Contract No. GE/2013/06

Landslip Prevention and Mitigation Programme, 2008, Package J

Landslip Prevention and Mitigation Works in New Territories

Above Leung Fai Tin along Clear Water Bay Road, Sai Kung

Study Area: 12/NW-C/SA1 (Study Area

H)

Independent Environmental Checker (IEC) Monthly Audit Report No. 12 January 2015

182663/B&V/012/Issue 1

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February 2015

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APPENDICES

Appendix A Environmental Inspection Checklist

	Name	Signature	Date
Prepared	Esther TONG		
Checked	Manuel CHUA		
Reviewed / Authorised	Norman SONG		

1. INTRODUCTION

1.1 Background and Project Description

- 1.1.1 Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department has identified about 2700 natural hillside catchments with a known history of landslides close to existing buildings and important transport corridors based on interpretation of large-scale historical aerial photographs. Natural hillside catchments affecting individual units of existing development are further grouped into different Study Areas designated for natural terrain hazard studies by GEO.
- 1.1.2 The natural hillside, Study Area No. 12NW-C/SA1, at Leung Fai Tin above Clear Water Bay Road in Clear Water Bay Peninsula, includes a number of hillside catchments which warrant high priority for natural terrain hazard study and mitigation actions. The location and the extent of the Study Area are shown in **Figure 1**.
- 1.1.3 The natural hillside within the Study Area has been disturbed since 1940s, and there were 3 landslides identified to have occurred on the natural hillside in 1970s. A detailed natural terrain hazard study concluded that the natural hillside within the Study Area is highly susceptible to landslide failures and the landslide debris would travel downslope and be channelised along the stream course reaching Clear Water Bay Road and the village houses at Leung Fai Tin.
- 1.1.4 Hence, natural terrain hazard mitigation works (HMW) are required at the lower portion of the Study Area (hereinafter referred to as the "Works Area") to mitigate the potential hazards arising from natural terrain open hillslope landslides, boulder falls and channelised debris flows at the Study Area affecting Clear Water Bay Road and village houses at Leung Fai Tin downhill. The proposed natural terrain HMW includes erection of tensioned steel mesh fences (also known as flexible barrier), construction of masonry maintenance staircases and associated landscape treatments at the Works Area. The extent of the Works Area has been carefully considered to limit the extent of proposed works, necessary working space and the site access.

1.2 Types of Designated Project

- 1.2.1 The Natural Terrain Hazard Mitigating Works at Study Area No. 12NW-C/SA 1 above Leung Fai Tin along Clear Water Bay Road, Sai Kung is referred as "Designated Project" (DP) which includes the works area of the Project falls within a Conservation Area under the approved Clear Water Bay Peninsula South Outline Zoning Plan No. S/SK-CWBS/2 and Item Q.1 Part 1 of Schedule 2 under the Environmental Impact Assessment Ordinance (EIAO). The Project Profile (Register No. PP-480/2013) was submitted for directly application of Environmental Permit (EP) on 18 March 2013. Environmental Protection Department (EPD) granted the EP (EP No.: EP-448/2013) to the GEO/Civil Engineering and Development Department (hereinafter referred to as the "Client") in 10 April 2013 to construct the Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO).
- 1.2.2 According to the EP Specific Condition Clause 2.5, the Permit Holder shall employ an

Independent Environmental Checker (IEC) to audit the implementation of all mitigation measures recommended in the Project Profile and the approved Landscape and Compensatory Planting Plan, and to certify in writing in the monthly audit report full implementation of the mitigation measures during and upon completion of the construction works. The IEC shall not be in any way an associated body of the Contractor of the Project.

1.3 Location and Scale of Project

- 1.3.1 The proposed HMW will be constructed within the Works Area at the lower portion of the Study Area No. 12NW-C/SA1 above Clear Water Bay Road, Leung Fai Tin in Clear Water Bay Peninsula. The Works Area is located within a Conservation Area. Extent of the Works Area is approximately 6,000m² and the project comprises as follows:
 - a. Erect about 250m long, 5m-6m high flexible barrier supported by vertical and raking steel bar anchors (about 120 nos.) to be drilled and installed in ground.
 - b. Construct of 300m long, 600mm wide masonry maintenance access with handrails
 - c. Provision of soft landscape works includes pit-planting of native/shrub seedlings, plant of climbers and hydroseeding.

1.4 Organisation and Reporting Schedule

1.4.1 CEDD commissioned CH2M HILL Halcrow China Limited (CHMHC) as the Engineer. The Contractor of the Project is Kwan On Construction Co. Ltd (KOCCL). Black & Veatch Hong Kong Limited (B&V) was appointed as Independent Environmental Checker (IEC) on 10 February 2014. This Report covers the period of January 2015.

