

China State Construction Engineering (Hong Kong) Ltd.

Contract No. CV/2007/03

Development at Anderson Road – Site Formation and Associated Infrastructure Works

Quarterly EM&A Summary Report for December 2015 to February 2016

March 2016

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Version: 0	Date:	11 March 2016
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11 March 2016

By Post and Fax: 2407 8382

Engineer's Representative Ove Arup & Partners Level 5, Festival Walk 80 Tat Chee Avenue Kowloon Tong, Kowloon Hong Kong

Attention: Mr. Dennis Leung

Dear Sir,

Re: Contract No. CV/2007/03 (Environmental Permit No. EP-140/2002) Development at Anderson Road Site Formation and Associated Infrastructure Works <u>Quarterly EM&A Report for December 2015 to February 2016</u>

Reference is made to the Environmental Team's submission of the draft Quarterly EM&A Report for December 2015 to February 2016 received by e-mail on 9 March 2016.

Please be informed that we have no adverse comment on the captioned submission and thereby write to verify the captioned submission.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully,

David Yeung Independent Environmental Checker

c.c.

AECOM CSCEC Attn.: Mr. Y.W. Fung Attn.: Mr. Holmes Wong Fax: 3922 9797 Fax: 2702 6553

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China State Construction Engineering (Hong Kong) Ltd.

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EXECUTIVE SUMMARY

The Project "Development at Anderson Road – Site Formation and Associated Infrastructure Works" (hereafter called "the Project") is proposed to form platforms for housing development and associated uses in area of about 20 hectares, and to carry out necessary infrastructural upgrading or improvement works to cater for the proposed development.

China State Construction Engineering (Hong Kong) Limited (CSCE) was commissioned as the Contractor of the Project. AECOM Asia Co. Ltd. (AECOM) was employed by CSCE as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project.

The impact EM&A for the Project includes air quality and noise monitoring. The EM&A programme for Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) commenced on 1 May 2008, while for Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2) and Sau Nga House (ID 3) commenced on 1 June 2008.

The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project.

The construction for the Widening of Po Lam Road (Schedule 2 DP) project was commenced in this reporting period, i.e. on 21 September 2011.

This report documents the findings of EM&A works for ID 1A, ID 2, ID 3, ID 4 and ID 5 conducted in the period from 1 December 2015 to 29 February 2016. As informed by the Contractor, construction activities in the reporting quarter were:

- Slope stabilization and upgrading works at Portion C and E
- Earthwork and C&D stockpile at Portion A and C
- Temporary traffic arrangement and road work at J/O Po Lam Road, J/O Sau Mau Ping Road and J/O Lee On Road
- Toe / Berm planter and platform drainage construction on slope
- Retaining wall backfilling works at R16
- Backfilling works at R16
- Structural works at Footbridges A
- Trench excavation and drainage works at public road
- Watermain works at main site and public road
- Installation of permanent railings at main site, slope berm and footbridge
- Asphalt laying and road marking at L1 L6 road
- Brick laying at footpath at L1- L6 road
- Landscaping works at footpath, slope and public area
- Storm Water tank and main site drainage clearing and remedial works
- Installation of watermain downpipe at Po Lam Road CP2, Lee On Road Sewer A and Sau Mau Ping Road Sewer B
- Lift installation works at footbridge A and B
- E & M works at footbridge A, B and C
- Dismantle of bamboo scaffoldings works at footbridge B and C
- Cement decoration works at footbridge A and subway
- Installation glazing works at footbridge A
- Installation of metal canopy of bus stop station and subway
- Demolition of site hoarding
- Installation of sign boards
- Demolition of tower crane
- Launching of steel deck footbridge

Environmental Monitoring Works

EM&A Programme

A summary of monitoring and audit activities conducted in the reporting quarter is listed below:

24-hour TSP monitoring	17 sessions
1-hour TSP monitoring	51 sessions
Daytime Noise monitoring	13 sessions
Environmental Site Inspection	13 sessions

Breaches of Action and Limit Levels

All 1-hour TSP and 24-hour TSP results were below the Action and Limit Levels in the reporting period.

According to the information provided by the Contractor, no Action Level exceedance was recorded since no noise related complaint was received in the reporting period.

No exceedance of Limit Level of noise was recorded in the reporting period.

Complaint, Notification of Summons and Successful Prosecution

No complaint, notification of summons or successful prosecution was received in the reporting quarter. The cumulative statistics on complaints has been updated in Appendix F.

1 INTRODUCTION

1.1 Scope of Report

- 1.1.1 This is the quarterly Environmental Monitoring and Audit (EM&A) Report for the reporting period from 1 December 2015 to 29 February 2016 under the Project "Contract CV/2007/03 Development at Anderson Road Site Formation and Associated Infrastructure Works" (hereafter called "the Project"), which serving for both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project (which was commenced on 21 September 2011).
- 1.1.2 This report presents a summary of the EM&A works, list of activities and mitigation measures proposed by the Environmental Team (ET) for the Project during the reporting period.

1.2 **Project Organization**

1.2.1 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

Party	Position	Name	Telephone	Fax
	Chief Resident Engineer	Dennis Leung	3656 3000	3656 3100
ER (Ove Arup)	Senior Resident Engineer	Michael Wright	3656 3000	3656 3100
	Assistant Resident Engineer (Civil)	Heidi Fung	2407 0300	3656 3100
IEC (Ramboll Environ)	Independent Environmental Checker	David Yeung	3465 2888	3465 2899
Contractor	Site Agent	Holmes Wong	2704 2095	2702 6553
(CSCE)	Environmental Officer	Thomas Cheung	2704 2095	2702 6553
ET (AECOM)	ET Leader	Yiu Wah Fung	3922 9366	3922 9797

Table 1.1 Contact Information of Key Personnel

1.3 Summary of Construction Works

- 1.3.1 The Contactor has carried out major activities in the reporting quarter. Details of the works undertaken in this reporting period are listed below:
 - Slope stabilization and upgrading works at Portion C and E
 - Earthwork and C&D stockpile at Portion A and C
 - Temporary traffic arrangement and road work at J/O Po Lam Road, J/O Sau Mau Ping Road and J/O Lee On Road
 - Toe / Berm planter and platform drainage construction on slope
 - Retaining wall backfilling works at R16
 - Backfilling works at R16
 - Structural works at Footbridges A
 - Trench excavation and drainage works at public road
 - Watermain works at main site and public road
 - Installation of permanent railings at main site, slope berm and footbridge
 - Asphalt laying and road marking at L1 L6 road
 - Brick laying at footpath at L1- L6 road
 - Landscaping works at footpath, slope and public area
 - Storm Water tank and main site drainage clearing and remedial works
 - Installation of watermain downpipe at Po Lam Road CP2, Lee On Road Sewer A and Sau Mau Ping Road Sewer B
 - Lift installation works at footbridge A and B
 - E & M works at footbridge A, B and C
 - Dismantle of bamboo scaffoldings works at footbridge B and C
 - Cement decoration works at footbridge A and subway
 - Installation glazing works at footbridge A
 - Installation of metal canopy of bus stop station and subway
 - Demolition of site hoarding
 - Installation of sign boards
 - Demolition of tower crane
 - Launching of steel deck footbridge
- 1.3.2 The general layout plan of the Project site showing the contract area is shown in Figure 1.1.
- 1.3.3 The environmental mitigation measures implementation schedule (EMIS) are presented in Appendix B.

2 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

2.1 Monitoring Parameters

- 2.1.1 The EM&A Manual designated five monitoring stations to monitor environmental impacts on air quality and noise due to the Project. The monitoring locations are depicted in Figure 2.1.
- 2.1.2 The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project.

2.2 Environmental Quality Performance Limits (Action/Limit Levels)

- 2.2.1 The environmental quality performance limits (i.e. Action/Limit Levels) were derived from the baseline air quality and noise monitoring results of Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2), Sau Nga House (ID 3), Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) and / or as defined in the EM&A Manual for air quality and noise impacts.
- 2.2.2 The baseline condition of air quality (for ID 1A, ID 2 & ID 3) in the Project site was reviewed in August 2008 upon agreed by ER and IEC. Reviewed Action Levels for air quality at ID 1A, ID 2 and ID 3 were established in September 2008. The latest Action and Limit Levels (established in September 2008) for all monitoring parameters are summarized in Appendix C.

