# ARUP

#### By Post & Fax (2147-0894)

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10 Nov 2023

Dear Mr. Wong

#### Contract No. CM 4/2017 Independent Environmental Checker for Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert Submission of Monthly Environmental Audit Report No.70

In accordance with Clause 2.1 of the Environmental Permit for Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert (No. EP-523/2016), we are pleased to submit herewith four hard copies and one electronic copy of the Monthly Environmental Audit Report No.70 for your perusal.

If you require any further information, please do not hesitate to contact the undersigned.

Yours sincerely

ranki Chiu

Franki Chiu Independent Environmental Checker

Enc

cc. DSD Black & Veatch Hong Kong Limited CMGC-TECEL Joint Venture Mr. Jason Cheung (one hardcopy) Mr. Joseph Ho (one hardcopy) Mr. Benson Yau (one hardcopy) Drainage Services Department Contract No. CM 4/2017 Independent Environmental Checker for Construction of Dry Weather Flow Interceptor at Cherry Street Box Culvert

Monthly Environmental Audit Report No.70 (Oct 2023)

Month Environmental Audit Report

First version | Oct 2023

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 258952

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# ARUP

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# 1 INTRODUCTION

### 1.1 Background

The existing Cherry Street Box Culvert (CSBC) is a reinforced concrete 8-cell stormwater box culvert; each cell is 4.8 m wide and 3.5 m high. The CSBC collects run-off from three upstream box culverts underneath Palm Street, Cheung Wong Road and a section of West Kowloon Corridor West and ultimately discharges into the New Yau Ma Tei Typhoon Shelter (NYMTTS).

At present, the water quality at NYMTTS and the odour associated with it remains unsatisfactory. It is believed that polluted flow, including those from the expedient connections, cross-connections between the foul water sewerage and the stormwater drainage system in the area found their way into the CSBC and in turn discharges into NYMTTS. Measures have to be taken to improve the present conditions at the CSBC.

In 2010, Environmental Protection Department (EPD) completed a West Kowloon and Tsuen Wan Sewerage Master Plans Study Review and recommended to construct a dry weather flow interceptor (DWFI) at the outfall of the CSBC. Upon commissioning of the DWFI system, the intercepted flow would be discharged to the existing sewerage system via proposed discharge sewerage.

The proposed DWFI system will comprise construction of a DWFI at the CSBC to intercept the dry weather flow (DWF) inside the box culvert and construction of a sewage pumping station to pump the intercepted DWF to the existing sewerage network via proposed twin rising mains.

The Project titled "Construction of dry weather flow interceptor at Cherry Street box culvert" mainly comprises the construction of (i) an underground DWFI with automatic penstocks at CSBC; (ii) a pumping station; (iii) an underground stormwater bypass box culvert; and (iv) about 270 metres of underground twin rising main from the pumping station in (ii) above to an existing sewer at Lin Cheung Road. The Project will be implemented under PWP Item No. 4380DS. The Project location is shown in **Figure 1**.

The Project is classified as a designated project under item F.3(b) (i), Part 1 of the Schedule 2 of the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO), since the proposed sewage pumping station has an installed capacity (average dry weather flow) of more than 2,000m<sup>3</sup> per day and its boundary is less than 150 m from an existing residential area.

A project profile (Register No. PP-527/2015) ("Project Profile") entitled "Proposed Sewage Pumping Station and Dry Weather Flow Interceptor at Cherry Street Box Culvert" was submitted to Environmental Protection Department (EPD) under Application No. DIR241/2015. Permission to apply directly for environmental permit was granted by EPD in September 2015. An Environmental Permit (EP- 523/2016) ("EP") to construct and operate the Designated Project was issued to Drainage Services Department (DSD) on 23 December 2016.

According to the EP, DSD shall employ an Independent Environmental Checker ("IEC") to audit the implementation of all mitigation measures recommended in the Project Profile and required under the EP, and certify in writing in the monthly audit report full implementation of the mitigation measures during the construction phase of the Project

Arup was commissioned by DSD as the IEC in accordance with the conditions stipulated in the EP (EP-523/2016) for a period of 64 months from 8 January 2018.

