

### Environmental Complaint Form

<b>RECEIPT OF COMPLAINT</b>		<b>Ref: ENPO-C0129</b>
Date:	29 December 2017	
Time:	N/A	
Via:	HyD (ref: CASE#2-4404344922)	
<b>COMPLAINANT</b>		
Name:	N/A	Address: N/A
Contact no.:	N/A	
<b>DETAILS OF COMPLAINT</b>		
Date:	Not specified in complaint	
Time:	Not specified in complaint	
Parameter:	Air Quality and Water Quality      Other (specify): N/A	
Description:	<p>The complaint was about effectiveness of mitigation measures implemented for dust and mud (namely, street washing vehicles and dust collecting vehicles) on East Coast Road to handle dust problems associated with HZMB BCF Island site works, which according to the complainant, was not as effective as they should. Specifically, the complainant said that water spray from street washing vehicles had turned the dust on the road into mud, and furthermore dust was still present on the road despite the use of dust collecting vehicles, causing the problem to persist.</p>	
<b>INVESTIGATION RESULT &amp; RESPONSE</b>		
<p>IEC and ER notified on: 8 January 2018</p> <p>ET inspected site on: 10, 15 and 24 January 2018 (before operation of wheel wash facility)          31 January, 9 and 12 February 2018 (following implementation of wheel wash facility)</p> <p>Result of investigation:</p> <p>This investigation reviewed the effectiveness of mitigation measures implemented by the Contractor of HY/2013/04 to control any potential dust or mud nuisance attributed to vehicles leaving the HY/2013/04 site boundary.</p> <p>The relevant mitigation measures for access roads for the HZMB BCF Island site, as required in the EMIS and statutory requirements in the Air Pollution Control (Construction Dust) Regulations and other applicable environmental legislation, are consolidated as follows:</p> <ul style="list-style-type: none"> <li>• Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty materials from its body and wheels and to ensure that no earth, mud or debris is deposited by them on roads.</li> <li>• 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> <li>• Every main haul road shall be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials, or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.</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>• The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per</li> </ul>		

day) throughout the construction phase.

In early January 2018 RE had requested the Contractor of HY/2013/04 to provide a wheel washing facility at the HY/2013/04 site boundary exit for vehicles to adjacent HKBCF contract site. A map showing the general location of the HKBCF contract sites is presented in **Attachment 1**.

As informed by the Contractor of HY/2013/04, water spray was provided by site workers as an interim measure at the HY/2013/04 site boundary entrance/exit for vehicles leaving HY/2013/04 site in the direction of HZMB BCF Island site exit. The wheel washing facility was subsequently completed and implemented on 27 January 2018. Contractor's photos showing the operation of the wheel wash facility on that day are presented in **Attachment 2**.

Also, watering of all main haul roads was provided in accordance with the HY/2013/04 site watering plan (as presented in **Attachment 3**). This plan schedules water spraying for at least 8 times per day which follows the recommended mitigation measures in the EM&A Manual and Environmental Permit. Before operation of the wheel wash facility, ET conducted regular weekly site inspections on 10, 15 and 24 January 2018 with extra focus on the implementation status of all air quality and water quality mitigation measures including haul roads and washing of vehicles leaving HY/2013/04 site. The following observations were made:

- 10 January 2018 (14:00-15:00): Water spray was provided for haul roads in the HY/2013/04 site area. Water spray from two hoses was provided by the Contractor to wash the wheels of vehicles leaving HY/2013/04 and entering HY/2013/02 site towards HZMB BCF Island site exit. No specific observations referring to air or water quality mitigation measures associated with wheel washing facility.
- 15 January 2018 (14:30-15:30): Water spray was provided for haul roads in the HY/2013/04 site area. Water spray from two hoses was provided by the Contractor to wash the wheels of vehicles leaving HY/2013/04 and entering HY/2013/02 site towards HZMB BCF Island site exit. An air quality observation regarding effectiveness of water spray was made; subsequently the Contractor displayed a temporary stop sign to ensure vehicles were being properly washed at this location and the observation was closed. Also, an air quality observation regarding dry haul road at Bridge D1 was observed; subsequently, the Contractor provide water spray.
- 24 January 2018 (14:00-15:00): Water spray was provided for haul roads in the HY/2013/04 site area. Water spray from two hoses was provided by the Contractor to wash the wheels of vehicles leaving HY/2013/04 and entering HY/2013/02 site towards HZMB BCF Island site exit. No specific observations referring to air or water quality mitigation measures associated with wheel washing facility.

Following commencement of operation of the wheel wash facility, ET conducted regular weekly site inspections on 31 January, 9 and 12 February 2018 with extra focus on the implementation status of all air quality and water quality mitigation measures including haul roads and washing of vehicles leaving HY/2013/04 site. The following observations were made:

- 31 January 2018 (14:30-15:00): Water spray provided for haul roads in the HY/2013/04 site area. Wheel wash facility was in operation. No specific observations referring to air or water quality mitigation measures associated with wheel washing facility.
- 9 February 2018 (14:00-15:00): Water spray was provided for haul roads in the HY/2013/04 site area. Wheel wash facility was in operation. No specific observation referring to air or water quality mitigation measures associated with wheel washing facility and access roads was observed.
- 12 February 2018 (14:00-15:00): Wheel wash facility was in operation; no specific observation referring to air or water quality mitigation measures associated with the wheel wash facility was observed. Water spray was provided for haul roads in the HY/2013/04 site area. An air quality observation regarding fugitive dust generated when vehicles passed through the haul road between wheel washing facilities and Box Culvert C was observed. The Contractor was reminded to provide watering on haul road frequently.

Relevant photos for each abovementioned site inspection are presented in **Attachment 4**.

#### **RECOMMENDATIONS / MITIGATION MEASURES / ACTIONS**

The Contractor was reminded to properly implement all necessary air and water quality mitigation measures identified in the EM&A Manual. Proper implementation of the site watering plan should be maintained to prevent potential dust dispersion due to site vehicles. Also, all site vehicles leaving HY/2013/04 site should be properly washed at the wheel washing facilities at HY/2013/04 site exit to prevent muddy trail on the access roads and public roads thereafter.