2.3 Environmental Mitigation Measures

2.3.1 Relevant environmental mitigation measures were stipulated in the Particular Specification and EP (No.: EP-140/2002) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix B.

3 MONITORING RESULTS

3.1 Air Quality

- 3.1.1 Air quality monitoring, including 1-hr and 24-hr TSP, was conducted for at least three times every 6 days and for at least once every 6 days respectively at the 5 monitoring stations (ID 1A, ID 2, ID 3, ID 4 and ID 5), in accordance with the EM&A Manual.
- 3.1.2 Fifty-one (51) sessions of 1-hr TSP monitoring and seventeen (17) sessions of 24-hr TSP monitoring were conducted for the 5 monitoring stations (ID 1A, ID 2, ID 3, ID4 & ID5) in the reporting quarter.
- 3.1.3 The weather was mostly either sunny or fine, with occasionally cloudy days in the reporting quarter. The trend of impact air quality monitoring results for the reporting quarter is given in Appendix D. Major dust source included construction activities of the Project, concurrent construction activities of another project carried out in the vicinity and nearby traffic emissions.
- 3.1.4 All 1-hour TSP and 24-hour TSP results were below the Action and Limit Levels in the reporting period.
- 3.1.5 Table 3.1 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring events included regular impact monitoring events and additional ones, if any.

Monitoring	Location	Level of Exceedance		Month	
Parameter			Dec 15	Jan 16	Feb 16
1-hr TSP	ID 1A	No. of monitoring events	18	15	18
		Action	0	0	0
		Limit	0	0	0
	ID 2	No. of monitoring events	18	15	18
		Action	0	0	0
		Limit	0	0	0
	ID 3	No. of monitoring events	18	15	18
		Action	0	0	0
		Limit	0	0	0
	ID 4	No. of monitoring events	18	15	18
		Action	0	0	0
		Limit	0	0	0
	ID 5	No. of monitoring events	18	15	18
		Action	0	0	0
		Limit	0	0	0
		Total	0	0	0
24-hr TSP	ID 1A	No. of monitoring events	6	5	6
		Action	0	0	0
		Limit	0	0	0
	ID 2	No. of monitoring events	6	5	6
		Action	0	0	0
		Limit	0	0	0
	ID 3	No. of monitoring events	6	5	6
		Action	0	0	0
		Limit	0	0	0
	ID 4	No. of monitoring events	6	5	6
		Action	0	0	0
		Limit	0	0	0
	ID 5	No. of monitoring events	6	5	6
		Action	0	0	0
		Limit	0	0	0
		Total	0	0	0

Table 3.1 Summary of Number of Exceedances for 1-hr and 24-hr TSP Concentration

3.2 Construction Noise

- 3.2.1 Noise was conducted at the 5 monitoring stations (ID 1A, ID 2, ID 3, ID 4 and ID 5) for at least once per week during the construction phase (0700 1900) of the Project.
- 3.2.2 Thirteen (13) noise monitoring events were carried out for all monitoring stations in the reporting quarter.
- 3.2.3 According to the information provided by the Contractor, no noise complaint was received in the reporting quarter; hence, no Action Level exceedance was received in the reporting quarter.
- 3.2.4 No Limit Level exceedance of noise was recorded in the reporting quarter.
- 3.2.5 The graphical plots of trends of the noise monitoring results in the reporting quarter are provided in Appendix E. Major noise source included construction activities of the Project, concurrent construction activities of another project carried out in the vicinity, nearby traffic emissions and noise from school activities and community noise.
- 3.2.6 Table 3.2 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring events included regular monitoring events and additional ones, if any.

Monitoring	Location	Location Level of Exceedance		Month	
Parameter			Dec 15	Jan 16	Feb 16
Construction	ID 1A	No. of monitoring events	5	4	4
Noise		Limit	0	0	0
	ID 2	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 3	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 4	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 5	No. of monitoring events	5	4	4
		Limit	0	0	0
	Tot	al Action Level*	0	0	0
	То	tal Limit Level	0	0	0

 Table 3.2
 Summary of Number of Exceedances for Construction Noise

Remarks: * Number of Action Level exceedance for construction noise is the number of documented noise related complaint received in the reporting period from any one of the sensitive receivers.

3.3 Environmental Site Inspection

- 3.3.1 There were 13 site inspections conducted in the reporting quarter to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The major concerns for the Project are air quality, noise, water quality and chemical and waste management. Particular observations and non-compliances, and their statuses are described below.
- 3.3.2 The Contractor has rectified most of the observations as identified during environmental site inspection in the reporting period within agreed time frame. Rectifications of remaining identified items are undergoing by the Contractor. Follow-up inspections on the status on provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.
- 3.3.3 Air Quality Impact
 - Dusty stockpiles were observed without coverage at R16a and J1. The Contractor should cover them with tarpaulin or other impermeable sheeting for dust suppression.
 - Non-Road Mobile Machinery without bearing approved or exempted labels was observed at Po Lam Road. The Contractor was reminded to affix application information on those machines awaiting EPD issuance of exemption label.
 - Soil stockpiles without applying dust suppression measures were found at Branch M and Footbridge A. The Contractor should provide dust suppression measures such as covering stockpiles with tarpaulin.
 - Non-Road Mobile Machinery without bearing approved or exempted labels was observed at Sau Mau Ping Road. The Contractor was reminded to affix application information on the machines awaiting EPD issuance of exemption label for identification.
 - Fugitive dust was observed on the access road near Footbridge A. The Contractor should implement dust suppression measures such as spraying water.
 - Breaker tip at Footbridge C was observed without wrapping acoustic resistant material during operation. The Contractor should warp the breaker tip with acoustic resistant material to reduce noise nuisance, and spray water to suppress dust spreading.
 - Exposed slope was found next to the Footbridge C. The Contractor should cover the slope with tarpaulin or impermeable sheeting, and place sand bags at the bottom of the slope in order to prevent muddy water spillage.
 - The Contractor should affix approval or exemption label on Non-Road Mobile Machinery. Application information should be shown on those awaiting EPD issuance of exemption label for identification. (Reminder)
 - Stockpile without coverage was observed at Footbridge B. The Contractor should cover it with impervious sheeting.
 - The Contractor was reminded to cover the exposed slope at Footbridge C with impervious sheeting after works. (Reminder)
 - Dusty stockpile without applying dust suppression measures was found at Road L6. The Contractor should spray water over the stockpile or cover it with tarpaulin sheeting to prevent dust drifting.
 - Breakers without wrapping acoustic-resistant material were observed at Portion C2. The Contractor should wrap them with acoustic-resistant material to reduce noise nuisance and spray water over earth for dust suppression.