#### **1.2** Scope of the Assignment

Scope of work of this Assignment includes:

- (i) Provide the continual services of an IEC as stipulated in the Project Profile and the EP and reporting the findings to the Employer and the Engineer. The role of the IEC shall be independent from the Contractors;
- (ii) Conduct monthly site audits on the implementation of all mitigation measures recommended in the Project Profile and the EP and reporting the findings to the Employer and the Engineer;
- (iii) Advise the Engineer and the Employer on environmental issues related to the implementation of environmental mitigation measures under Contract No. DC/2017/01;
- (iv) Provide comments on the environmental aspects of the works programme, method statements and other relevant submissions by the Contractors;
- (v) Attend the monthly Site Safety and Environmental Management Committee (SSEMC) meetings;
- (vi) Report the findings of the site inspection and other environmental performance reviews to the Engineer and the Employer; and
- (vii) Submit monthly audit reports to EPD and confirming in writing in the report full implementation of the mitigation measures as recommended in the Project Profile and EP during and upon completion of the construction works under Contract No. DC/2017/01.

## 2 **Project Organization**

### 2.1 **Project Organization and Management Structure**

The project organization and contacts of key personnel of the Project are shown in **Appendix A**.

## **3 Concise Overview of Assignment Period**

### **3.1 Construction Activities in the Reporting Period**

The construction activities carried out by the Contractor during the reporting period included the following:

• Defect rectification works was in progress.

The environmental performance was considered acceptable during the assignment period from 1 Oct 2023 to 31 Oct 2023.

### 4 Status on Implementation of Environmental Mitigation Measures

The potential environmental impacts and proposed mitigation measures to be incorporated into the design and construction of the Project are summarised in **Table 4.1** below.

**Table 4.1** Summary of potential environmental impacts and proposedenvironmental mitigation measures

Mitigation Measures	Implementation Agent	Status
Dust nuisance		
1. Adopt dust control and suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation.		Implemented
2. Water spraying on exposed area and during excavation.	Contractor (Construction Phase)	Implemented
3. Provide wheel-washing facilities.		Implemented
4. Cover stockpile of dusty materials by impervious sheets.		Implemented

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Mitigation Measures	Implementation Agent	Status
5. Provide hoarding of not less than 2.4m high from ground level along the site boundary adjoining Hoi Fai Road.		N/A due to site constraint. (Contractor will increase the watering frequency as mitigation measures.)
6. Cover dusty load on trucks before they leave the construction site.		Implemented
7. Avoid concurrent excavation activities for construction of underground DWFI, underground emergency stormwater bypass culvert and CSBCSPS.		Implemented
8. Minimize area involving dusty construction activities by arrangement of construction activities and methods.		Implemented
Odour		
1. Locate the inlet chamber, screen chamber, valve chamber and wet well of the sewage pumping station underground and enclose them by a reinforced concrete structure.	Contractor (Construction	Implemented
2. Install and properly maintain a deodorizer with a forced ventilation system and an odour removal efficiency of at least 99.5%.	DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months
Water Quality		
1. Control construction surface run-off according to ProPECC PN1/94, EPD's Practice Note for Professional Persons, Construction Site Drainage.		Implemented
2. All chemical tanks and storage areas will be provided with locks and placed on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank.	Contractor (Construction Phase)	Implemented

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Mitigation Measures	Implementation Agent	Status
3. Install and properly maintain a standby pump and dual power supply.	Contractor (Construction	Implemented
4. Provide a telemetry system to transmit signals showing irregularity or operational problem of the sewage pumping station and the dry weather flow interceptor to the Stonecutters Island Sewage Treatment Works.	Phase) DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months
Noise		·
1. Adoption of standard control measures such as adopting quiet mechanical equipment, temporary noise barriers and good site practices etc.		Implemented
<ol> <li>Construction Noise Permit is required for construction work during restricted hours as defined under the Noise Control Ordinance.</li> </ol>	Contractor	Implemented
3. Locate the pumps and screening facilities of the sewage pumping station underground and enclose them by a reinforced concrete structure.	(Construction Phase)	Implemented
4. Install all outlets of the extraction fans with acoustic louvers.		Implemented
Waste Management		
1. Standard waste management measures and good site practices in waste handling, disposal and transportation will be implemented.	Contractor (Construction Phase)	Implemented