The Contractor has agreed to provide 4 no. site workers for the operation of the wheel washing facility. They will be trained in the use of temporary traffic signals to control the flow of vehicles and ensure proper cleaning before being allowed to proceed. A grab lorry will be deployed daily to remove silt from the wheel wash pit and a wastewater treatment facility will be implemented to treat the site runoff. A plan of the wheel washing facility is presented in **Attachment 5**.

Photos showing implementation of the wheel washing facility at HY/2013/04 site exit on 9 and 12 February 2018 are presented in **Attachment 4**.

Prepared by: Gary Chow

Title: Environmental Team Leader

Signature:



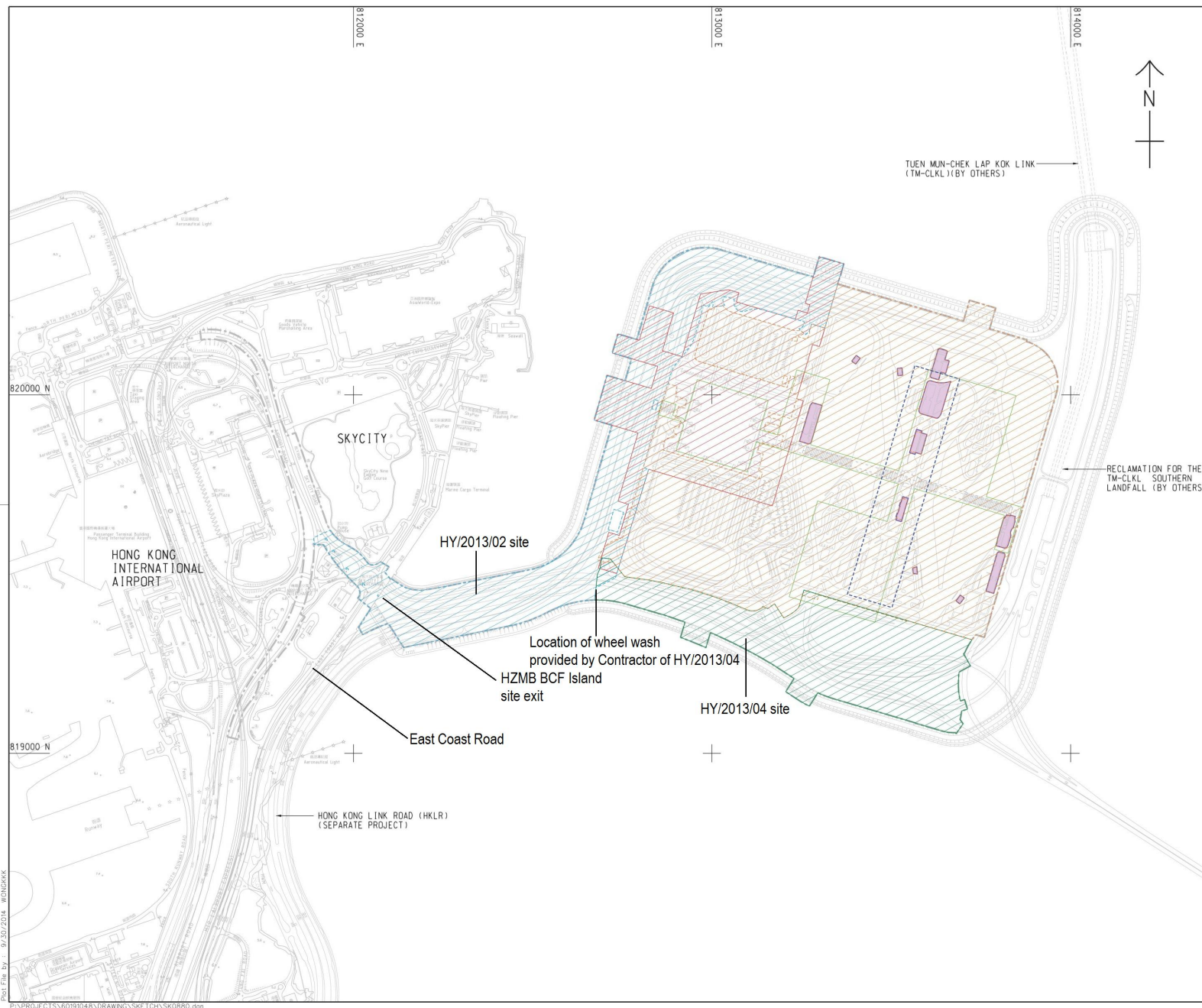
Date: 15 February 2018

#### **ATTACHMENTS**

1. General location of the HKBCF contract sites.
2. Contractor's photos showing completion of the wheel wash facility on 27 January 2018.
3. Site watering plan for HY/2013/04.
4. Photos of site mitigation measures (and observations) on 10, 15, 24 and 31 January, 9 and 12 February 2018.
5. Wheel washing facility layout plan.

## **Attachment 1**





LEGEND:

- SITE BOUNDARY
- HY/2013/01
  - HY/2013/02
  - HY/2013/03
  - HY/2013/04
  - HY/2013/06
  - HY/2014/04
  - HY/2014/05

HONG KONG HIGHWAYS DEPARTMENT 香港公路局 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office	
AGREEMENT NO. 13/2010 (CE) HONG KONG-ZHUAHAI-MACAO BRIDGE HONG KONG BOUNDARY CROSSING FACILITIES (SUPERSTRUCTURES AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION	
CONTRACT AREA	
<b>AECOM</b> Aedas Rogers Stirk Harbour + Partners BURG HAPPOLD ATKINS ADI	
DRGNO. 圖紙編號	
DESIGNED BY 設計人	CONTRACT NO. 合約編號
DRAWN BY 繪圖人	STATUS 狀態
SCALE 比例	DATE 日期
© COPYRIGHT RESERVED 版權所有	