- A stock of cement was found without coverage at Footbridge B. The Contractor should cover it with tarpaulin sheeting to minimize dust generation.
- 3.3.4 Construction Noise Impact
 - The breaker at Sau Mau Ping Road was observed without wrapping acoustic-resistant material. The Contractor should wrap it with acoustic-resistant material to reduce noise nuisance.
 - Breaker tip at Footbridge C was observed without wrapping acoustic resistant material during operation. The Contractor should warp the breaker tip with acoustic resistant material to reduce noise nuisance, and spray water to suppress dust spreading.
 - A breaker without wrapping acoustic-resistant material was observed at Footbridge B. The Contractor should wrap it with acoustic-resistant material.
 - Breakers without wrapping acoustic-resistant material were observed at Portion C2. The Contractor should wrap them with acoustic-resistant material to reduce noise nuisance and spray water over earth for dust suppression.
 - Incomplete coverage of acoustic resistant material on a breaker tip was observed at Footbridge A. The Contractor should entirely wrap it with larger acoustic resistant material.
- 3.3.5 Water Quality Impact
 - Wastewater was observed on the ground of wheel washing area at Road L3. The Contractor should establish wastewater treatment facilities for water collection and purification.
 - Muddy trail was observed at pedestrian path and access road near Footbridge B. The Contractor should clear the roads and place sand bags along the perimeter of work area to prevent soil being washed away during rain.
 - Wastewater generated from wheel washing area at Road L3 was discharged. The Contractor should install wastewater treatment facilities to ensure the water can be properly treated prior to discharge.
 - Accumulated muddy water was observed at Po Lam Road. The Contractor was reminded to ensure the water could be treated properly prior to discharge. (Reminder)
 - Rubbish, silt and grass were found around the U-Channel at Footbridge C. The Contractor should remove them to maintain clearance of U-channel.
 - Muddy water was discharged into public drainage at Road L3 and Footbridge B. The Contractor should ensure muddy water is collected and undergoes wastewater treatment prior to discharge.
- 3.3.6 Chemical and Waste Management
 - The construction debris and the chemical container without drip tray were found at Footbridge A. The Contractor should remove the debris to maintain proper housekeeping and provide a drip tray to any chemical containers to prevent any chemical leakage.
 - Construction debris was observed at Footbridge B. The Contractor should remove it in order to maintain proper housekeeping.
 - Oil leakage was found from a breaker tip at Po Lam Road. The Contractor should remove the oil residue from the road.

- Rubbish was found at Anderson Road. The Contractor should remove them to maintain proper housekeeping.
- Oil stain was found and an oil drum was found without placing drip tray at Footbridge A. The Contractor should remove the oil stain and provide a drip tray to the oil drum to prevent oil leakage.
- Garbage was found at Footbridge B. The Contractor should remove it in order to maintain proper housekeeping.
- A fallen oil drum was found near the water tank without placing drip tray. The Contractor should provide it with a drip tray and place it stably to prevent oil leakage.
- A few chemical containers without placing drip trays were found at Po Lam Road. The Contractor should provide them with drip trays to prevent oil leakage.
- An oil drum was observed without placing drip trays at Slope C1. The Contractor should provide it with drip trays to prevent oil leakage.
- An air compressor was observed without placing a drip tray at Slope C. The Contractor should provide it with a drip tray to prevent oil leakage.
- Drip holes of the drip trays at Footbridge A were observed without sealing. The Contractor should block the drip holes to prevent oil leakage.
- Construction waste was found at Footbridge B. The Contractor should remove it to maintain proper housekeeping.
- Construction debris was observed at Road L2. The Contractor should remove the debris to maintain proper housekeeping.
- Chemical containers without placing inside drip trays were found at Footbridge A. The Contractor should provide drip trays for chemical containers to prevent chemical leakage.
- General refuse accumulated at Footbridge A was observed. The Contractor should remove it to maintain proper housekeeping.

3.3.7 Landscape and Visual Impact

• No specific observation was identified in the reporting quarter.

3.3.8 Miscellaneous

- Stagnant water accumulated at Slope C was observed. The Contractor should clear it so as to prevent mosquito breeding.
- Scattered refuse and wooden boards were observed at Footbridge C. The Contractor should remove them to maintain proper housekeeping.
- Stagnant water was found in general site. The Contractor should remove the stagnant water to prevent mosquito breeding.
- Stagnant water was found inside the lifting eyes of concrete blocks at Footbridge A and inside the excavated site at Footbridge B. The Contractor should fill up lifting eyes and remove water to prevent mosquito breeding.

• Stagnant water was found inside drip trays, a U-channel and underneath bamboo scaffolding at Footbridge A. The Contractor should remove it to prevent mosquito breeding, and remove leaves and refuse inside the U-channel to prevent drainage blockage.

4 ADVICE ON SOLID AND LIQUID WASTE MANAGEMENT STATUS

4.1 Summary of Solid and Liquid Waste Management

- 4.1.1 The Contractor is registered as a chemical waste producer for this Project. C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 4.1.2 As advised by the Contractor, quantity of waste for disposal in the reporting quarter is summarized in the Table 4.1.

		Month	
Type of waste	Dec 15	Jan 16	Feb 16
Total C&D materials (m ³)	6349.28 m ³	2469.71 m ³	2318.95 m ³
Hard Rocks and Large Broken Concrete	2653.81 m ³	648.14 m ³	2073.19 m ³
Amount Reused in the Project	0 m ³	0 m ³	0 m ³
Amount Reused in other Projects	0 m ³	0 m ³	0 m ³
Disposed of to TKO 137	3695.47 m ³	1821.57 m ³	245.76 m ³
Metals	0 kg	0 kg	0 kg
Paper cardboard packing	10 kg	10 kg	10 kg
Plastics	10 kg	10 kg	10 kg
Chemical waste	0 L	0 L	0 L
General refuse	21.43 tonnes	843.53 tonnes	493.57 tonnes

 Table 4.1
 Summary of Quantity of Waste for Disposal

- 4.1.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 4.1.4 The Contractor is 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 Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5 SUMMARY OF NON-COMPLIANCE (EXCEEDANCES) OF ENVIRONMENTAL QUALITY

5.1 Summary of Exceedances and Review of the Reasons for Non-compliance

- 5.1.1 All 1-hour TSP and 24-hour TSP results were below the Action and Limit Levels in the reporting period.
- 5.1.2 According to the information provided by the Contractor, no Action Level exceedance was recorded since no noise related complaint was received in the reporting period.
- 5.1.3 No exceedance of Limit Level of noise was recorded in the reporting period.

6 COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

6.1 Summary of Environmental complaints, notification of summons and successful prosecutions

- 6.1.1 No environmental complaint and no notification of summons and successful prosecution were received in the reporting quarter. The cumulative statistics on complaints has been updated in Appendix F.
- 6.1.2 Table 6.1 summarized the complaint, summons and successful prosecution received in the reporting period.

 Table 6.1
 Summary of Environmental Complaints, Summons and Prosecutions

	Dec 15	Jan 16	Feb 16	Total
Complaint Logged	0	0	0	0
Summons Served	0	0	0	0
Successful Prosecution	0	0	0	0

6.1.3 Cumulative Statistics on Exceedances, Complaints, Notification of Summons and Successful Prosecutions recorded since the commencement of the Project are given in Appendix F.

7 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

7.1 Comments on Mitigation Measures

- 7.1.1 According to the environmental site inspections performed in the reporting quarter, the following comments are provided:
- 7.1.2 Air Quality Impact
 - Dusty stockpiles at R16a and J1 should be covered with tarpaulin or other impermeable sheeting for dust suppression.
 - Non-Road Mobile Machinery without bearing approved or exempted labels at Po Lam Road and Sau Mau Ping Road should be affixed application information while awaiting EPD issuance of exemption label.
 - Soil stockpiles at Branch M and Footbridge A should be provided with dust suppression measures such as covering stockpiles with tarpaulin.
 - Fugitive dust on the access road near Footbridge A should be suppressed such as implementation of spraying water.
 - Water should be sprayed during operation to suppress dust spreading.
 - Exposed slope next to the Footbridge C should be covered with tarpaulin or impermeable sheeting, and sand bags should be placed at the bottom of the slope in order to prevent muddy water spillage.
 - Approval or exemption label should be affixed on Non-Road Mobile Machinery. Application information should be also shown on those awaiting EPD issuance of exemption label for identification. (Reminder)
 - Stockpile observed at Footbridge B should be covered with impervious sheeting.
 - It was reminded that the exposed slope at Footbridge C should be covered with impervious sheeting after works. (Reminder)
 - Dusty stockpile at Road L6 should be sprayed with water or be covered with tarpaulin sheeting to prevent dust drifting.
 - Water should be sprayed over earth during breaking at Portion C2 for dust suppression.
 - A stock of cement at Footbridge B should be covered with tarpaulin sheeting to minimize dust generation.
- 7.1.3 Construction Noise Impact
 - The breaker at Sau Mau Ping Road should be wrapped with acoustic-resistant material to reduce noise nuisance.
 - Breaker tip at Footbridge C should be wrapped with acoustic resistant material during operation to reduce noise nuisance.
 - A breaker at Footbridge B should be wrapped with acoustic-resistant material.
 - Breakers at Portion C2 should be wrapped with acoustic-resistant material to reduce noise nuisance.