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Mitigation Measures	Implementation Agent	Status
2. The Contractor will be required to sort all C&D materials and general refuse into different categories for reuse on site, recycling and disposal at designated public fill reception facilities or landfills. Disposal of C&D materials will be managed through the trip-ticket system as stipulated in DEVB TC(W) No. 6/2010.		Implemented
3. All chemical wastes due to maintenance of equipment will be handled, stored and disposed of in accordance with the requirements of the Waste Disposal (Chemical Waste) (Chemical) Regulation.		Implemented
4. General refuse will be stored and disposed of separately from general construction waste and chemical waste. The storage bins for general refuse will be provided with lids, which should be kept closed to avoid odour nuisance and windblown litter. General refuse will be removed regularly and disposed of to landfills.		Implemented
Landscape and Visual		
1. Erect site hoarding with decorative features that are compatible with the surrounding environment;		Implemented
2. Maintain site cleanliness and tidiness;		Implemented
3. Properly manage construction waste in the works area;		Implemented
<ol> <li>Reinstate all temporary works areas to its original conditions upon completion of works.</li> </ol>	Contractor (Construction Phase) DSD (Operational Phase)	N/A for the reporting month and shall be implemented in the later months
5. Implement and properly maintain the landscape and visual mitigation measures (e.g. rooftop greening, grasscrete, paving lock, vertical greening, permanent shrub planter, removable shrub planter, bench with shelter, and removable planter with trees) as shown in Figure 2 of the EP.		N/A for the reporting month and shall be implemented in the later months

# 5 Major Accomplishment

### 5.1 Deliverables

Deliverables completed in the reporting period are summarised in Table 5.1.

 Table 5.1 Completed deliverables

Description	Submitted by IEC
Monthly Environmental Audit Report No. 69	10 Oct 2023
(Sep 2023)	

Planned deliverables to be completed in the coming reporting period is summarised in **Table 5.2**.

#### Table 5.2 Planned deliverables

Description	Planned Submission Date	Status	
Monthly Environmental Audit Report No. 70 (Oct 2023)	10 Nov 2023	On schedule	

#### 5.2 Meetings

No meeting was held in the reporting month.

#### 5.3 Summary of Work Done

Upon commencement of the Assignment, accumulated numbers of IEC monthly environmental audit report submission and various kinds of meetings are summarized in **Table 5.3**.

Table 5.3 Summary of work done

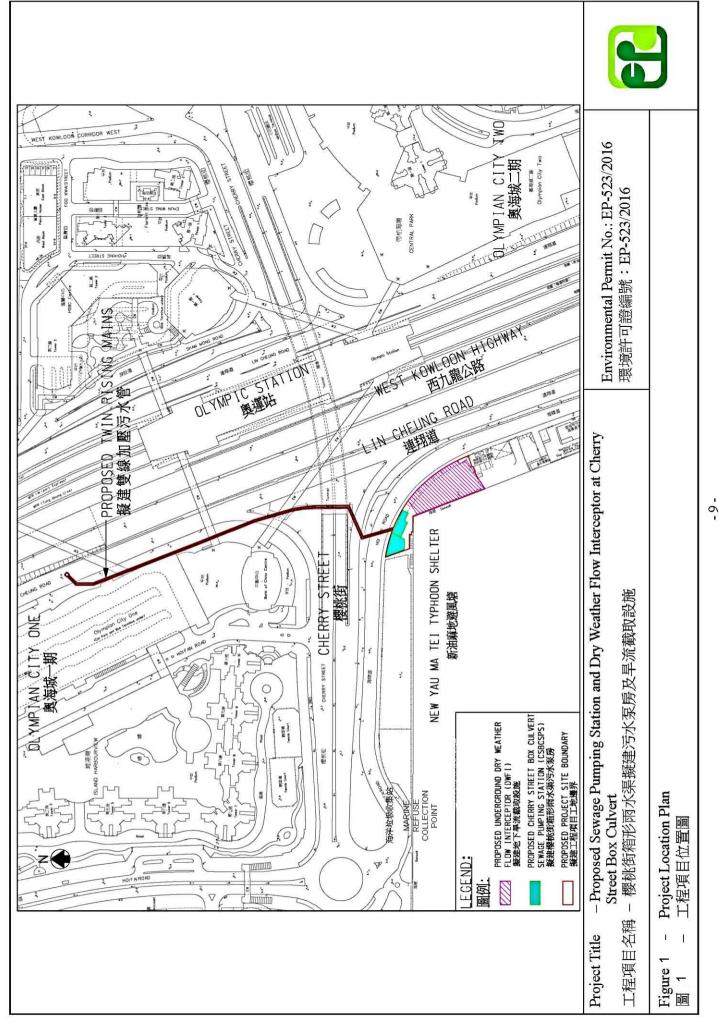
Work	Number
Reports	
IEC Monthly Environmental Audit Report	70
Meeting	
IEC monthly site inspection with DSD, Engineer Representative and Contractor	66
Project related meeting with DSD and EPD	1