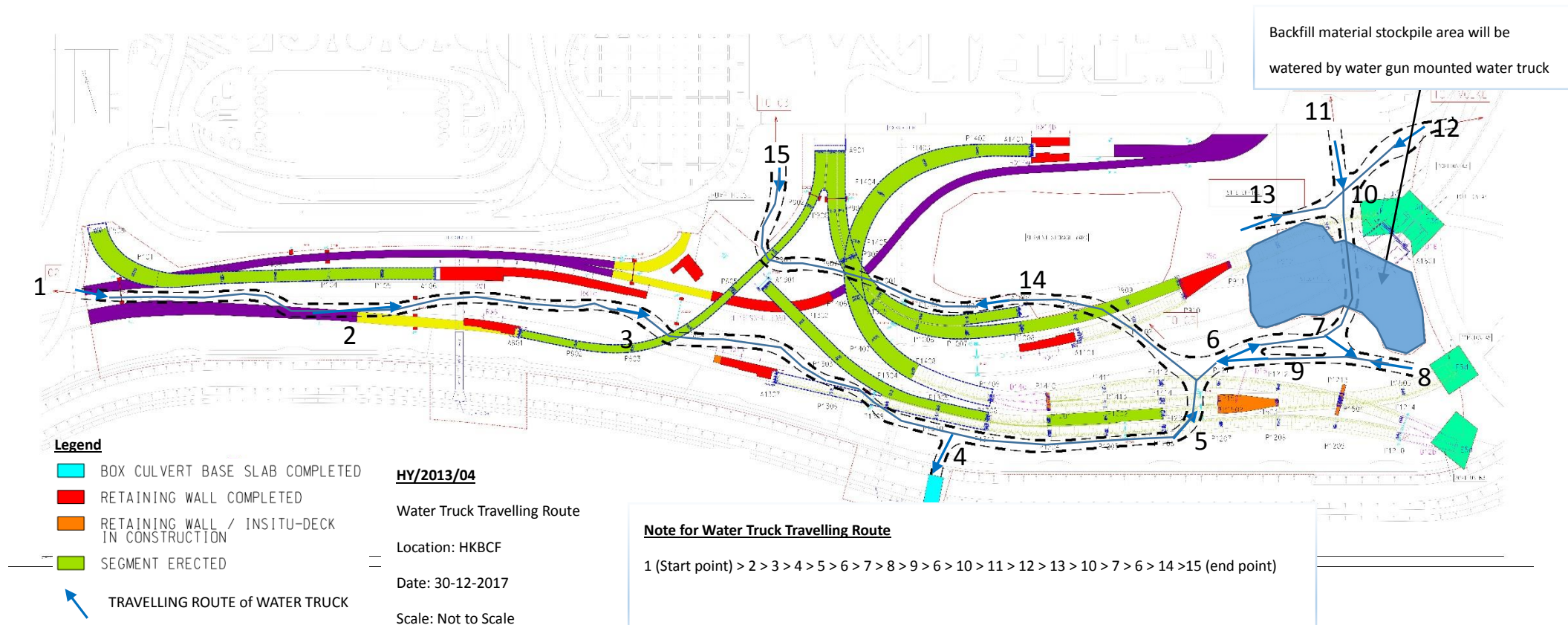
## **Attachment 2**

**Contractor's photos showing completion of the wheel wash facility  
on 27 January 2018**



1. Wheel wash facility and water spray provided at HY/2013/04 site boundary for vehicles leaving HY/2013/04 site towards BCF Island site exit.

## **Attachment 3**



## HY/2013/04 Water Truck Travelling Route



# HY/2013/04 Water Uptake Point for Water Truck

Water uptake point for water truck



SKYCITY

LOCATION OF TEMPORARY—  
MARINE LOADING AND  
UNLOADING POINTS THAT  
MAY BE SET UP BY  
HY/2013/02 CONTRACTOR

HAUL ROAD TO OTHER CONTRACTS  
NOT SHOWN FOR CLARITY

GATE 2 TO BE CONSTRUCTED AND MAINTAINED BY  
HY/2010/02 CONTRACTOR FOR ACCESS TO HY/2013/03,  
HY/2013/04, HY/2013/06, HY/2014/04, HY/2014/05,  
HY/2012/07 AND HY/2012/08 SITES OR SITE OF  
OTHER CONTRACTS AS ADVISED BY THE ENGINEER

GATE 3 TO BE CONSTRUCTED UPON  
POSSESSION OF PORTION B1

GATE A TO BE CONSTRUCTED  
AND MAINTAINED BY HY/2013/03  
CONTRACTOR FOR ACCESS TO  
HY/2013/03, HY/2013/06,  
HY/2014/04 AND HY/2014/05 SITES

HAUL ROAD TO BE CONSTRUCTED BY  
HY/2010/02 CONTRACTOR AND BE MAINTAINED,  
DIVERTED AND MANAGED BY HY/2013/04  
CONTRACTOR UPON POSSESSION OF PORTION A1  
GATE 1 TO BE CONSTRUCTED UPON  
POSSESSION OF PORTION A1

HAUL ROAD TO BE CONSTRUCTED BY HY/2010/02  
CONTRACTOR AND BE MAINTAINED, DIVERTED AND  
MANAGED BY HY/2013/04 CONTRACTOR UPON  
POSSESSION OF PORTION B1

HAUL ROAD TO BE CONSTRUCTED BY  
OTHERS AND BE MAINTAINED, DIVERTED  
AND MANAGED BY HY/2013/04  
CONTRACTOR UPON POSSESSION OF  
PORTION C1

HAUL ROAD TO BE CONSTRUCTED BY  
OTHERS AND BE MAINTAINED, DIVERTED  
AND MANAGED BY HY/2013/04  
CONTRACTOR UPON POSSESSION OF  
PORTION B1

HAUL ROAD TO BE CONSTRUCTED,  
MAINTAINED, DIVERTED AND MANAGED  
BY HY/2013/04 CONTRACTOR UPON  
POSSESSION OF PORTION B2

