Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 10 November 2017 Date of Investigation Report: 14 November 2017

Notification No.: 20171103SS

Works Inspected: Data collected from water sampling works on 3 November 2017 and the results were issued on 10

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

## Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
	IS(Mf)11		23.5 and 120%	34.4 and 130% (i.e. 17.0 for mid- ebb/14.9 for mid-	10.8	26.6
66	SR5(N)	(i.e. 15.7 for mid- ebb/13.8 for mid- flood) of	flood) of upstream control	14.8	<u>37.8</u>	
55	SR6 Average upstreated station	upstream control station's SS at the same tide of the same day	25.9	14.1		
	SR7		the same day	and 10mg/L for WSD Seawater intakes	13.6	33.7

Notes:

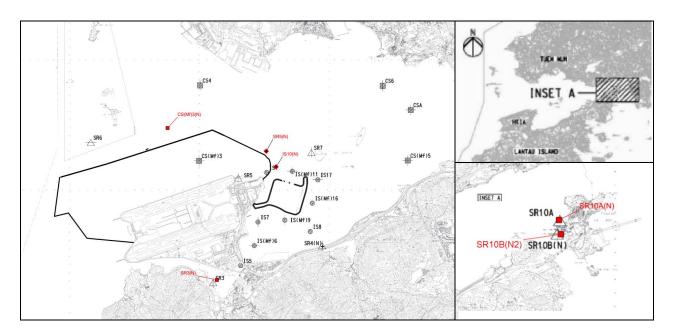
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

Bold with underline means LL exceedances.

On 3 November 2017, one AL exceedance of SS at SR6 was recorded during mid-ebb tide. Two AL exceedances of SS at IS(Mf)11 and SR7 were recorded during mid-flood tide. One LL exceedance of SS at SR5(N) was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 3 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	14 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	14 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 15 November 2017 Date of Investigation Report: 16 November 2017

Notification No.: 20171106SS

Works Inspected: Data collected from water sampling works on 6 November 2017 and the results were issued on 14

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

# Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)	
	IS(Mf)6		23.5 and 120% (i.e. 15.9 for mid-	upstream control	34.4 and 130%	10.0	27.2
	IS(Mf)16				11.5	25.1	
SS	SR7	Depth Average	ebb/19.8 for mid- flood) of upstream control		10.3	25.5	
	SR10A		station's SS at the same tide of the same day		15.0	26.0	
	SR10B(N)				7.9	25.2	

Notes:

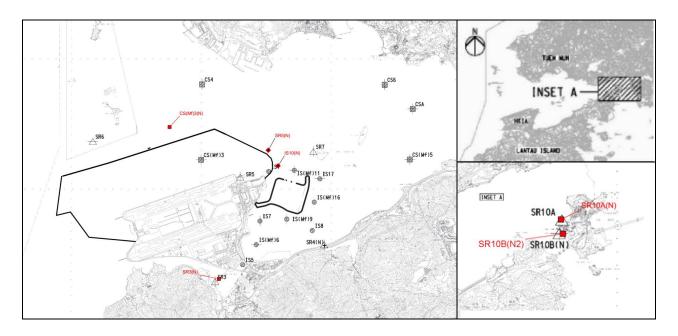
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 6 November 2017, five AL exceedances of SS at IS(Mf)6, IS(Mf)16, SR7, SR10A and SR10B(N) were recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 6 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	16 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	16 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 16 November 2017 Date of Investigation Report: 20 November 2017

Notification No.: 20171108SS

Works Inspected: Data collected from water sampling works on 8 November 2017 and the results were issued on 16

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

# Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
	IS(Mf)11		23.5 and 120% (i.e. 19.7 for mid- ebb/13.2 for mid- flood) of	34.4 and 130% (i.e. 21.3 for mid- ebb/14.3 for mid-	10.2	24.3
66	SR4(N)	Depth		flood) of upstream control	18.5	<u>35.1</u>
55	Average unstream control	station's SS at the same tide of the same day	14.9	38.2		
	SR6		the same day	and 10mg/L for WSD Seawater intakes	27.9	18.9

Notes:

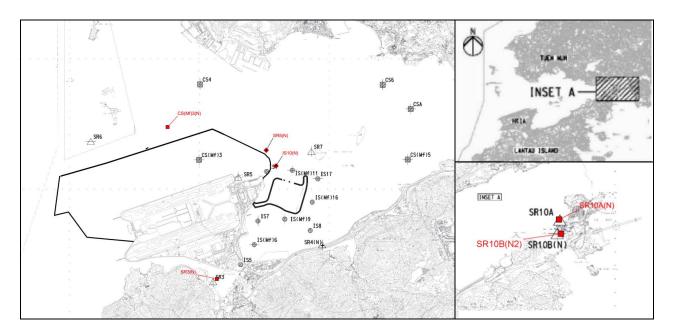
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 8 November 2017, one AL exceedance of SS at IS(Mf)11 was recorded during mid-flood tide. One AL exceedance of SS at SR6 was recorded during mid-ebb tide. Two LL exceedances of SS at SR4(N) and SR5(N) were recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 8 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	20 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	20 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 22 November 2017 Date of Investigation Report: 24 November 2017

Notification No.: 20171113SS

Works Inspected: Data collected from water sampling works on 13 November 2017 and the results were issued on 22

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

## Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
SS	IS8	Depth Average	23.5 and 120% (i.e. 7.6 for midebb/9.1 for midflood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 8.2 for midebb/9.9 for midflood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	16.6	29.1

Notes:

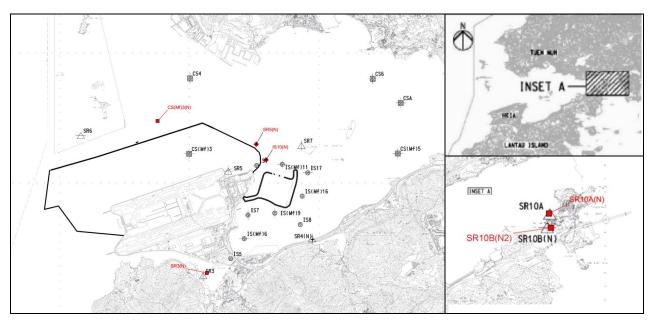
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 13 November 2017, one AL exceedance of SS at IS8 was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 13 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	24 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	24 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 22 November 2017 Date of Investigation Report: 24 November 2017

Notification No.: 20171115SS

Works Inspected: Data collected from water sampling works on 15 November 2017 and the results were issued on 22

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

## Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
SS	IS(Mf)6	Depth Average	23.5 and 120% (i.e. 8.4 for midebb/5.5 for midflood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 9.1 for midebb/6.0 for midflood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	8.9	24.8

Notes:

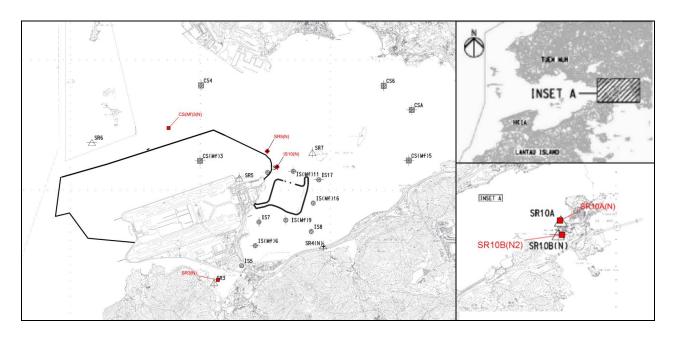
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 15 November 2017, one AL exceedance of SS at IS(Mf)6 was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 15 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	24 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	24 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 28 November 2017 Date of Investigati

Date of Investigation Report: 30 November 2017

Notification No.: 20171120SS

Works Inspected: Data collected from water sampling works on 20 November 2017 and the results were issued on 28

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

## Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
SS	SR7	Depth Average	23.5 and 120% (i.e. 19.7 for midebb/14.0 for midflood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 21.4 for midebb/15.2 for midflood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	11.7	24.1

Notes:

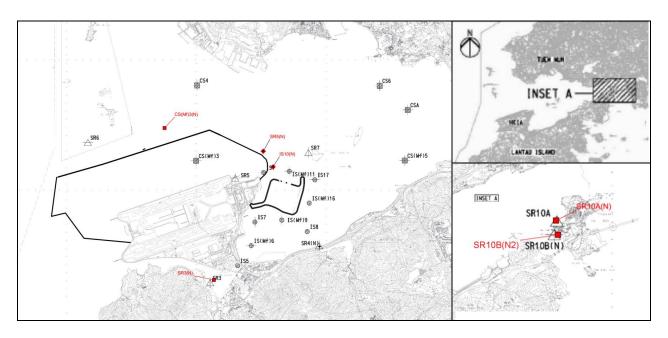
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 20 November 2017, one AL exceedance of SS at SR7 was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 20 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	30 November 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	30 November 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 30 November 2017

Date of Investigation Report: 6 December 2017

Notification No.: 20171122SS

Works Inspected: Data collected from water sampling works on 22 November 2017 and the results were issued on 29

November 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

## Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
SS	SR6	Depth Average	23.5 and 120% (i.e. 12.5 for midebb/7.5 for midflood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 13.5 for midebb/8.2 for midflood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	26.6	<u>36.1</u>

Notes:

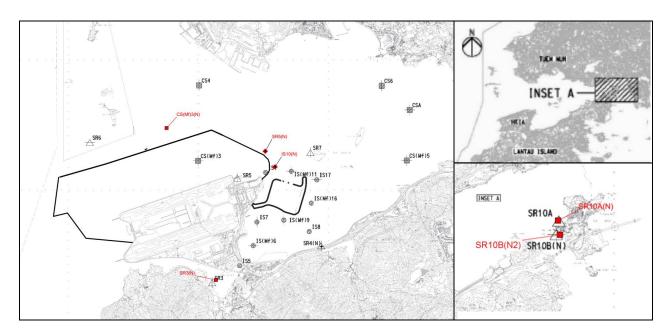
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 22 November 2017, one AL exceedance of SS at SR6 was recorded during mid-ebb tide and one LL exceedance of SS at SR6 was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 22 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	6 December 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	6 December 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

**Notifications of Environmental Quality Limits Exceedances** 

Date of Notification: 1 December 2017 Date of Investigation Report: 7 December 2017

Notification No.: 20171124SS\_v1

Works Inspected: Data collected from water sampling works on 24 November 2017 and the results were issued on 1

December 2017

Monitoring Location: Water Quality Monitoring Station

Parameter: Dissolved Oxygen (DO)/ Suspended Solid (SS)/ Turbidity (TURB)

# Action & Limit Level (AL & LL) / Measured Level:

PARAM	STATION	DEPTH	AL (mg/L)	LL (mg/L)	MEASURED AT MID- EBB TIDE (mg/L)	MEASURED AT MID- FLOOD TIDE (mg/L)
SS	IS8	Depth Average	23.5 and 120% (i.e. 16.8 for midebb/12.8 for midflood) of upstream control station's SS at the same tide of the same day	34.4 and 130% (i.e. 18.2 for midebb/13.9 for midflood) of upstream control station's SS at the same tide of the same day and 10mg/L for WSD Seawater intakes	10.6	29.9

Notes:

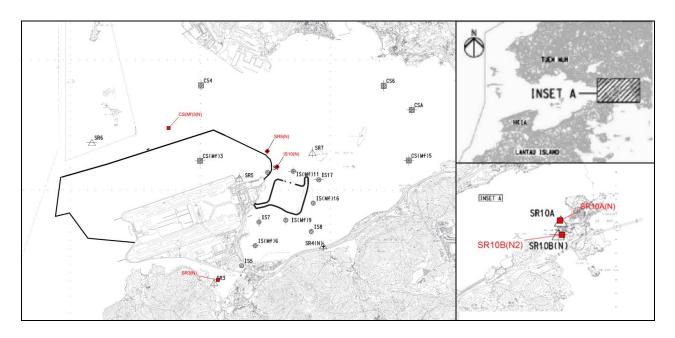
AL means Action Level.

LL means Limit Level.

**Bold** means AL exceedances.

**Bold with underline** means LL exceedances.

On 24 November 2017, one AL exceedance of SS at IS8 was recorded during mid-flood tide.