• A breaker tip at Footbridge A should be entirely wrapped with acoustic resistant material.

7.1.4 Water Quality Impact

- Wastewater treatment facilities should be established for collection and purification of wastewater found on the ground of wheel washing area at Road L3.
- The muddy trail at pedestrian path and access road near Footbridge B should be cleared. And sand bags should be placed along the perimeter of work area to prevent soil being washed away during rain.
- Wastewater treatment facilities should be installed to ensure the water generated from wheel washing area at Road L3 can be properly treated prior to discharge.
- It is reminded to ensure accumulated muddy water at Po Lam Road could be treated properly prior to discharge. (Reminder)
- Rubbish, silt and grass around the U-Channel at Footbridge C should be removed to maintain clearance of U-channel.
- Muddy water at Road L3 and Footbridge B should be collected and be undergone wastewater treatment prior to discharge.

7.1.5 Chemical and Waste Management

- The chemical container at Footbridge A should be provided with a drip tray to prevent any chemical leakage.
- Construction debris at Footbridge A and B should be removed in order to maintain proper housekeeping.
- Oil residue from a breaker tip at Po Lam Road should be removed.
- Rubbish at Anderson Road and Footbridge B should be removed to maintain proper housekeeping.
- Oil stain at Footbridge A should be removed. An oil drum at Footbridge A should be provided with a drip tray to prevent oil leakage.
- An oil drum near the water tank should be placed stably and provided with a drip tray to prevent oil leakage.
- Chemical containers at Po Lam Road should be provided with drip trays to prevent oil leakage.
- An oil drum at Slope C1 should be provide it with drip trays to prevent oil leakage.
- An air compressor was observed without placing a drip tray at Slope C. The Contractor should provide it with a drip tray to prevent oil leakage.
- Drip holes of the drip trays at Footbridge A should be blocked to prevent oil leakage.
- Construction waste at Footbridge B should be removed to maintain proper housekeeping.
- Construction debris at Road L2 should be removed to maintain proper housekeeping.
- Chemical containers at Footbridge A should be provided with drip trays to prevent chemical leakage.

- General refuse accumulated at Footbridge A should be removed to maintain proper housekeeping.
- 7.1.6 Landscape and Visual Impact
 - No specific observation was identified in the reporting quarter.
- 7.1.7 Miscellaneous
 - Stagnant water accumulated at Slope C should be cleared so as to prevent mosquito breeding.
 - Scattered refuse and wooden boards at Footbridge C should be removed to maintain proper housekeeping.
 - Stagnant water in general site should be removed to prevent mosquito breeding.
 - Lifting eyes of concrete blocks at Footbridge A should be filled up, and stagnant water inside the excavated site at Footbridge B should be removed to prevent mosquito breeding.
 - Stagnant water inside drip trays, a U-channel and underneath bamboo scaffolding at Footbridge A should be removed to prevent mosquito breeding. Leaves and refuse inside the U-channel at Footbridge A should be removed to prevent drainage blockage.

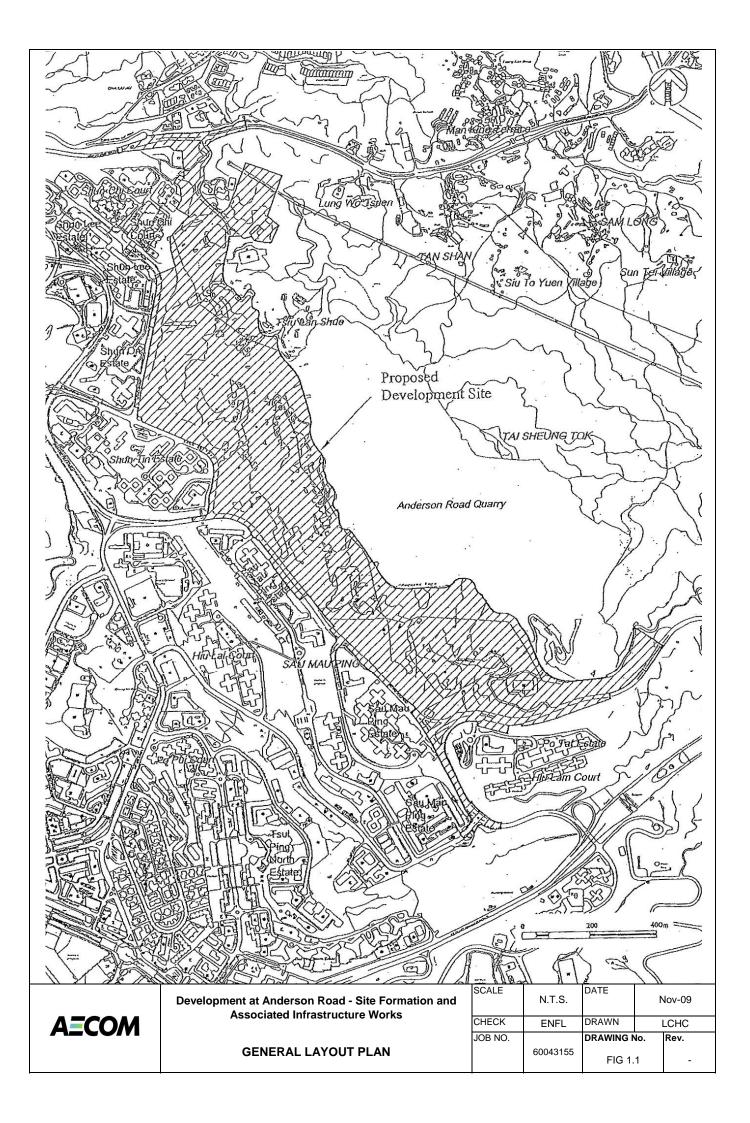
7.2 Recommendations on EM&A Programme

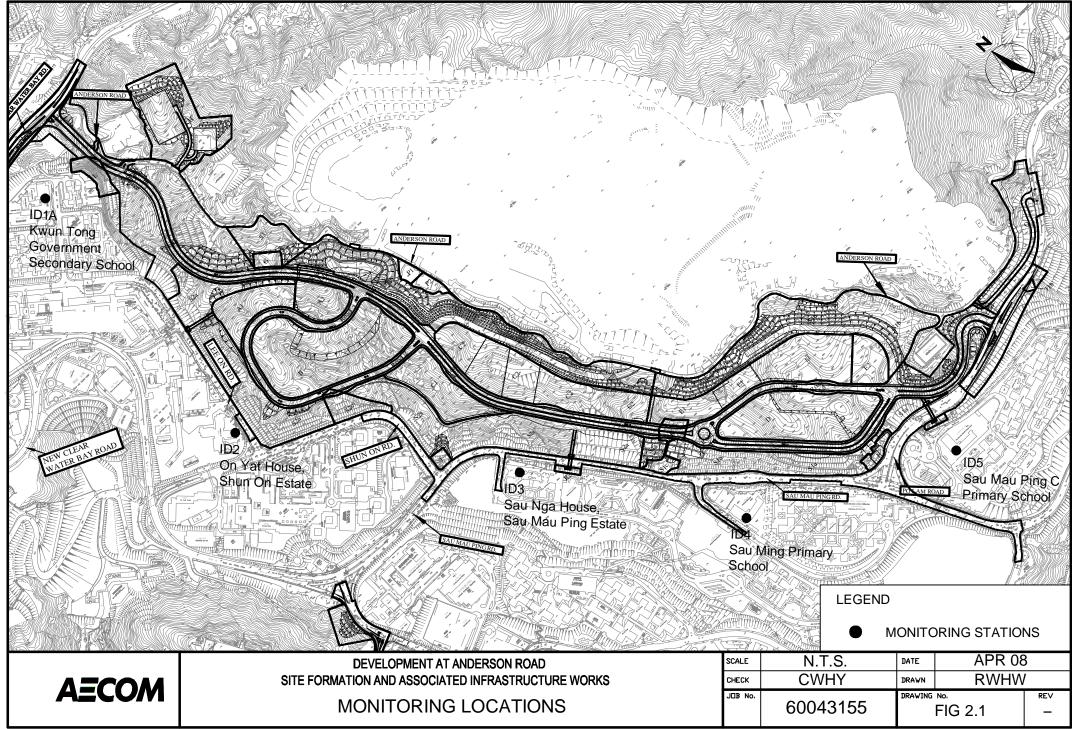
- 7.2.1 The impact air quality and noise monitoring programme ensured that any environmental impact to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. The weekly site inspection ensured that all the environmental mitigation measures recommended in the EIA report were effectively implemented.
- 7.2.2 The EM&A programme effectively monitored the environmental impacts from the construction activities and no particular recommendation was advised for the improvement of the programme.