GATE B TO BE CONSTRUCTED  
AND MAINTAINED BY HY/2012/07  
CONTRACTOR FOR ACCESS TO  
HY/2012/07 AND HY/2012/08 SITES

HAUL ROAD TO BE CONSTRUCTED,  
MAINTAINED, DIVERTED AND  
MANAGED BY OTHERS





Water Truck License Plate Number: TW4312 & ES6277

Capacity of Water Truck: 15000L

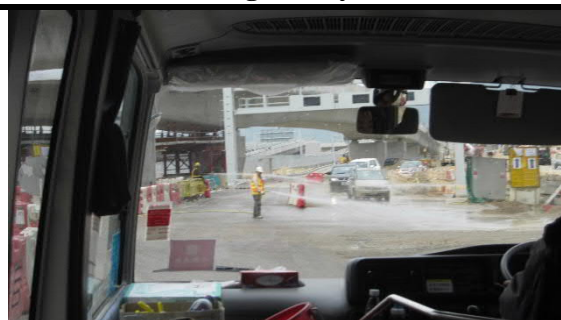
#### Planned Schedule of Water Spraying

Cycle	Time of Water Spraying
1	08:20-09:20
2	09:20-10:20
3	10:20-11:20
4	11:20-12:20
5	13:20-14:20
6	14:20-15:20
7	15:20-16:20
8	16:20-17:20

## **Attachment 4**

## Before Operation of Enhanced Wheel Washing Facilities

### Photo record of site mitigation measures for access roads during weekly environmental site inspection on 10 January 2018



1. Water spray provided at HY/2013/04 site boundary for vehicles leaving HY/2013/04 site towards BCF Island site exit. No adverse observation was observed.

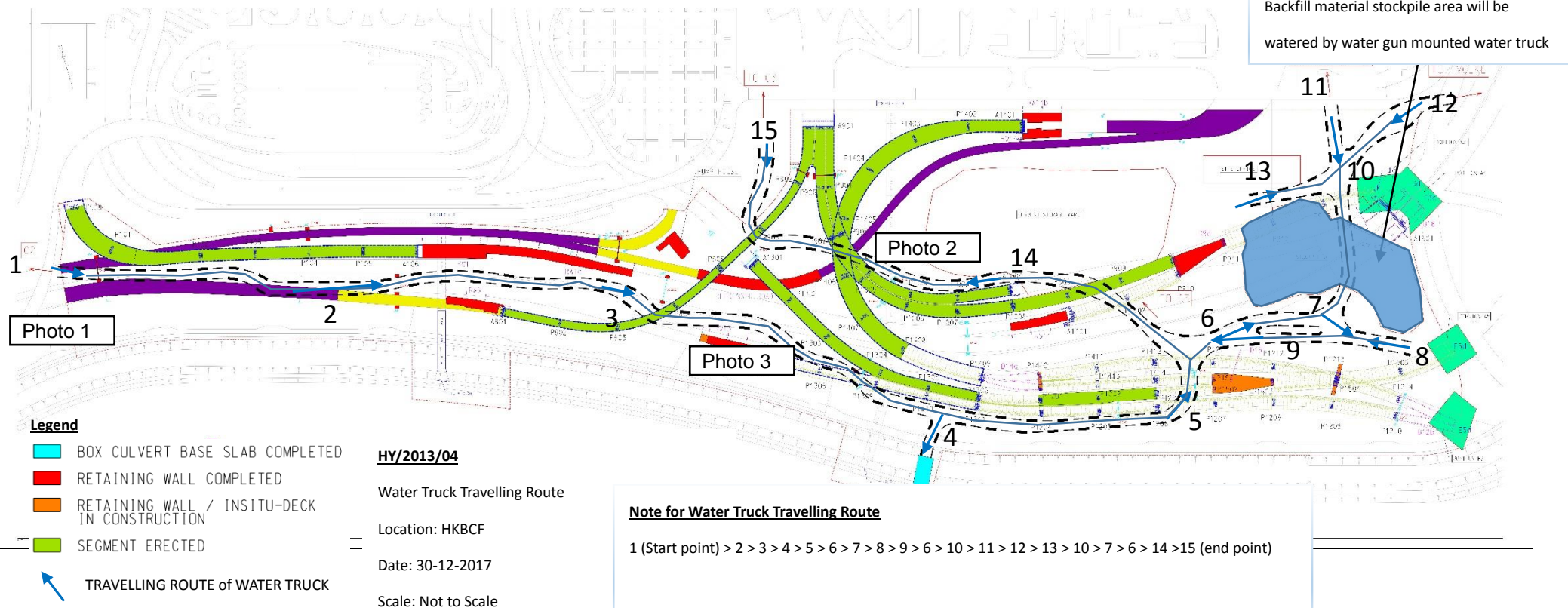


2. Water spray provided for haul roads in the HY/2013/04 site area (near Bridge D10).



3. Haul roads were wetted in the HY/2013/04 site area (between Box Culvert C and Box Culvert D).

Photos taken on 10 January 2018



## HY/2013/04 Water Truck Travelling Route



**Photo record of site mitigation measures for access roads  
during weekly environmental site inspection on 15 January 2018**



1a. Water spray provided for site vehicles leaving the HY/2013/04 site area towards BCF Island site exit.

Air quality observation: The Contractor was reminded to display a sign of temporary stop in the vicinity of wheel washing facilities.



1b. Subsequent follow-up action by Contractor: Sign of temporary stop in the vicinity of wheel washing area.



2. Water spray provided for haul roads in the HY/2013/04 site area (near Box Culvert C). No fugitive dust generation was observed.



3. Water spray provided for haul roads in the HY/2013/04 site area (near Bridge D14a). No fugitive dust generation was observed.