As confirmed by the Contractor, there was no marine transportation and marine-based work on 24 November 2017. No site runoff within the Contract site has been observed. Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

As the exceedance was not related to the Contract, no immediate actions are required. However, the Contractor was also reminded to implement environmental mitigation measures in accordance with Environmental Mitigation Implementation Schedule.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	7 December 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	Date:	7 December 2017

Hong Kong- Zhuhai- Macao Bridge

Hong Kong Boundary Crossing Facilities - Passenger Clearance Building

Notifications of Environmental Quality Limits Exceedances Notification No.: 20171128\_Air\_24hr\_v2

Date of Notification: 6 December 2017 Date of Investigation Report: 13 December 2017

Date of Environmental Quality Limit Exceedance: 28 November 2017 and the results were issued on 6 December 2017

Monitoring Location: AMS3B - Site Boundary of Site Office Area at Work Area WA2

Monitoring Date: 28 November 2017 Start Time: 08:00

Action & Limit Level (AL & LL) / Measured Level:

PARAMETER	STATION	AL (μg/m³)	LL (µg/m³)	MEASURED LEVEL, μg/m³
24-hr TSP	AMS3B – Site Boundary of Site Office Area at Works Area WA2	167	260	168

Notes: Bold Italic means AL exceedance

Bold Italic with underline means LL exceedance

On 28 November 2017, one AL exceedance of 24-hr TSP at AMS3B was recorded.

Based on the information form the Contractor, the construction works undertaken on 28 and 29 November 2017 are shown as below:

- Waterproofing
- Backfilling
- Formwork and falsework stripping
- Pipework and ductwork installation
- Hanger rods for cable container
- Wet trade works
- Dry trade works
- MEP High Level Containment
- Removal of temporary works
- Window wall glazing
- Heat exchanger installation
- Curtain wall glazing
- Hanging scaffolding removal
- Footbridge construction
- Refuse collection point
- Southern toilet
- MISC steelwork
- Lift installation
- Escalator Installation
- Glazed lift installation
- Road & Kerbing
- · Testing and commissioning works
- Water features and planters

The Contractor confirmed that the mitigation measures according to Water Spraying Plan in November 2017 (Appendix A) are implemented to avoid dust emission. Photos of haul road condition and dust suppression are included in Appendix A. The Contractor has provided the guideline to remind the site vehicles travel within speed limit of 8km/hr. According to the site inspection conducted on 29 November 2017, no dusty activities and dry condition in haul road were observed in the site area.

The Air Quality Health Index (AQHI) of Tung Chung station with the wind data from the on-site wind station are shown in Appendix B. The hourly AQHI of Tung Chung Station ranged 3 to 8 (Low to Very High) on 28 and 29 November 2017 during monitoring period. According to the wind data at on-site wind station, no prevailing wind direction was found in the monitoring period. The PCB site of HKBCF is far away from AMS3B (more than 1km). No potential dust source was observed near the monitoring station at AMS3B during the monitoring period.

Therefore, it is concluded that the exceedances were not related to the Contract.

#### Actions taken/ to be taken:

The Water Spraying Plan including the information of watering schedule, routing of trucks of for watering and the location of water filling, was prepared and submitted to RE and ENPO. The Contractor was also reminded to implement all necessary mitigation as specified in EIA (Section 5.5.6.3), EM&A Manual (EM&A Log Ref: A3), EMP, Method Statements, General and Particular Specifications of this Project to minimize the potential dust impact during construction activities.

Prepared by:	Evan Wong	Title:	Environmental Team Representative
Signature:	4	Date:	13 December 2017
Checked by:	Keith Chau	Title:	Environmental Team Leader
Signature:	Keith	_ Date:	13 December 2017



