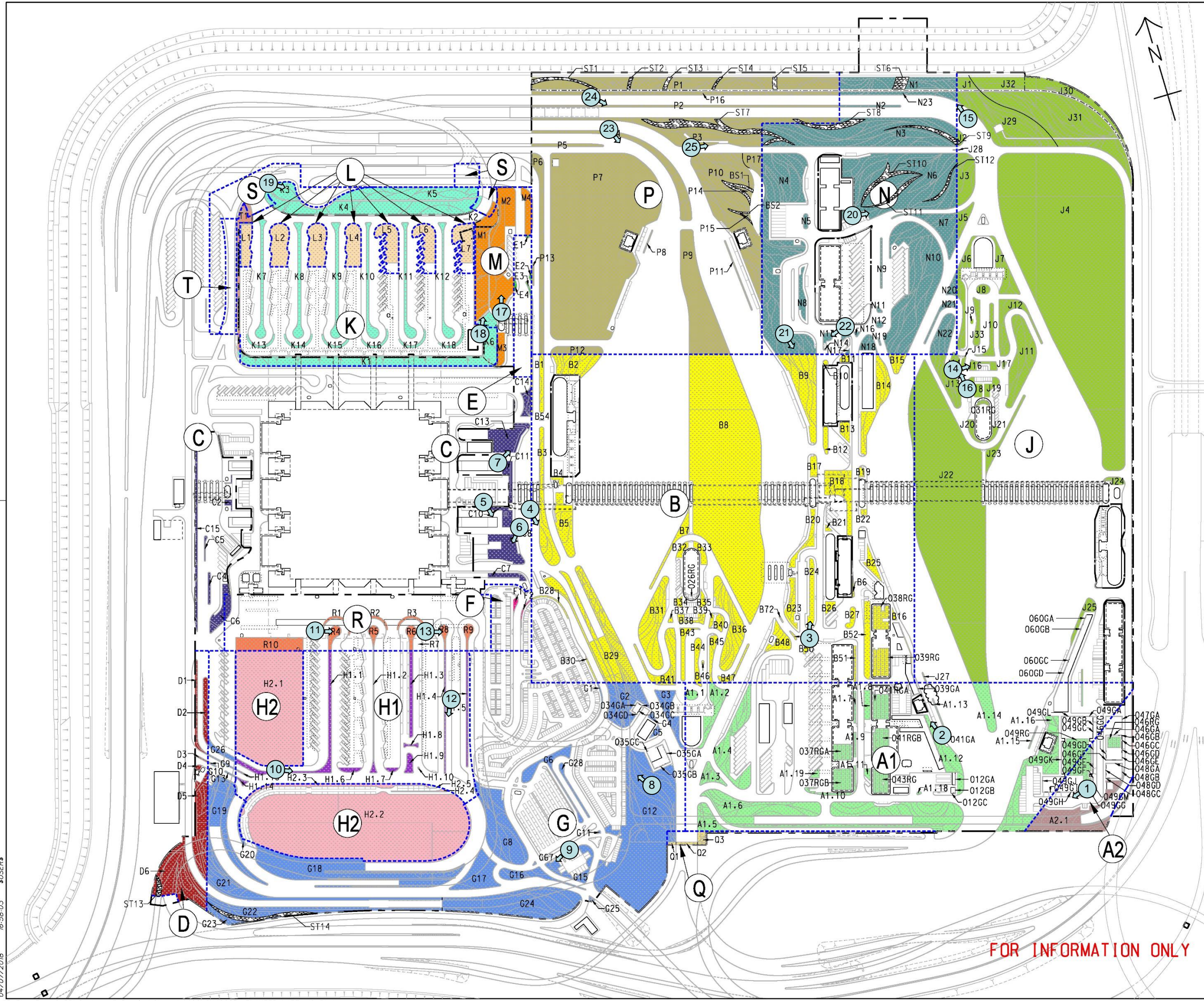
PLANTER LABELING PLAN

NOTES:

1. FOR REFERENCE ONLY. ALL LANDSCAPE WORKS SHALL FOLLOW THE LATEST DRAWINGS AND COORDINATION ON SITE.

LEGEND:

-  BOUNDARY FENCE (EXTEND REFER TO CONTRACT DRAWING)
-  RIVER WASHED STONE SWATHE
-  BIOSWALE



B	04/07/18	FOR INFORMATION ONLY	GY	STL	EYTW
A	05/01/18	FOR INFORMATION ONLY	KNSW	STL	EYTW
-	04/09/17	FOR INFORMATION ONLY	KNSW	STL	EYTW
REV.	DATE	DESCRIPTION	DRAWN	PRE.	CHK.

DRAWING REFERENCE TO LATEST VERSION


 路政署  
 HIGHWAYS DEPARTMENT  

 港珠澳大橋香港工程管理局  
 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

**AECOM** + +  
 Rogers Stirk Harbour + Partners  
**Aedas**  
 BURO HAPPOLD ATKINS ADI + +

HY/2013/03  
 HONG KONG-ZHUHAI-MACAO BRIDGE  
 HONG KONG BOUNDARY CROSSING FACILITIES  
 - VEHICLE CLEARANCE PLAZAS AND  
 ANCILLARY BUILDINGS AND FACILITIES