**Photo record of site mitigation measures for access roads  
during weekly environmental site inspection on 15 January 2018**



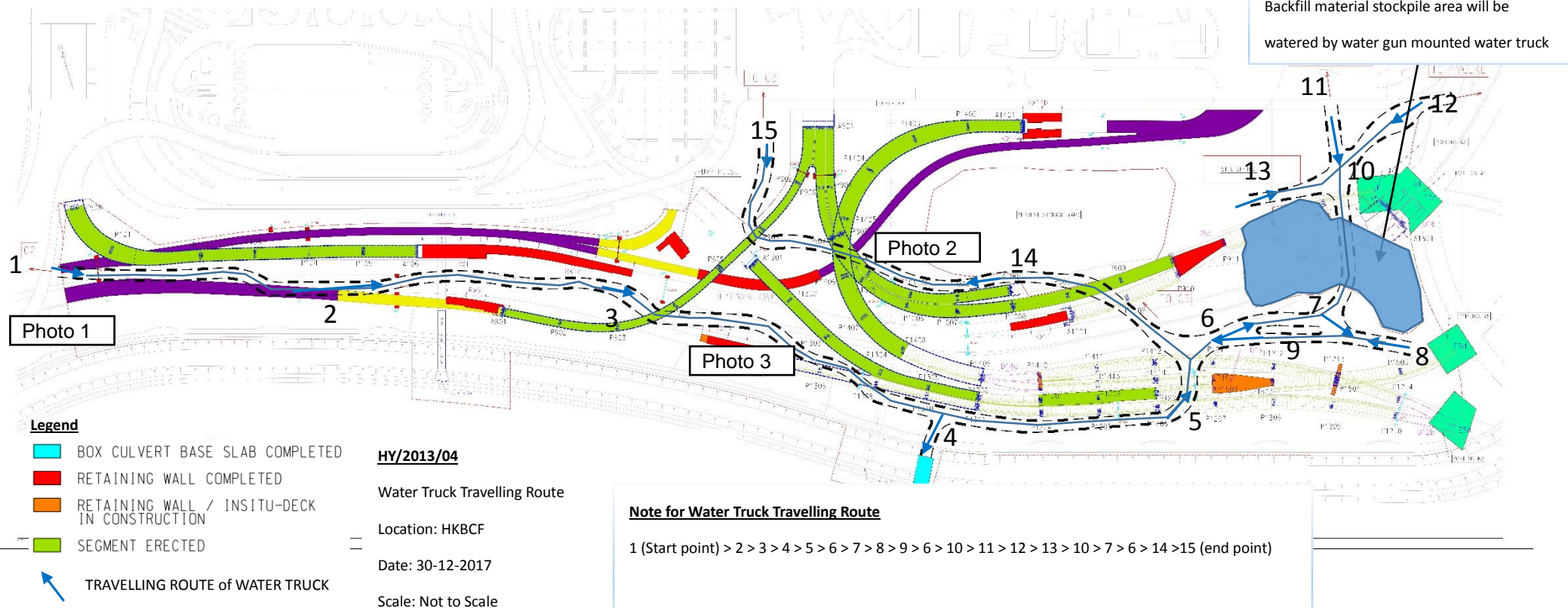
4a. Air quality observation: Dry haul road at Bridge D1.



4b. Subsequent follow-up action by Contractor: provision of water spray.



Photos taken on 15 January 2018



## HY/2013/04 Water Truck Travelling Route

**Photo record of site mitigation measures for access roads  
during weekly environmental site inspection on 24 January 2018**



1. Water spray provided for haul roads in the HY/2013/04 site area (near Box Culvert C). No fugitive dust generation was observed.



2. Water spray provided for haul roads in the HY/2013/04 site area (near Bridge D13). No fugitive dust generation was observed.

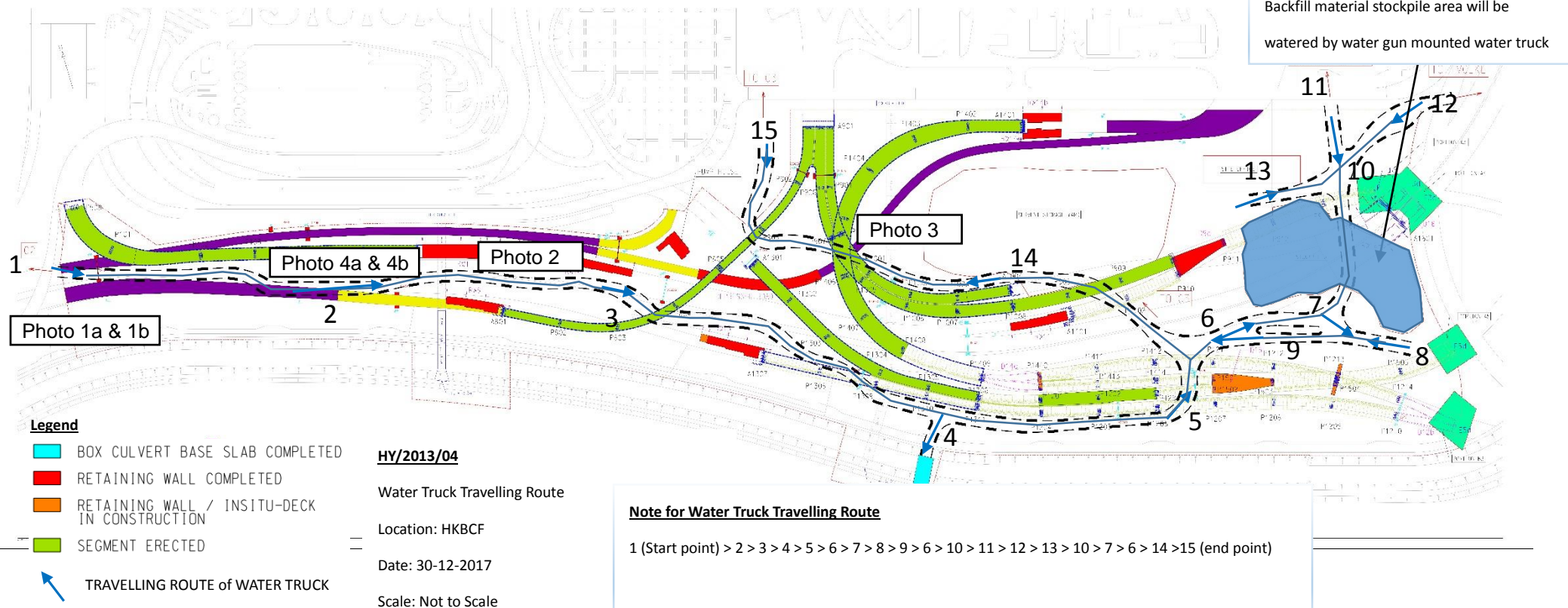


3. Water spray provided for haul roads in the HY/2013/04 site area (near Bridge D10). No fugitive dust generation was observed.