### 5.4 IEC Site Audit

IEC site audit was conducted on 27 Oct 2023 with the presence of DSD, Resident Site Engineer, Contractor and IEC. No major site defect was observed in the reporting month. The IEC site audit checklist is given in Appendix B.

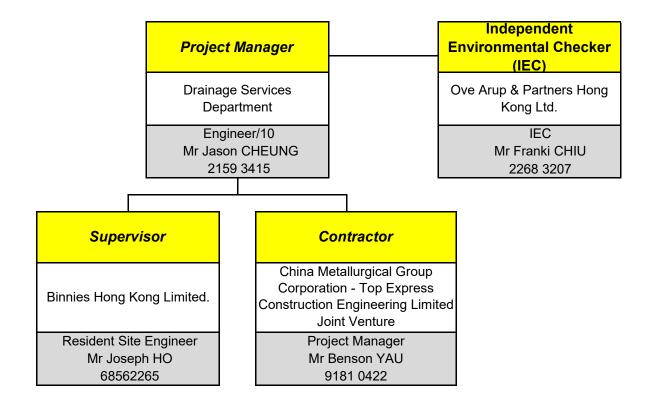
Figure 1

Project Location



# Appendix A

Project Organization and Contacts of Key Personnel



— Contractual Relationship

Appendix B

IEC Site Audit Checklist

	Ref. No.										
	Project		Construction of dry weather flow interceptor			IEC		Ove Arup & Partners Hong Kong Ltd.			na Ltd.
		at Cherry S	at Cherry Street Box Culvert			Client		Drainage Services Department			
	Contract No.	CM 4/2017				Contractor		China M	letallurgica	I Group Cor	poration -
	Inspected By	IEC's Rep.		n Tan	<u>مــــــــــــــــــــــــــــــــــــ</u>			Top Exp	oress Cons	truction Engi	ineering Limited JV
		Cilent's Rep				Engineer		Black &	Veatch Hk	Ltd.	
		Engineer's				Inspection D			7 ~ 10	-202	3
		Contractor's	Rep. :			Time Period			4-3	$2 \sim 1$	7200
	Part I	Weather					_				
	Condition		Fine	Overcast	<b>\$torm</b>	Rain	-	Drizzle			79
	Humidity	 High	Moderate		Lywin		. L	prizzię	Hazy		61
	Wind	î <b>⊠</b> calm	light	Breeze	\$trong			Temper	ature		50 °C
No.	Part II	Water Quality	and Draina	ae				N/A N/C	Vos Dd	r Oba N/C	
1	ls drainage sy							_		r Obs N/C	Photos / Remarks
2	ls drainage sy										
3	ls drainage s			d for storm fl	ow?						
4	Are there dyk	es to surround	areas of ea	arthworks for	flood protec	tion?					<u> </u>
5	Are there peri	imeter channe	ls at site bo	undaries to ir	ntercept stor	m					
	runoff from ou	utside the site	so that it wil	l not wash ad	cross the site	?					
6	Are sediment	control measu	ures inspect	ed & maintai	ned after raii	ny storms?					
7	Are there tem watercourse?	porary ditches	s for runoff d	lischarge into	o appropriate	•					
8	Are these terr		e with eilt rot	ention and r		Han O		_/_			
9a	Do permanen				intation basin'						
9b		- analiago orie			nd baffles?	ſ					
10	Is site runoff p	prohitated from	n enterina th					MO			
11	is groundwate	er from tunnels	rohitated from entering the river channel? r from tunnels or surface runoff collected and discharged								
12		tion traps/tanks?									
12 13a	Are the sedim	entation tanks	ks for settiin	ig runoff prio	r to disposal	?					· · · · · · · · · · · · · · · · · · ·
13b	Are the seatth	entation tanks				cells?					
13c				juate capacity silt and sedim							
14	Are there neu	tralisation tank	s for concre	ete batching/i	mixina disch:	arne?					
15	Is the discharg	alisation tanks for concrete batching/mixing discharge? e diverted to and treated in neutralisation tanks?									· · · · · · · · · · · · · · · · · · ·
16	ls the discharg tanks before d	arge from neutralisation tanks routed to silt trap or sedimentation									
17	Are there oil in		drainago ev	stem?							
18	Are oil and gre	ase removed	recularly (a	t least wookl							
19	Is there any by	pass for oil to	prevent flu	shina durina	y): periods of b	awy rain?					
20	Are vehicles a	nd plant clean	ed of earth.	mud and de	bris before	savy rain?					
	leaving the site	э?									
21	is a wheel was	shing bay prov	vided at ever	ry site exit?							
22a	Is the wheel w			te design?							
22b			adequa	ate settling & r	emoval of sar	nd/silt?					·
22c			paved	access road le	eading to exit?	2					
22d				road sufficien	tly backfill tov	vard		Ζā			· · · · · · · · · · · · · · · · · · ·
22e				wash bay?	,			• -	_, _		
23	Is exposed ear	th stabilized a	itter comple	tion of earthw	vorks?				$\overline{\alpha}$		
24 25	Are exposed s	ope surfaces	covered (b)	tarpaulin or	other means	\$)?					
25 26	Are open stock Are manholes			vy rain?							
20 27	Are accessed			d atonce	movels0						
28	Are toilets con	nected to foul	sewer or ch	omical tailot	yiavels?						
29	Are debris and	rubbish on ei	e collected	eniical tollets	hiovided?	<b>^</b>			₫∕□		
30	Is wastewater	discharge lice	nce availabl	e for inspecti	ion?	ſ					
				e ioi iliopeul							