2. PROGRESS OF THE CONTRACT

2.1 Status of the Environmental Licence and Permits

2.1.1 Table 2-1 presents a summary of the status of environmental licenses and permits for this Contract.

Table 2-1 Status of Environmental Permit

Type of Licence	Permit/License	Issue Date	Covered Area	Validity	Status
	No.				
Environmental	EP-448/2013	10 April 2013	Study Area No.	Whole Project	Valid
Permit	•		12NW-C/SA1	·	
			above Leung Fai		
			Tin along Clear		
			Water Bay		
			Road, Sai Kung		

2.2 Progress of the Construction Works

2.2.1 The Project has been commenced on 15 January 2014. During the reporting period, erection of scaffolding and foundation works of the flexible barriers were being carried out during the site inspection. Site audit was carried out along the works areas as shown in **Figure 2**.

2.3 Summary of Site Inspection and Audit

- 2.3.1 Temporary access outside the permitted boundary, recorded in September 2014, was fenced off properly. No further work was carried out outside the permitted boundary.
- Join site audit was carried out with CHMHC and KOCCL on 23rd January 2015. Erection of scaffoldings and working platforms, drilling of ground anchors and construction of concrete footings for flexible barrier were observed within the works area. **Photos 1** and 2 show the construction work progress within permitted works areas. The temporary access was extended across to the stream course (**Photo 3**).

Random Trees Check

2.3.3 Trees along the temporary works area were inspected. No tree damage was observed. Temporary tree protective cover to tree trunk were provided. 5 trees were randomly selected for inspection and all of them were retained in-situ with tree tags (Table 2-2).

Table 2-2 Randomly Selected Trees for Site Inspection

Tree I.D.	Species	Condition
T307	Cinnamomum parthenoxylon	Found
T194	Machilus chekiangensis	Tag Missing
T157	Diospyros glauca	Found
T860	Machilus chekiangensis	Found
T831	Diospyros glauca	Found

2.3.4 Bright colour tree protection signage was provided at protective trees (**Photo 4**). Protective tree measures have also been provided. Information sheet with colour photos of *Aquilaria sinensis* and *Pavetta hongkongensis* were displayed conspicuously within the

construction site.

Aquilaria sinensis Checking

2.3.5 T133A, T135A, TA145A, TA151A, TA151C, TA480A and T889 were randomly checked and identified. All trees were protected with tree tags and bright colour signage.

Pavetta hongkongensis Checking

2.3.6 T897A, T897B, T897C and T897D were randomly checked and identified. All trees were protected with tree tags and bright colour signage.

Observation

2.3.7 No observation was recorded during the site inspection and audit in the reporting month. No tree felling was recorded.

Reminder

- 2.3.8 It is reminded that the Contractor shall ensure construction activities shall fully comply with the environmental permit conditions.
- 2.3.9 It is reminded that the Contractor shall provide sufficient induction training to all site personnel (both supervision staff and workers) in order to brief them on tree preservation including the locations of the *Aquilaria sinensis* and *Pavetta hongkongensis* individuals and their importance. The resident site supervisory staff shall closely monitor the conditions of the *Aquilaria sinensis* and *Pavetta hongkongensis* individuals during the construction phase.

2.4 Summary of Complaints and Prosecutions

- 2.4.1 No environmental complaint was recorded in the reporting period.
- 2.4.2 No prosecution was recorded in the reporting month.
- 2.4.3 The update statistical summary of complaint is presented in Table 2-3.

Table 2-3 Status of Complaints and Prosecution

Donorting Doriod	Complaint S	Statistics	Area of Concern	Validity	Ctatus	
Reporting Period	Number	Cumulative	Area of Concern	validity	Status	
1 st Jan 2015 – 31 st Jan 2015	0	0	-	-	-	

3. CONCLUSIONS

- During the reporting period, erection of chain link fencing and scaffolding and drilling of upslope anchor for flexible barrier were carried out. The Contractor was reminded to provide protective measures to all *Aquilaria sinensis* and *Pavetta hongkongensis* (香港大沙葉) and retained in-situ. No Follow up action is required.
- 3.1.2 No environmental complaint was received in the reporting month. No summon or prosecution related to the environmental issues was made against the Project in the reporting month.

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4. RECOMMENDATIONS

4.1.1 The Contractor was reminded to implement the relevant mitigation measures as stated in the Environmental Permit and the Contract to prevent any non-compliance throughout the construction period.