7.3 Conclusions

- 7.3.1 Air quality and noise monitoring and weekly site inspection were carried out from December 2015 to February 2016, in accordance with the EM&A Manual.
- 7.3.2 All 1-hour TSP and 24-hour TSP results were below the Action and Limit Levels in the reporting period.
- 7.3.3 According to the information provided by the Contractor, no Action Level exceedance was recorded since no noise related complaint was received in the reporting period.
- 7.3.4 No exceedance of Limit Level of noise was recorded in the reporting period.
- 7.3.5 No complaint, notification of summons and successful prosecution were received in the reporting quarter.
- 7.3.6 Environmental site inspections were carried out 13 times in the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

FIGURES

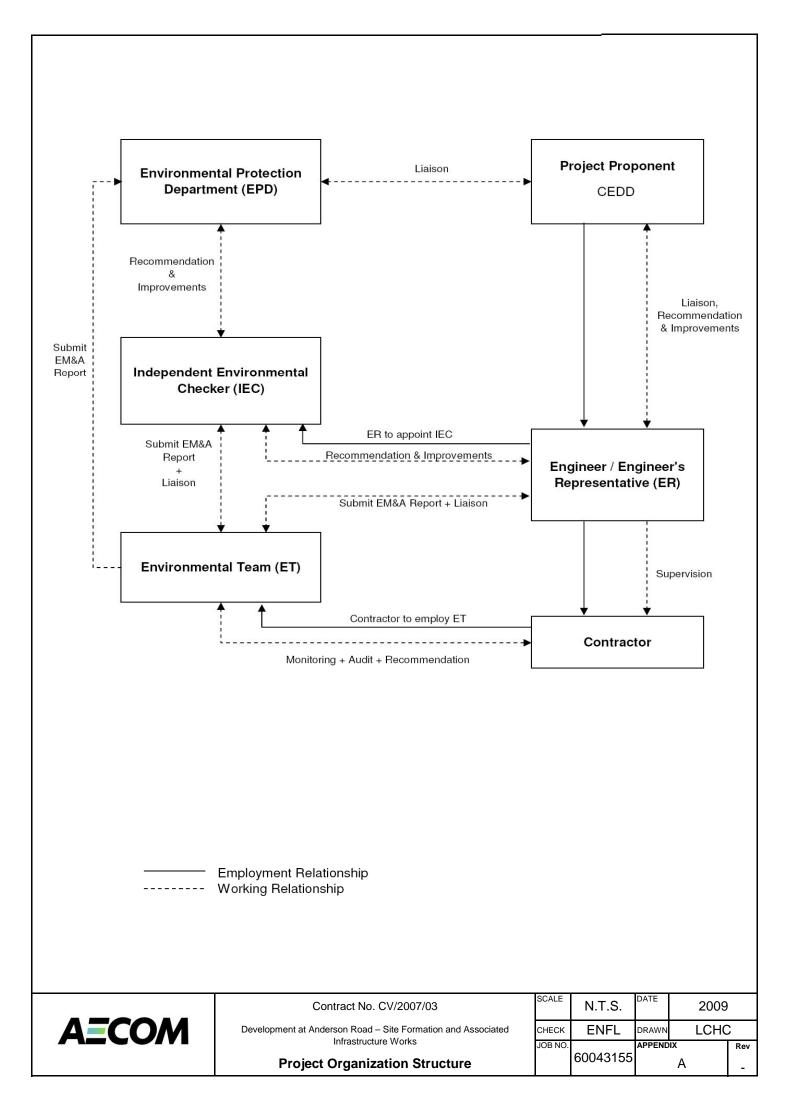




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APPENDIX A

Project Organization Structure



APPENDIX B

Implementation Schedule of Environmental Mitigation Measures (EMIS)

Appendix B - Implementation Schedule of Environmental Mitigation Measures (EMIS)

Environmental N	litigation Measures	Location	Imp	lementation St	tatus
			Dec 15	Jan 16	Feb 16
Construction N	oise Impact				
Site Formation	Silenced powered mechanical equipment (PME) for most equipment	All construction sites	V	@	@
	(including drill rig, backhoe, dump truck, breaker and crane) and the				
	decrease of percentage on time usage of drill rig among the Central Area				
	from 50% to 40% is proposed.				
	Temporary movable noise barrier shall be used to shield the noise	All construction sites	V	V	V
	emanating from the drilling rig in order to provide adequate shielding for the		V	V	V
	affected NSRs.				
Construction A	ir Quality Impact	· · ·		·	
General Site	Mean vehicle speed of haulage trucks at 10km/hr.	All construction sites	V	V	V
Practice	Twice daily watering of all open site areas.	All construction sites	V	V	V
	Regular watering (once every 1 hour) of all site roads and access roads with	:h	@	V	V
	frequent truck movement.	All construction sites			
	During road transportation of excavated spoil, vehicles should be covered to	All construction sites	V	V	V
	avoid dust impact. Wheel washing facilities should be installed at all site				
	exits together with regular watering of the site access roads.				
	Tarpaulin covering of all dusty vehicle loads transported to, from and		@	V	V
	between site locations.	All construction sites			
	Establishment and use of vehicle wheel and body washing facilities at the	Site exits	V	V	V
	exit points of the site, combined with cleaning of public roads were				
	necessary.				
	Suitable side and tailboards on haulage vehicles.	All construction sites	V	V	V

Environmental N	Iitigation Measures	Location	Imp	lementation St	atus
			Dec 15	Jan 16	Feb 16
General Site Practice	Watering of temporary stockpiles.	All construction sites	V	V	@
Blasting	Use of select aggregate and fines to stem the charge with drill holes and watering of blast face.	All construction sites	N/A	N/A	N/A
	Use of vacuum extraction drilling methods.	All construction sites	N/A	N/A	N/A
	Carefully sequenced blasting.	All construction sites	N/A	N/A	N/A
Crushing	Fabric filters installed for the crushing plant.	All construction sites	V	V	V
	Water sprays on the crusher.	All construction sites	V	V	V
Loading and Unloading	Water sprays at all fixed loading and unloading points (at the crusher and conveyor belts).	All construction sites	V	V	V
Points, and conveyor Belt	The loading point at the crusher is enclosed with dust collection system installed.	All construction sites	V	V	V
System	When transferring materials from conveyor belt or crusher to the dump trucks, chutes or dust curtains are used for controlling dust.	All construction sites	V	V	V
	Cover the conveyor belts with steel roof and canvas sides.	All construction sites	V	V	V
Construction W	/ater Quality Impact				
Construction Phase	All active working areas should be bounded to retain storm water with sufficient retention time to ensure that suspended solids are not discharged from the site in concentrations above those specified in the TM for the Victoria Harbour (Phase I) WCZ. All fuel storage areas should be bounded with drainage directed to an oil interceptor. Separate treatment facilities may be required for effluent from site offices, toilets (unless chemical toilets are used) and canteens.	Site drainage system Site drainage system	V	V	V
	Discharged wastewater from the construction sites to surface water and/or	All works area	V	@	@