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No.	Part III Air Quality	N/A N/O Yes Rdr Obs N/C Photos / Remarks
1	Are vehicles in the site travelling within speed limit of 10 km/h?	
2	Are site vehicle movement confined to designated haul roads?	
	Is the public road around the site entrance kept clean and free from dust?	
3	Are areas of site with regular traffic movement have hard surface?	
4	Are the haul roads watered regularly to avoid dust disturbance?	
5	Are the naul roads watered regularly to avoid dust disturbance?	
6	Are unpaved areas watered regularly to avoid dust disturbance:	
7	Does the water spraying truck work effectively?	
8	Is working area of excavation or earth moving operation sprayed with	
	water to maintain the entire surface wet?	
9	Are the dusty materials sprayed with water during transfer operation?	
10	Do the site vehicles use the wheel wash at the site exits?	· · · · · · · · · · · · · · · · · · ·
11	Does the wheel wash work effectively?	
12	Are hoarding not less than 2.4m tall provided beside roads or areas with	
	public access?	
13	Are incombustible screens not less than 1.8m tall provided in the public area	
	affected by exhaust fumes or smoke emission?	
14	Is dark smoke emission avoided?	
15	Are dusty materials properly covered?	
16	Are the bags of cement (more than 20) covered entirely?	
17	Are the excavated materials dropped at minimum practical height?	
18	Are conveyor belts fitted with windboards, transfer points and hoppers	
10	enclosed?	
19	Are bulk fine grained materials stored in closed silos fitted with high level	
19	alarm indicator?	
20	Are air vents on cements silos fitted with fabric filters?	
20	Are weigh hoppers vented to suitable filters?	
21	Are there enclosures around the main dust-generating activities?	
22	Are completed earthworks sealed and hydroseeded and planted as soon	
23		
~ .	as practicable?	
24	Is open burning avoided? Are vehicles and equipment switched off while not in use?	
25	Are venicies and equipment switched on while not in uses	
26	Are all trucks loaded to a level within the side and tail boards?	
27	Are materials transported by dump trucks with mechanical cover?	<b>+ - - - - - - - - - -</b>
28	Do the truck covers work effectively?	
29	Does ULSD used in the construction activities?	
30		Dighters CONSTRUCTION
	cading/unloading of materials	Others CONSTRUCTION
No.	Part IV Construction Noise Impact	N/A N/O Yes Rdr Obs N/C Photos / Remarks
	Are the construction works scheduled to minimize airborne noise nuisance?	
1a	groundborne noise nuisance?	
1b	Are the works or equipment sited to minimize airbrone noise nuisance?	
2a	Are the works of equipment sited to minimize attribute hole hole haloanee?	
2b	Are all plant and equipment well maintained and in good operating condition?	
3		
4	Are idling equipment throttled down or turned off?	
5	Are powered mechanical equipment covered or shielded by appropriate acoustic materials?	
~	Are silenced equipment used where practicable?	
6	Are silenced equipment used where practicable is	
7	Are noise enclosure, noise barrier, or portable noise barrier used	
_	where necessary?	
8	Do hand-held breakers (larger than or equal to 10kg) have valid noise labels?	
9	Do Quality Powered Mechanical Equipments (QPME) have valid noise labels?	
10	Do air compressors have valid noise labels?	
11	Do compressors operate with doors closed?	
12	Are Construction Noise Permits available for inspection?	
13	Major noise source(s)	Construction activities inside of site
		Dthers