4. Water spray provided for haul roads in the HY/2013/04 site area (near Bridge D9a). No fugitive dust generation was observed.

Photos taken on 24 January 2018



## HY/2013/04 Water Truck Travelling Route



### After Operation of Enhanced Wheel Washing Facilities

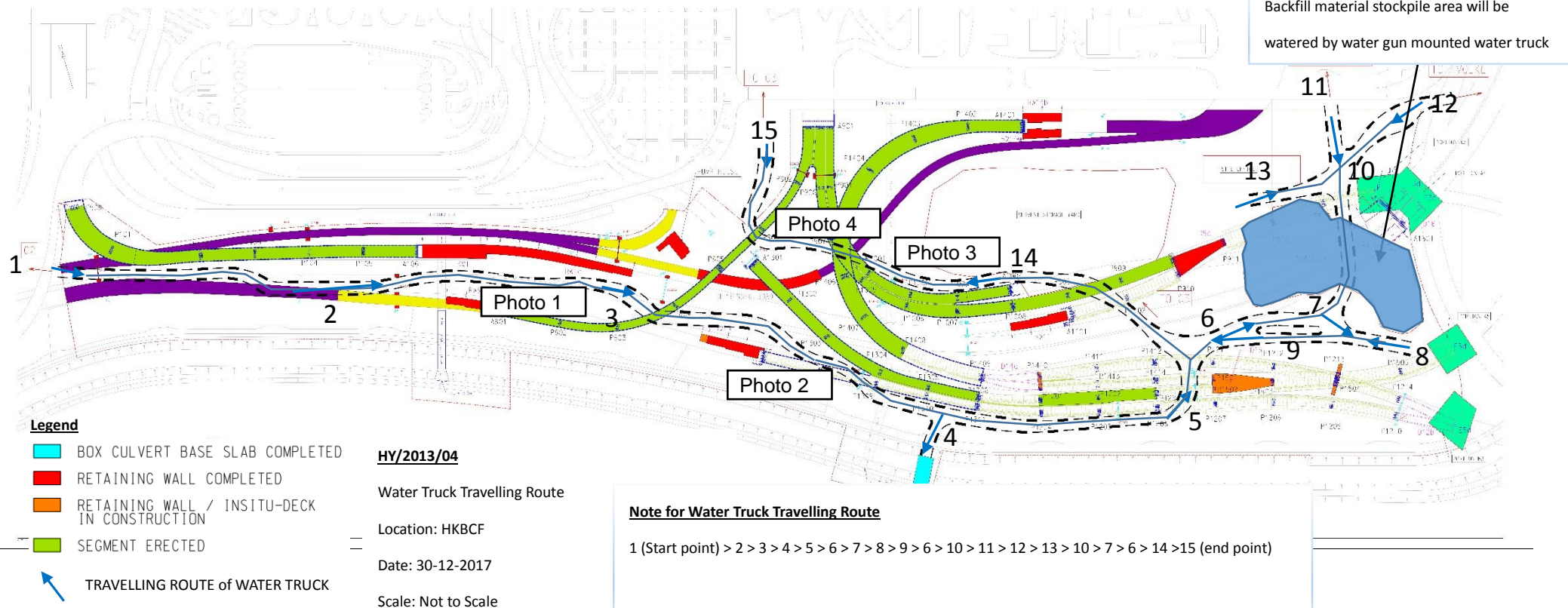
**Photo record of site mitigation measures for wheel wash facility and access roads during weekly environmental site inspection on 31 January 2018**



1. Wheel wash facility was in operation at HY/2013/04 site boundary for vehicles leaving HY/2013/04 site towards BCF Island site exit. No specific observation referring to air or water quality mitigation measures associated with access roads was observed.

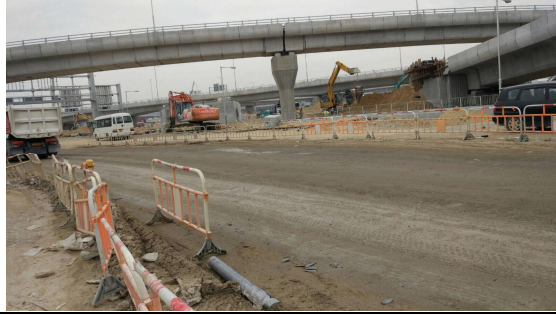
2. Water spray provided for haul roads in the HY/2013/04 site area (near Box Culvert D). No fugitive dust generation was observed.

Photos taken on 31 January 2018



## HY/2013/04 Water Truck Travelling Route

**Photo record of site mitigation measures for wheel wash facility and access roads during weekly environmental site inspection on 9 February 2018**