Appendix B EMIS

March 2016

Environmental M	itigation Measures	Location	Imp	lementation St	atus
			Dec 15	Jan 16	Feb 16
Phase	public drainage systems should be controlled through licensing. Discharge				
	should follow fully the terms and conditions in the licenses.				
	Relevant practice for dealing with various type of construction discharges	All works area	V	@	@
	provided in EPD's ProPECC Note PN 1/94 should be adopted.				
Waste Managem	nent				
Waste Disposal	Difference types of wastes should be segregated, stored, transported and	All construction sites	@	@	@
	disposed of separately in accordance with the relevant legislative				
	requirements and guidelines as proper practice of waste management.				
	Sorting of wastes should be done on-site. Different types of wastes should	All construction sites	V	V	V
	be segregated and stored in different stockpiles, containers or skips to				
	enhance recycling of materials and proper disposal of spoil.				
	Excavated spoil should be used as much as possible to minimize off-side fill	All construction sites	V	V	V
	material requirements and disposal of spoil.				
	Chemical waste should be recycled on-site or removed by licenced	All construction sites	V	V	V
	companies. It should be handled according to the Code of Practice on the				
	Packaging, Labelling and Storage of Chemical wastes. When off-site				
	disposal is required, it should be collected and delivered by licenced				
	contractors to Tsing Yi Chemical Waste Treatment Facility and disposed of				
	in accordance with the Chemical Waste (General) Regulation.				
	Necessary mitigation measures should be adopted to prevent the	All construction sites	@	@	V
	uncontrolled disposal of chemical and hazardous waste into air, soil, surface				
	waters and ground waters.				
Waste Storage	Chemical material storage areas should be bounded and constructed of	All construction sites	@	V	@
	impervious materials, and have the capacity to contain 120 percent of the				

Environmenta	I Mitigation Measures	Location	Imp	lementation St	atus
			Dec 15	Jan 16	Feb 16
	total volume of the containers. Indoor storage areas must have sufficient				
	ventilation to prevent the build-up of fumes, and must be capable of				
	evacuating the space in the event of an accidental release. Outdoor storage				
	areas must be covered with a canopy or contain provisions for the safe				
	removal of rainwater. In both cases, storage areas must not be connected to				
	the foul or stormwater sewer system.				
	Dangerous materials as defined under the DGO, including fuel, oil and	All construction sites	V	V	V
	lubricants, should be stored and properly labelled on site in accordance with				
	the requirements in the DGO. If transportation of hazardous materials is				
	necessary, hazardous materials, chemical wastes and fuel should be				
	packed or stored in containers or vessels of suitable design and construction				
	to prevent leakage, spillage or escape.				
	Human waste should be discharged into septic tanks provided by the	All construction sites	V	V	V
	contractors and removed regularly by a hygiene services company. Refuse				
	containers such as open skips should be provided at every work site for use				
	by the workforce. On-site refuse collection points must also be provided.				
Landscape a	nd Visual				•
Additional	Planting and vegetation restoration (including transplanted trees) on soil	Whole development	N/A	N/A	N/A
Measures	slopes including restoration of grassland, scrub and woodland on slopes				
	around the development platforms and access road. Restoration would be				
	undertaken using predominantly native species.				
Additional	Screen planting along the access roads, to limit impacts of elevated	Whole development	N/A	N/A	N/A
Measures	structures and rock slopes.				

Environmenta	al Mitigation Measures	Location	Implementation Statu		atus
			Dec 15	Jan 16	Feb 16
	Colouring of shotcrete slopes.	Whole development	N/A	N/A	N/A
	Limited planting on shotcrete slopes.	Whole development	V	V	V
	Landscape buffers and planting in and around the development itself to	Whole development	N/A	N/A	N/A
	screen partially close views of the site.				
	Screen planting in front of retaining walls / granite cladding to those walls to	Whole development	N/A	N/A	N/A
	reduce glare and visual impacts.				
	Careful design of road elevated structure and abutments, to limit visual	Whole development	V	V	V
	impacts.				
	Roadside landscape features / hardworks to limit visual impacts.	Whole development	V	V	V
	Conservation of CDG or CDV recovered from the site for re-use in the	Whole development	N/A	N/A	N/A
	landscape restoration.				
	Preservation (by transplanting if necessary) of any trees identified as being	Whole development	V	V	V
	of particular landscape value.				
Ecology					
	Woodland planting on soft cut slopes available (about 13.4ha) within the	Soft cut slopes	N/A	N/A	N/A
	development site. Native species, preferably with documented ecological				
	utility, should be used.				
	Seeds of the native species when possible should be added into the	Soft cut slopes	N/A	N/A	N/A
	hydroseeding mix. Seedings should be pit planted with placement of slow				
	release fertilizer.				
	Maintenance and service, including weeding, fertilizing, replacement of	Soft cut slopes	N/A	N/A	N/A
	dead plants, etc. should be performed during the first 1 years of planting to				
	enhance the survival rate of the plants.				

Environment	al Mitigation Measures	Location	Imp	lementation St	atus
			Dec 15	Jan 16	Feb 16
Contaminate	ed Land				I
	In accordance with the approved Contamination Assessment Report (CAR)	Locations specified in	N/A	N/A	N/A
	and Remediation Action Plan (RAP) in Nov 2006, it is recommended that	CAR	(Works In	(Works In	(Works In
	cement solidification / stabilization prior to on-site backfill for heavy metal		Progress)	Progress)	Progress)
	contaminated soil and excavation followed by disposal at designated landfill				
	for organic contaminated soil. Upon the completion of the proposed				
	remediation exercise as outlined in CAR & RAP, a Remediation Report will				
	be complied for submission to EPD to demonstrate that the proposed soil				
	remediation has been carried out properly and satisfactorily. Results from				
	the confirmation tests will also be included in the Remediation Report.				
	Photos showing the area of excavation, the solidification process, and				
	remediated soil and site shall also be included in the report for reference.				
Landfill Gas	Hazard				•
	Further site investigation should be carried out during the detailed design	The whole	N/A	N/A	N/A
	stage in order to measure landfill gas around the perimeter of the site, to	development site			
	re-confirm that there is no preferential pathway for landfill gas migration and				
	to assess the potential for landfill gas hazards on the future development. If				
	a landfill gas hazard is identified, mitigation measures should be proposed				
	and implemented to address the hazard.				

Legend: V = implemented;

x = not implemented;

@ = partially implemented;

N/A = not applicable

Appendix B EMIS

APPENDIX C

Summary of Action and Limit Levels

Appendix C - Summary of Action and Limit Levels

Location	Action Level	Limit Level
ID 1A	201.5	500
ID 2	197.0	500
ID 3	203.7	500
ID 4	264.6	500
ID 5	267.4	500