Photos



Figure

Appendix A Environmental Inspection Checklist



Project	: 4	Contract No. GE/201	3/16			dist Num			GE/2013	/16_No.1/2
	Leung Fai Tin along Clear Water Bay Road IEC's Representative:			755	Ms. Esther Tong					
		Study Area: 12NW-C	/SA1 (Study Area H)		RE's Representative:				Mr. 7	elix Sin
Inspect	ion Date:	23 Jan 2015			ET's R	epresen	tative:	_	-	
Time:				_	Contr	actor's R	Represen	tative:	Mr. Roy I	Leung
PART A	:	GENERAL INFORMATION	ON			· · · · · · · · · · · · · · · · · · ·				
Weathe	er:	Sunny	Haze Cloudy		Rainy	′	Fine			
Temper	rature:	>> °C								
Humidi	ty:	High	Moderate ✓ Low							
Wind:		Strong	Breeze Light	\checkmark	Calm					
Major Construction Works Observed Erection of scaffoldings and working platforms, drilling of ground anchors and construction of concrete footings for flexible barrier were observed during the site audit.										
PART B	:	SITE AUDIT								
Note:		Applicable; Yes : Compliand : Observations requiring fo				N/A	Yes	Follow Up	N/C	Photo/ Remarks
Section	1: Constru	ction Noise								
1.01		equipment and activiti sensitive receivers?	es positioned as far as prac	ticable						
1.02	Is silence	d equipment adopted?								
1.03	Is idle equ	uipment turned off or t	hrottled down?							
1.04	Are plant	and equipment kept to	a minimum?				\vee			
1.05	Is parallel	use of noisy equipmen	t / machinery avoided?				\checkmark			
1.06	Are all pla	ant and equipment well	maintained and in good co	ndition	1?		\checkmark			
1.07			provided at areas where se impact on sensitive recei	vers?						
1.08	Are hand operation		th valid noise emission labe	ls durin	ng					
1.09	Are air co operation		alid noise emission labels d	uring			\triangle			
1.10	Are flaps operation		cal equipment closed during	3		ŕ				
1.11		ruction Noise Permit(s) ring restricted hours?	applied for general constru	uction						
1.12	Are valid site?	Construction Noise Per	mit(s) displayed on the con	structio	on	\square				



Environmental Inspection Checklist

Checklist Number:

GE/2013/16_No.12

Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks
Sectio	n 2: Air Quality					
2.01	Are the excavated materials sprayed with water during handling?					
2.02	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	\square				
2.03	Is the exposed earth properly treated within six months after the last construction activities?					
2.04	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	\square				
2.05	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	\checkmark				
2.06	Are there any fencing provided along the site boundary, which adjoins areas accessible to the public?					
Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks
Sectio	n 3: Water Quality					
3.01	Is the discharge of turbid water avoided?	\checkmark				
3.02	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?					
3.03	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?					
3.04	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?					
3.05	Are the maintenance access and/or anchor built within the stream?	\square				
3.06	Are temporary exposed slopes properly covered?	Y				
3.08	Are earthworks final surfaces well compacted or protected?	$\overline{\mathbf{A}}$				
3.09	Are there any procedures and equipment for rainstorm protection?	\checkmark				
3.10	Are the vehicle and plant servicing areas paved and located within roofed areas?	\checkmark				
3.11	Is the oil leakage or spillage avoided?	\checkmark				
3.12	Are there any measures to collect spilt cement and concrete washings during concreting works?	V				
3.13	Are the oil interceptors/grease traps maintained properly?	\checkmark				
3.14	Concreting wastes water should be neutralized below the pH Action Levels before discharge.					
3.15	Mobile toilets should provide on-site and located away the stream course.					
3.16	License collector should be employed for handling the sewage of mobile toilet.	\Box				



Environmental Inspection Checklist

CI-	1-	1:-4	B1	1
Ch	eck	list	Num	ber:

GE/2013/16_No.12

Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks
Sectio	n 4: Ecology					
4.01	Are the maintenance access and/or anchor built within the stream?	7				
4.02	Is there any opening (at least 0.5m allowed) between the stream bed and the bottom of the flexible barrier provide?	$ \sqrt{} $				
4.03	Are protected plants species are retained in-situ?					
4.04	Is there any tree pruning to damage the preserved trees?					
4.05	Are all <i>Aquilaria sinensis</i> (85 nos.) and <i>Pavetta hongkongensis</i> (10 nos.) retained in-situ and fenced off?					
4.06	Are there any tagged provided at retained in-situ trees?		\checkmark			
4.07	Are all retained trees closed to the construction works providing protective wrapping properly to minimize the damage?		\square			
4.08	Are only 25 nos. of non-protected trees are felled?	\checkmark				ho tree felling
4.09	Are any native light standard trees provided as compensatory planting (ratio 1:3)?	\square				- 0
4.10	Are the proposed compensatory trees planting native and shade-tolerant trees species according to the recommendation of Project Profile?					
4.11	Is the positioning the alignment has minimum 1.5m in radius away from the alignment?		1			
4.12	Any induction training course to all site personnel (both supervision staff and workers) to brief the persevered trees location and importance?		abla			
4.13	Any adjustment of the foundation of flexible barriers and staircases to avoid the damage of root systems of existing trees?		1			
4.14	Is there any re-vegetation area to compensate the temporary loss of 200m² (due to temporary access) understorey area?	abla				
4.15	Is there any re-vegetation area to compensate the permanent loss of 200m² (due to maintenance access and anchor) understorey area?	Ø				
Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks
Sectio	n 5: Landscape and Visual					
5.01	Is the landscape design including the compensatory planting follow GEO Publication No. 1/2011?					
5.02	Is there any erecting of hoarding to minimize the unsightly construction activities?		ď			
5.03	Is the hoarding with decorative panels with patterns of vegetation mature trees below the hoardings for nature screening) to minimize the visual impact?					
5.04	Any utilization of existing trees located in fornt of hte flexible barrier as natural screening?		\bigcirc			
5.05	Any provision Pit-planting of native light standard trees and planting of climbers in front of the fence to provided screening effect?	Ø				
5.06	Is the dark colour of the flexible barrier used?	口				



		Checklist Number:			16_No.12	
5.07	Are the concrete footing of the anchor and the handrails along the maintenance access painted with sub-due colour as far as practical?	đ				-
5.08	Are the maintenance accesses apply masonry finished to blend with surroundings?	Q				
Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks
Sectio	n 6: Waste Management					
6.01	Has the Waste Management Plan prepared according to ETWB TC(W) No. 19/2005 and submit to Engineer?	V				
6.02	Are receptacles available for general refuse collection?	abla				
6.03	Is general refuse sorting or recycling implemented?	abla				
6.04	Is general refuse disposed of properly and regularly?	abla				
6.05	Is the Contractor registered as a chemical waste producer?	口				
6.06	Are the chemical waste containers properly labelled?					
6.07	Are the chemical wastes stored in proper storage areas?					
6.08	Is the chemical waste storage area properly labelled?					
6.09	Is the chemical waste storage area used for storage of chemical waste only?	Ŕ				
6.10	Are incompatible chemical wastes stored in different areas?					
6.11	Are the chemical wastes disposed of by licensed collectors?					
6.12	Are trip tickets for chemical wastes disposal available for inspection?					
6.13	Are chemical/fuel storage areas bunded?					
6.14	Are designated areas identified for storage and sorting of construction wastes?	\square				
6.15	Are construction wastes sorted (inert and non-inert) on site?					
6.16	Are construction wastes reused?					
6.17	Are construction wastes disposed of properly?					
6.18	Are site hoardings and signboards made of durable materials instead of timber?	$\overline{\square}$				
6.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?					
6.20	Are appropriate procedures followed if contaminated material exists?					
6.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?					
6.22	Site cleanliness and appropriate waste management training had provided for the site workers.	\checkmark				



		Checklist N	lumber:		GE/2013,	/16_No. 2	
Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks	
Sectio	n 7: Licence						
7.01	Is relevant Environmental Permit posted at all vehicle site entrances/exits?		\checkmark				
7.02	Any N/C of EP condition?					No	
Section 8: Follow-up of the previous monthly environmental audit on date (Checklist No. GE/2013/16_No)							
Note:	N/A: Not Applicable; Yes: Compliance; N/C: Non-Compliance; Follow Up: Observations requiring follow-Up actions	N/A	Yes	Follow Up	N/C	Photo/ Remarks	
8.01	Is the situation in item improved / rectified?						
8.02	Is the situation in item improved / rectified?						
8.03	Is the situation in item improved / rectified?						
8.04	Is the situation in item improved / rectified?						
8.05	Is the situation in item improved / rectified?						



Contract No. GE/2013/16

Landslip Prevention and Mitigation Programme, 2008, Package J,
Landslip Prevention and Mitigation Works in New Territories
Above Leung Fai Tin along Clear Water Bay Road, Sai Kung
Study Area No.: 12NW-C/SA1 (Study Area H)

		Checklist Number:	GE/2013/16_No.l*2
Remarks / Observations:			
Nil			
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,			
		ř .	
Signature:			Continuet of management of
IEC's Representative	RE's representative	ET's representative	Contractor's representative
Name: Ms. Esther Tong	Name: Mr. Felix Sin	Name: NIL	Name: Mr. Roy Leung
Date: 23 Jan 2015	Date: 23 Ian 2015	Date: -	Date: 23 Jan 2015