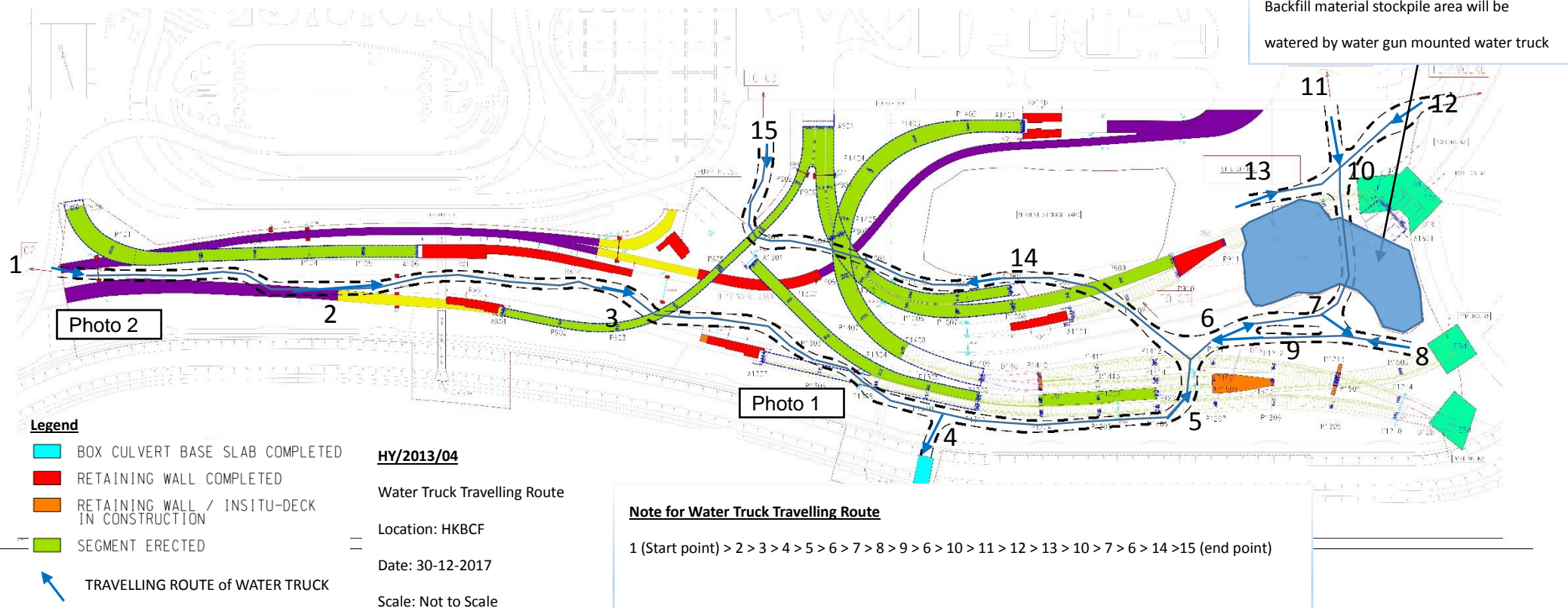
1. Haul roads were wetted in the HY/2013/04 site area (between Box Culvert C and Box Culvert D). No specific observation referring to air or water quality mitigation measures associated with access roads was observed.



2. Wheel wash facility was in operation at HY/2013/04 site boundary for vehicles leaving HY/2013/04 site towards BCF Island site exit. No specific observation referring to air or water quality mitigation measures associated with the wheel wash facility was observed.



Photos taken on 9 February 2018



## HY/2013/04 Water Truck Travelling Route

**Photo record of site mitigation measures for wheel wash facility and access roads during weekly environmental site inspection on 12 February 2018**



1. Wheel wash facility was in operation at HY/2013/04 site boundary for vehicles leaving HY/2013/04 site towards BCF Island site exit. No specific observation referring to air or water quality mitigation measures associated with the wheel wash facility was observed.

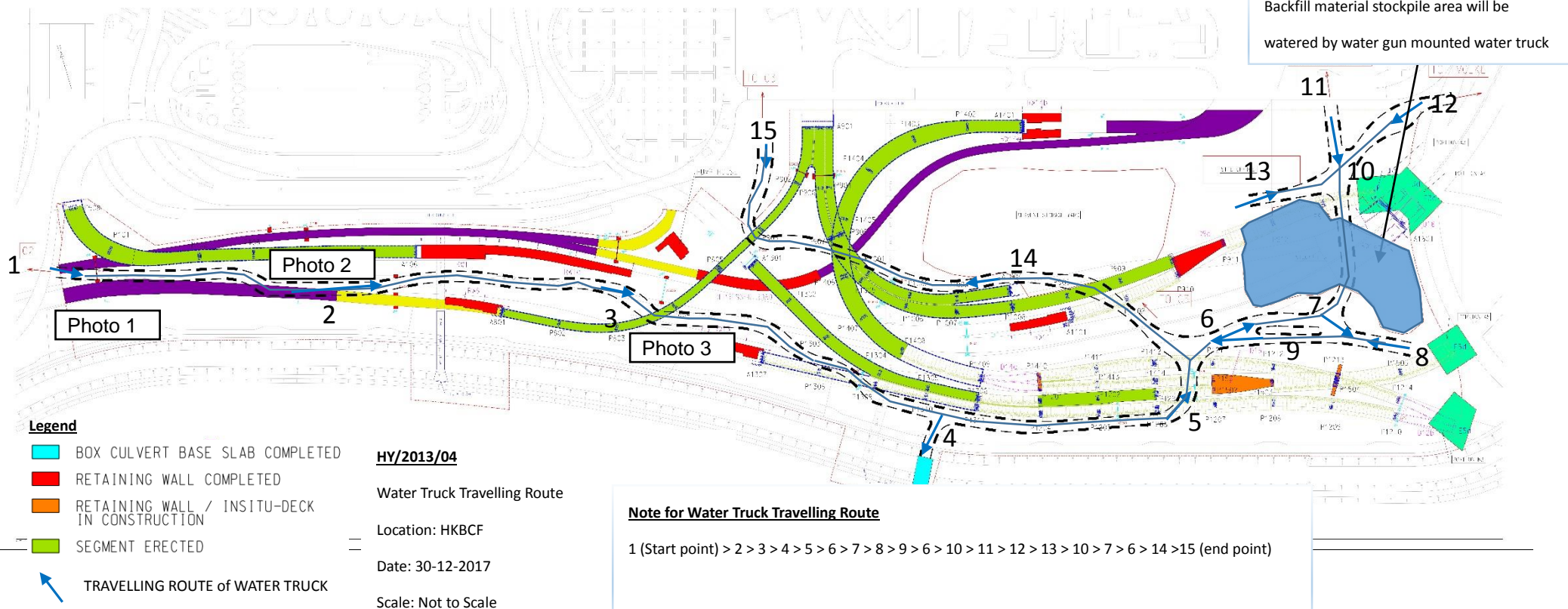


2. Air quality observation: Fugitive dust was generated when vehicles passed through the haul road between wheel washing facilities and Box Culvert C. The Contractor was reminded to provide watering on haul road frequently.