Table 1 – Action and Limit Levels for 1-hour TSP

Table 2 – Action and Limit Levels for 24-hour TSP

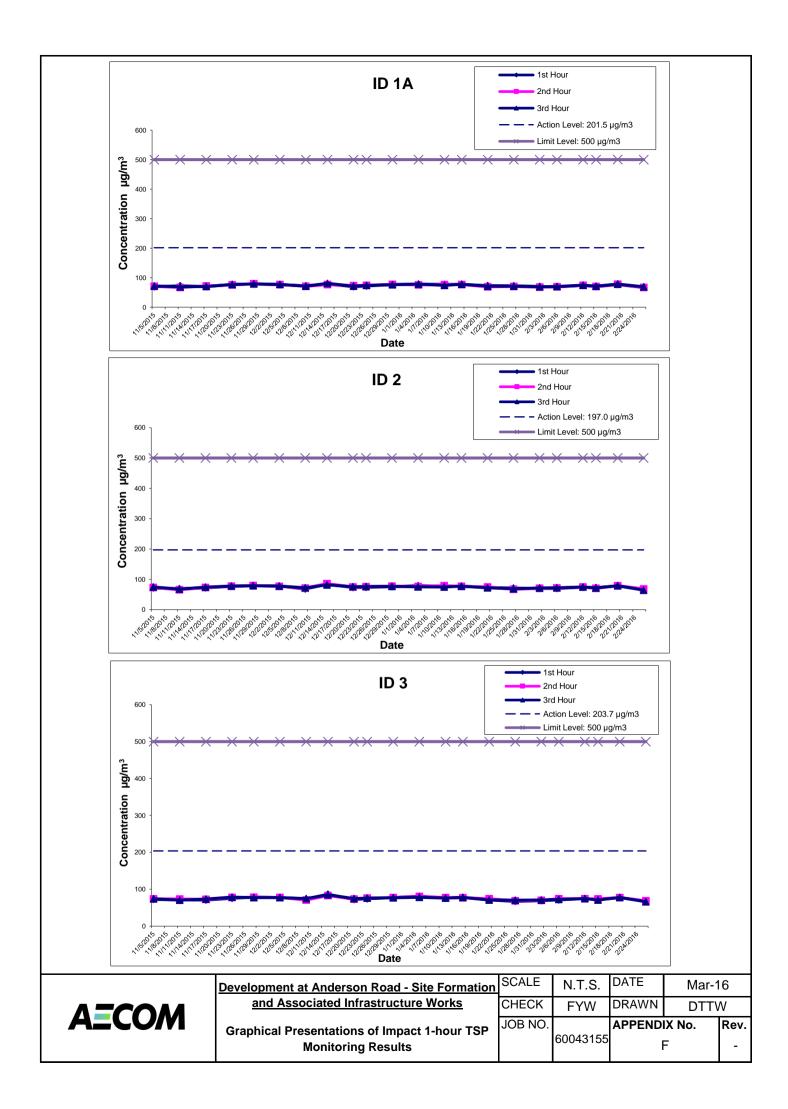
Location	Action Level	Limit Level
ID 1A	170.2	260
ID 2	200.0	260
ID 3	200.0	260
ID 4	181.3	260
ID 5	180.8	260

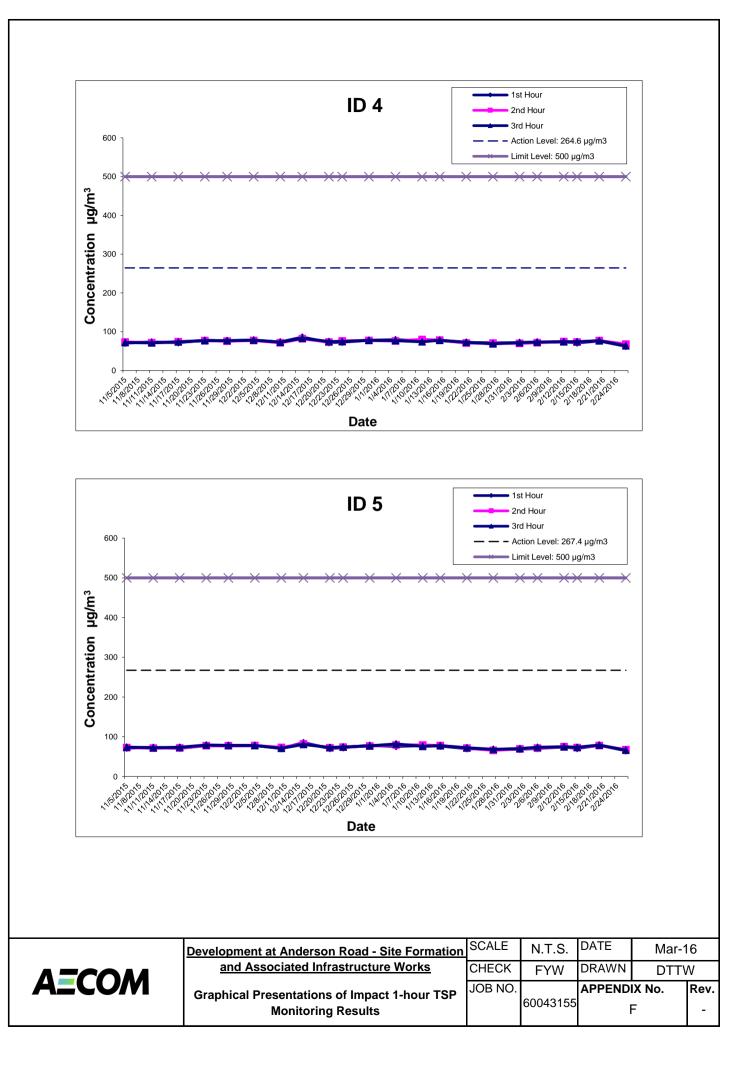
Location	Action Level	Limit Level
ID 1A	When one documented	*65 / 70 dB(A)
ID 2	complaint is received	75 dB(A)
ID 3		75 dB(A)
ID 4	from any one of the sensitive	*65 / 70 dB(A)
ID 5	receivers	*65 / 70 dB(A)

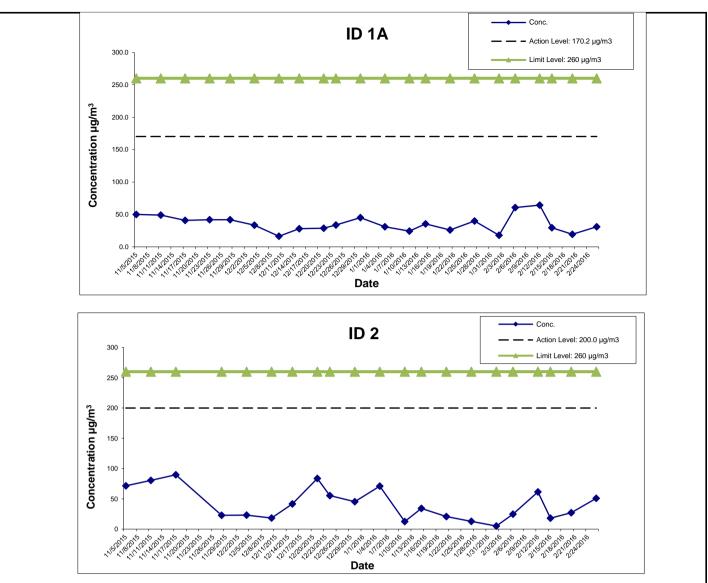
*Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period

APPENDIX D

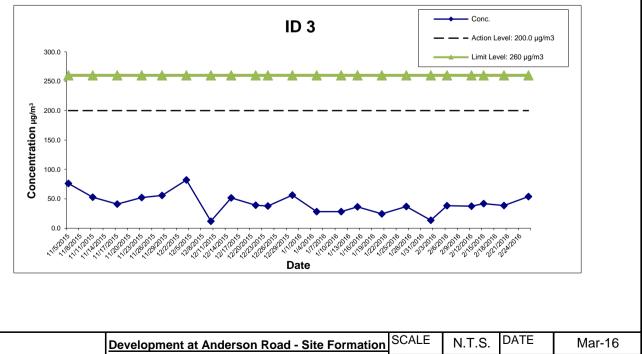
Graphical Presentation of Impact Air Quality Monitoring Results over the Past Four Months



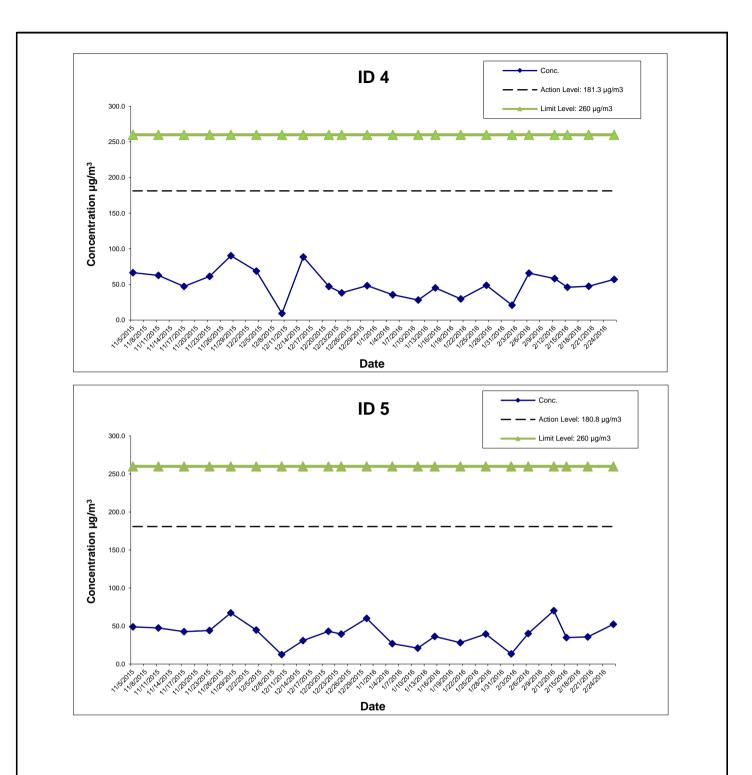




Remark: The result of concentration sampled at ID2 on 23 November 2015 was exceptionally low compared with other monitoring stations, and thus counted as invalid.