TITLE

PLANTER LABELING PLAN

SKETCH NO. 60191048/C3/SK4220 REV. B

SCALE 1:1000 (A1) © COPYRIGHT RESERVED 版權所有

FOR INFORMATION ONLY



04/10/2018 16:58:03 \$USER\$



TREE PLANTING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [m]
AL ** #	<i>Albizia lebbbeck</i>	大葉合歡	4000-5000(H) x 3000(SP) x 100(DBH)	4
BV	<i>Bauhinia variegata</i>	宮粉羊蹄甲	4000-5000(H) x 3000(SP) x 100(DBH)	4
CV	<i>Callistemon viminalis</i>	串錢柳	4000-5000(H) x 3000(SP) x 100(DBH)	4
CS ** #	<i>Cassia siamea</i>	鐵刀木	4000-5000(H) x 3000(SP) x 100(DBH)	4
GR #	<i>Grevillea robusta</i>	銀樺	4000-5000(H) x 3000(SP) x 100(DBH)	4
JA #	<i>Jacaranda mimosifolia</i>	藍花楸	4000-5000(H) x 3000(SP) x 100(DBH)	4
JC **	<i>Juniperus chinensis</i>	龍柏	4000-5000(H) x 3000(SP) x 100(DBH)	4
TP ***	<i>Thespesia populnea</i>	恒春黃槿	4000-5000(H) x 3000(SP) x 100(DBH)	4

SHRUB PLANTING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [mm]
Aod #	<i>Aglaia odorata</i>	米仔蘭	700(H) x 500(SP)	400
Cha	<i>Calliandra haematocephala</i>	紅絨球	700(H) x 500(SP)	400
Fmi ** #	<i>Ficus microcarpa 'golden leaves'</i>	黃金榕	1000(H) x 700(SP)	600
Ich *	<i>Ixora chinensis</i>	龍船花	500(H) x 400(SP)	350
Mar	<i>Malvaviscus arboreus</i>	大紅袍	700(H) x 500(SP)	450
Mfi	<i>Michelia figo</i>	含笑	800(H) x 500(SP)	400
Pmy	<i>Phyllanthus myrtifolius</i>	瘤腺葉下珠	400(H) x 300(SP)	250
Rpu #	<i>Rhododendron pulchrum</i>	錦繡杜鵑	600(H) x 400(SP)	300
Rsi *	<i>Rhododendron simsii</i>	紅杜鵑	600(H) x 400(SP)	300
Sco	<i>Spathiphyllum commutatum</i>	白掌	300(H) x 300(SP)	200
Sre #	<i>Strelitzia reginae</i>	天堂鳥蕉	500(H) x 400(SP)	350

GREEN ROOF GROUND COVER PLANTING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [mm]
Zan	<i>Zephyranthes candida</i>	蔥蓮	100(H) x 100(SP)	100

CLIMBER PLANTING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [mm]
Pda	<i>Parthenocissus dazielii</i>	異葉爬山虎	300(H) x 250(SP)	250
Pve **	<i>Pyrostegia venusta</i>	炮仗花	300(H) x 250(SP)	250

**NOTES:**

<sup>(1)</sup> All proposed plant species and specifications are subject to change during construction to suit the site conditions.

<sup>(2)</sup> Minimum requirement of grass seed mix for hydroseeding shall follow General Specification for Civil Engineering Works Clause 3.26(3).

\* Species native to Hong Kong according to the Hong Kong Herbarium website <<http://www.herbarium.gov.hk>>

\*\* Species which is salt spray tolerant

# Species proposed on landscape berms

GROUND COVER PLANTING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [mm]
Aag #	<i>Agave angustifolia</i>	狹葉龍舌蘭	200(H) x 300(SP)	200
Aam #	<i>Agave americana</i>	龍舌蘭	100(H) x 100(SP)	100
Asl #	<i>Aglaonema 'Silver King'</i>	銀王粗肋草	150(H) x 150(SP)	100
Ave #	<i>Alternanthera versicolor</i>	錦繡蕘, 紅草	100(H) x 100(SP)	100
Ite #	<i>Iris tectorum</i>	鳶尾	100(H) x 100(SP)	100
Lmo #	<i>Lantana montevidensis</i>	鋪地臭金鳳	200(H) x 300(SP)	200
Lsp * #	<i>Liriope spicata</i>	山麥冬	100(H) x 100(SP)	100
Nex *	<i>Nephrolepis hirsutula</i>	毛葉腎蕨	150(H) x 200(SP)	150
Oja * #	<i>Ophiopogon japonicus</i>	麥冬	150(H) x 150(SP)	100
Rds #	<i>Rhoeo discolor</i>	紫背萬年青	150(H) x 200(SP)	100
Spo **	<i>Syngonium podophyllum</i>	合果芋	200(H) x 200(SP)	150
Wtr ** #	<i>Wedelia trilobata</i>	蟻蝶菊	100(H) x 100(SP)	100
Zan #	<i>Zephyranthes candida</i>	蔥蓮	100(H) x 100(SP)	100
Zro #	<i>Zephyranthes rosea</i>	玫瑰蔥蓮	150(H) x 200(SP)	100

TURFING <sup>(1)</sup>			
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]
Zja ** #	<i>Zoysia sp.</i>	朝鮮草	25(H)

HYDROSEEDING <sup>(1),(2)</sup>		
SPECIES CODE	BOTANICAL NAME	CHINESE NAME
Cda * ** #	<i>Cynodon dactylon</i>	百慕達草
Pno #	<i>Paspalum notatum</i>	百喜草
Eop * # / Lpe #	<i>Eremochloa ophiuroides / Lolium perenne</i>	假儉草 / 黑麥草

INDOOR PLANTING IN PASSENGER CLEARANCE BUILDING <sup>(1)</sup>				
SPECIES CODE	BOTANICAL NAME	CHINESE NAME	SIZE [mm]	SPACING [m]
<b>TREE</b>				
FB **	<i>Ficus benjamina</i>	垂榕	5000(H) x 4000(SP) x 150(DBH)	N.A.
<b>SHRUB</b>				
Ite	<i>Iris tectorum</i>	鳶尾	300(H) x 200(SP)	150
Sco	<i>Spathiphyllum commutatum</i>	白掌	300(H) x 300(SP)	200