No. 1a 1b 1c	Part V Waste Management and Contamination General refuse: Is accumulation avoided? Is receptacles (e.g. rubbish bins) available? Is there regular and proper disposal?	N/A N/O Yes Rdr Obs N/C	Photos / Remarks
2a	Construction waste: Is there avoidance or minimization of construction waste generation (e.g. use of steel formwork)?		
2b	Is there on site segregation as far as practicable for reuse and recycle?	Ç∕ooooo	·
2c 2d	Is construction waste reused where practicable? Is construction waste disposed at public dumping area or public landfill?		
2e 3a 3b 3c 3d 3e 4a	Are trip tickets available for inspection? Chemical waste/waste oil: Is there designated storage area? Is chemical waste/waste oil stored properly? Is there proper disposal? Are trip tickets available for inspection? Is chemical waste license available for inspection?		
4a 4b	Excavated material: Does excavated material appear uncontaminated (colour, odour)? If contamination is suspected, is appropriate procedure followed?		
4c 5a 5b 5c	Are trip tickets available for inspection? Chemical/fuel: Is chemical/fuel stored in bunded area? Is bund capacity adequate (>110% of the largest tank)? Are storage areas provided with locks and located on sealed area?		
6	Are relevant license/permit for disposal of construction waste or excavated materials available for inspection?		
7	Is foam, oil, grease or other objectionable matters in water of nearby drains or sewer avoided?		
No. 1 2 3 4 4a 4b 5 6 7	Part VI       Landscape & Visual Impact and Ecology         Is stripped top soil stored for re-use?         Are retained trees protected from damage?         Are compensatory trees planted and properly maintained?         For trees identified for transplant in EP:         sufficient buffer zone allowed prior to transplant?         Is night-time lighting controlled to minimise glare to sensitive receivers?         Is the screen hoarding compatible with the surrounding setting?         Do the site clearance and tree felling works at the existing ardeid night roost only be carried out at wintering season (November to March inclusive)?	N/A       N/O       Yes       Rdr       Obs       N/C         II       II       III       IIII       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	
No. 1	Part VII         Others           Is a copy of the relevant permits/licences/registrations displayed on the Project site at all vehicular site entrances/exits or at a convenient location for public information all times?	N/A N/O Yes, Rdr Obs N/C	

Part VIII Follow-up for the Pervious Site Audit

Notes: N/A - Not Applicable; N/O - Not Observed; Yes - Compliance; Rdr - Reminder; Obs - Observation; and N/C - Non Compliance

Part IX Remarks

RJr: NZL Obs: NZL

Part X Signatures IEC's Representative Client's Representative the (Name: HAHfor TAM) (Name: ) Engineer's Representative Contractor's Representative hm (Name: Joseph HD (Name: W.H.LAM )

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Notes: N/A - Not Applicable; N/O - Not Observed; Yes - Compliance; Rdr - Reminder; Obs - Observation; and N/C - Non Compliance ARUP