# Contract No. HY/2013/01 Hong Kong – Zhuhai – Macao – Bridge Boundary Crossing Facility – Passenger Clearance Building

Water Truck License Plate Number: TH7681

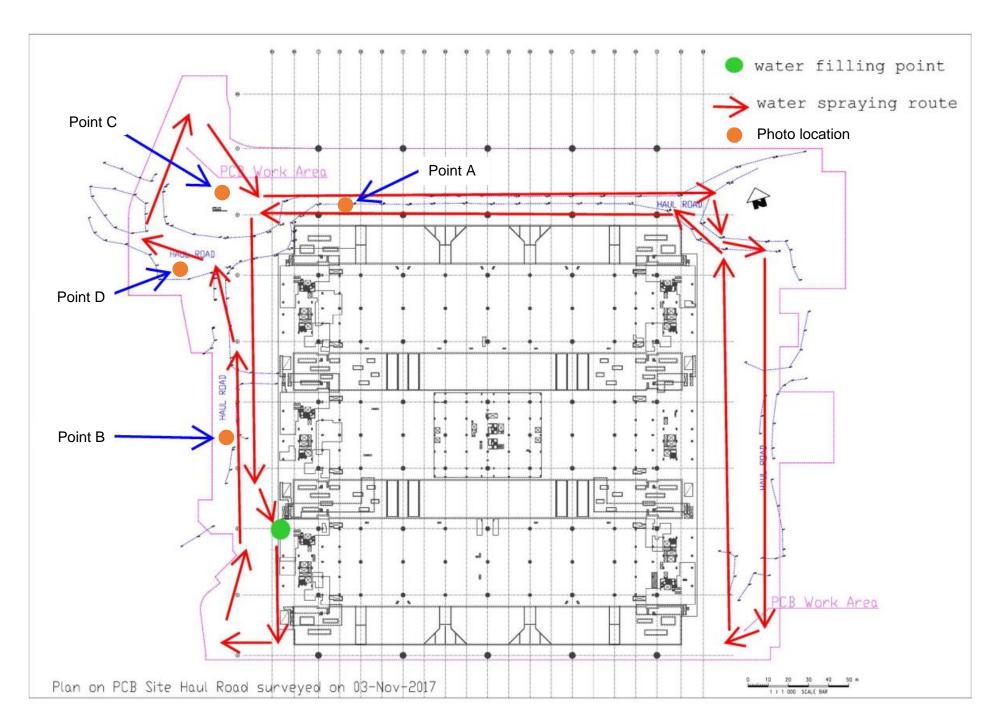
Capacity of Water Truck: 18000L

Volume of water / distance travelled = 11.4L/m

Water Truck could spray 18000L in one 50 minutes trip.

# Planned Schedule of Watering Spraying by Water Truck

Cycle	Time of water spraying
1	08:00 - 09:15
2	09:15 - 10:30
3	10:30 - 11:45
4	13:00 - 14:15
5	14:15 - 15:30
6	15:30 - 16:45
7	16:45 - 18:00
8	18:00 - 19:00



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# Water spraying record on 28 Nov 2017





Haul road is wet (Point A)



Haul road is wet (Point B)

# Water spraying record on 29 Nov 2017





Water truck spray water on haul road (Point C)





Haul road is wet (Point D)

# Appendix B

Date	Hour	AQHI at Tung Chung Station	Average Wind Speed (m/s) #	Average Wind Direction #
2017/11/28	8	3	0	
2017/11/28	9	3	0	
2017/11/28	10	3	0	
2017/11/28	11	4	0	
2017/11/28	12	4	0	E
2017/11/28	13	4	0	
2017/11/28	14	5	0	
2017/11/28	15	5	0	
2017/11/28	16	7	0	WNW
2017/11/28	17	5^	0	
2017/11/28	18	6^	0	
2017/11/28	19	8	0	
2017/11/28	20	7	0	E
2017/11/28	21	6	0	
2017/11/28	22	6	0	
2017/11/28	23	6	0	
2017/11/29	0	5	0	
2017/11/29	1	5	0	
2017/11/29	2	4	0	
2017/11/29	3	4	0	
2017/11/29	4	4	0	
2017/11/29	5	3^	0	
2017/11/29	6	3^	0	SSE
2017/11/29	7	3	0	SSE
2017/11/29	8	3	0.4	ENE

# Remark:

- ^ The data collection for calculation of AQHI was affected due to station or equipment maintenance, the data of a most similar station was adopted.
- #- The related wind data is obtained from the on-site wind station.
- N.A. Not available.