3. Haul roads were wetted in the HY/2013/04 site area (between Box Culvert C and Box Culvert D).

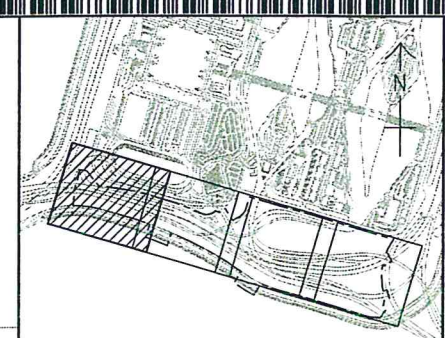
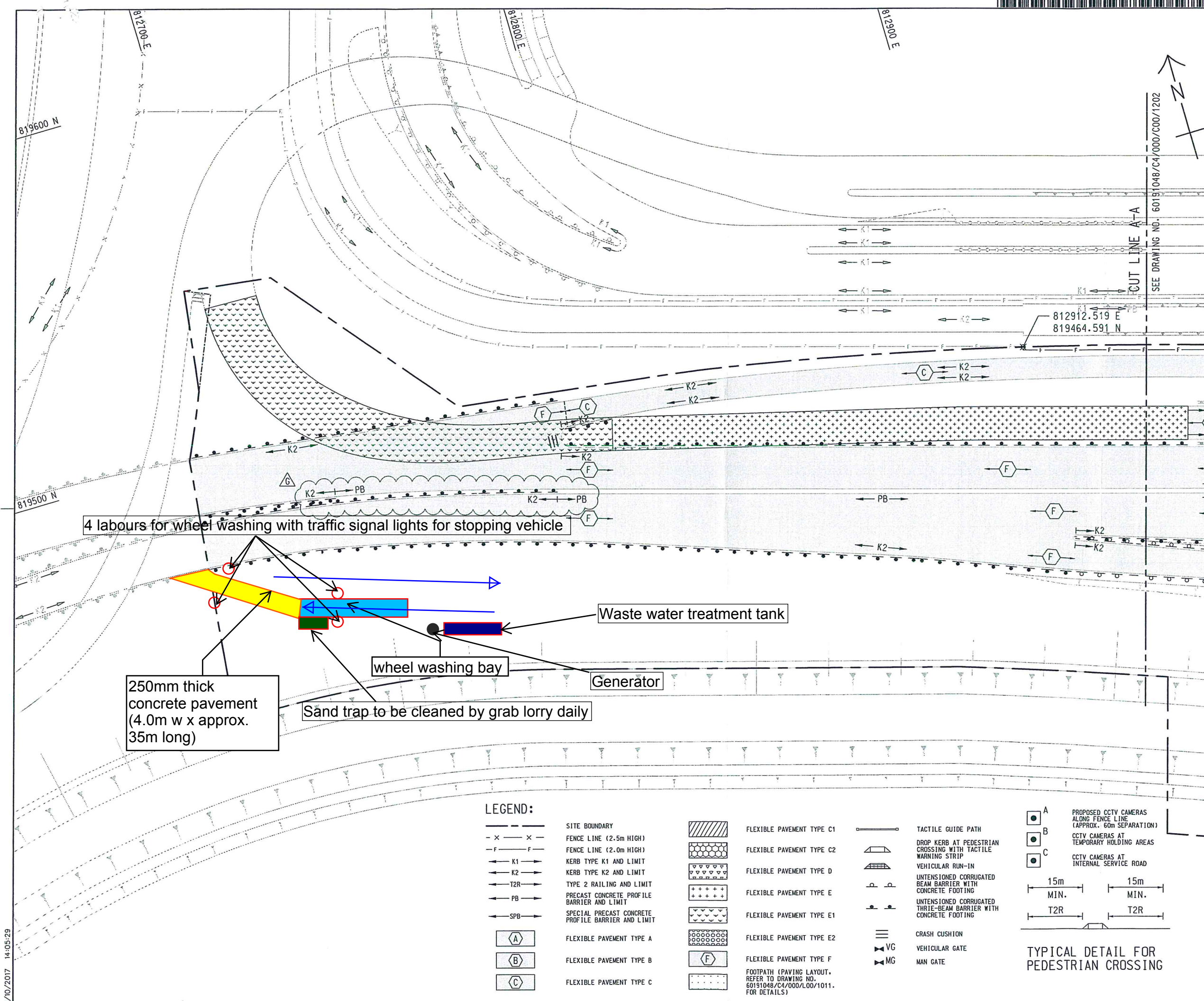
Photos taken on 12 February 2018



## HY/2013/04 Water Truck Travelling Route

## **Attachment 5**





HYD STANDARD REVIEW			Rev 78 V2		
G	07/10/17	CHANGE AS SHOWN	CKL	DKFK	PFYL
F	18/09/17	CHANGE AS SHOWN	CKL	DKFK	PFYL
E	16/08/17	CHANGE AS SHOWN	CKL	DKFK	PFYL
D	14/07/17	CHANGE AS SHOWN	CKL	DKFK	PFYL
C	03/02/17	CHANGE AS SHOWN	CKL	GTCC	PFYL
B	18/10/16	CHANGE AS SHOWN	CKL	DKFK	SC
A	20/05/16	CHANGE AS SHOWN	CKL	DKFK	SC
-	10/07/15	REVISION OF STANDARD DRAWINGS INCORPORATED	LCTK	BYHT	JCYJ
REV.	DATE	DESCRIPTION	DRAWN	PRE.	CHK.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	CHK.
DRAWING REFERENCE TO LATEST VERSION:					
60191048 / C4 / 000 / C00 / 1201					

 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

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

HY/2013/04  
HONG KONG-ZHUHAI-MACAO BRIDGE  
HONG KONG BOUNDARY CROSSING FACILITIES  
- INFRASTRUCTURE WORKS STAGE II  
(SOUTHERN PORTION)

(SOUTHERN PORTION)	
TITLE	LAYOUT OF WHEEL WASHING BAY AND CONCRETE PAVEMENT

CONCRETE PAVEMENT	
SKETCH NO. 60191048/C4/SK0211	REV. G

SCALE	1:500 (A1) 1:1000 (A3)	© COPYRIGHT RESERVED 版 權 所 有
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