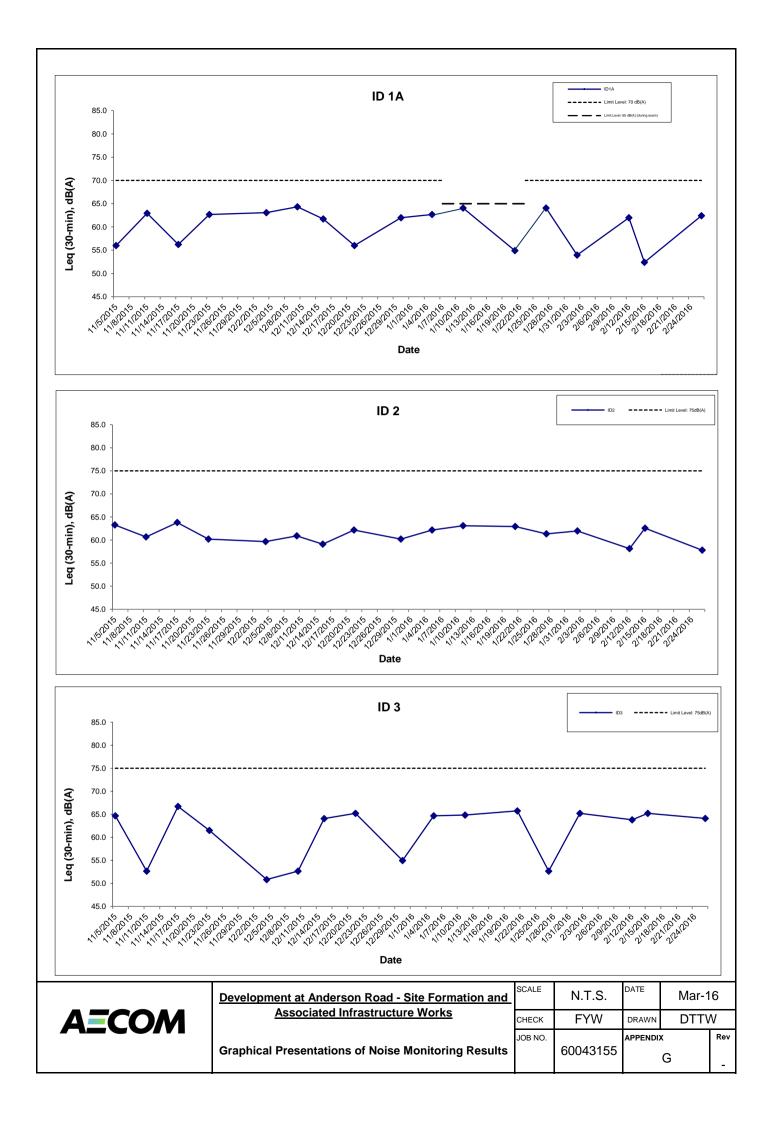
	Development at Anderson Road - Oite i Ormation				initial i	Ŭ
	and Associated Infrastructure Works	CHECK	FYW	DRAWN	DTTV	V
AECOM	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60043155	APPEND	X No. =	Rev. -

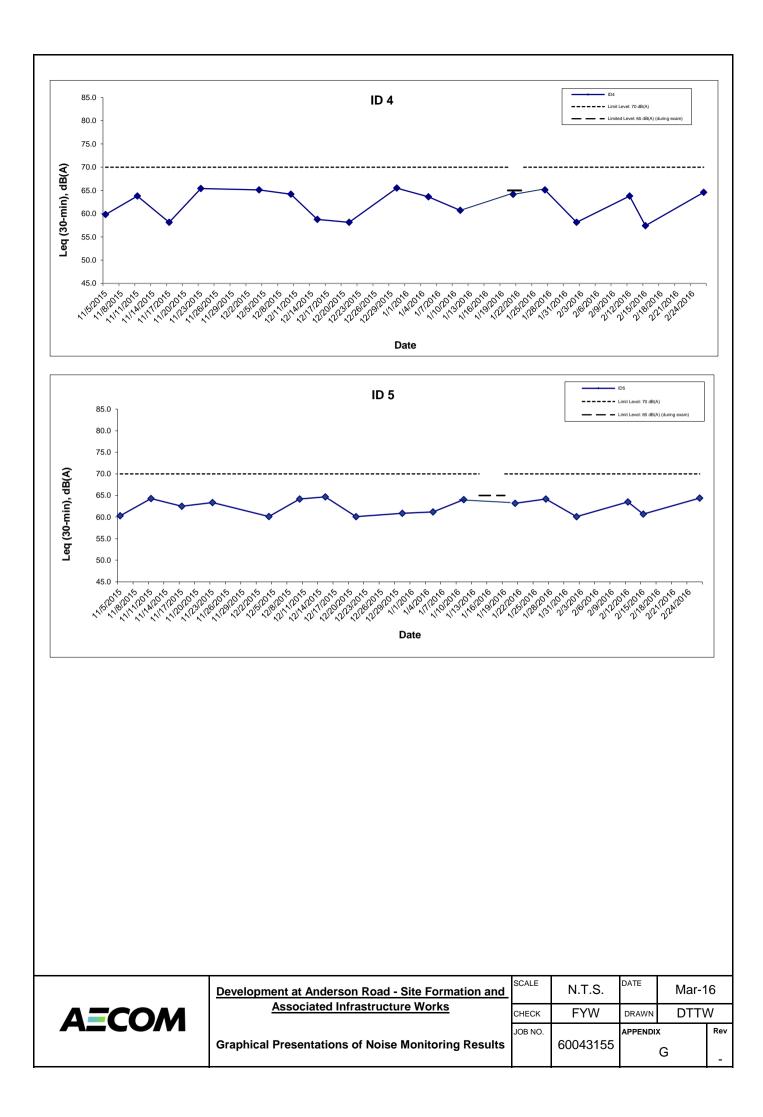


	Development at Anderson Road - Site Formation	SCALE	N.T.S.	DATE	Mar-1	6
AECOM	and Associated Infrastructure Works			DRAWN	DTT\	N
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.		APPEND	X No.	Rev.
			60043155	F	=	-

APPENDIX E

Graphical Presentation of Noise Monitoring Results over the Past Four Months





APPENDIX F

Cumulative Statistics on Exceedances, Complaints, Notification of Summons and Successful Prosecutions Appendix F - Cumulative Statistics on Exceedances, Complaints, Notification of Summons and Successful Prosecutions

		Total no. recorded in this quarter	Total no. recorded since project commencement
1-Hour TSP	Action	-	-
	Limit	-	-
24-Hour TSP	Action	-	15
	Limit	-	1
Noise	Action	-	32
	Limit	-	1

Cumulative statistics on Exceedances

Cumulative statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. recorded in this quarter	Total no. recorded since project commencement
Environmental complaints	-	-	-	-	74
Notification of summons	-	-	-	-	6
Successful Prosecutions	-	-	-	-	2