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. 6 1 July to 31 July 2014

182663/B&V/006/Issue 1

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Location Plan of the Designated Project

	Name	Signature	Date
Prepared	Esther TONG	Gutler	1 Aug 2014
Checked	Manuel CHUA	fee-	1 Aug 244
Reviewed / Authorised	Norman SONG	Non	· Aug 2014

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 from 1 July 2014 to 31 July 2014.

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, no construction work was being carried out during the site inspection. Erection of site hoarding and chain link fencing were in progress and will be carried out during the coming reporting month (Photos 1a and 1b).





2.2.2 Photos 2a and 2b show the existing condition of the Project. No construction work has been carried out during the site inspection.





2.3 Summary of Site Inspection and Audit

- 2.3.1 Site preparation works including erection of site hoarding and chain link fencing and setting up the flexible barrier alignment within the Project Site were being carried out. No tree felling or tree damage was recorded.
- 2.3.2 Tentative commencement of construction of flexible barrier and masonry maintenance staircases will be carried out in September 2014. The Contractor is reminded to position the flexible barrier and site hoarding away from trees as far as practical with provision of buffer zone and tree wrapping to all protected trees. It is also recommended to submit the revised alignment of the flexible barrier and masonry maintenance staircases (if any) two weeks before construction for IEC review.
- 2.3.3 During the reporting period, one IEC joint site inspection with KOCCL was conducted on 22 July 2014. Erection of site hoarding and chain link fencing were in progress during the reporting month. Protective tree wrapping on retained trees along the site hoarding were observed and provided. No non-compliance and observation was identified. No follow-up action is required.

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 No violation of the environmental permit of the Contract as listed in Table 2-1 was recorded during the reporting month.
- 2.4.4 The update statistical summary of complaint is presented in Table 2-2.

Table 2-2 Status of Complaints and Prosecution

Donorting Doriod	Complaint S	Statistics	Area of Congorn	Validity	Ctatus
Reporting Period	Number	Cumulative	Area of Concern	Validity	Status
1 st July2014 – 31 st July 2014	0	0	-	-	-

3. CONCLUSIONS

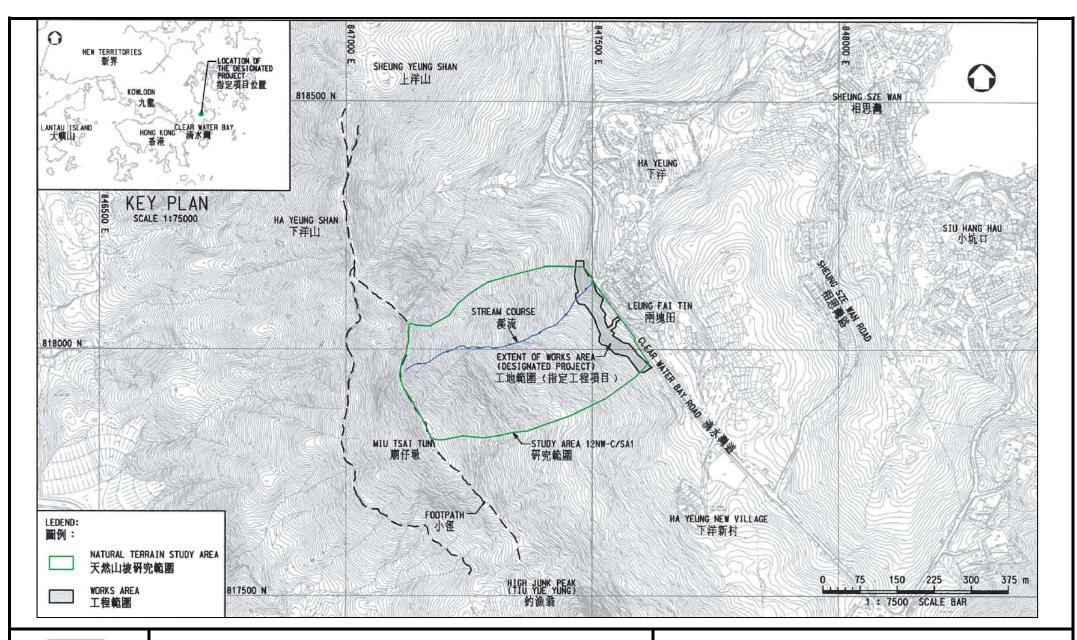
- 3.1.1 During the reporting period, no construction work was carried out. Erection of site hoarding and chain link fencing were in progress this month.
- 3.1.2 No environmental complaint was received in the reporting month. No summon or prosecution related to the environmental issues was made against the Project in the reporting month.

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.

Figure

August 2014 Black &Veatch





Project Title : Natural Terrain Hazard Mitigation Works at Study Area No. 12NW-C/SA1 above Leung Fai Tin along Clear Water Bay Road, Sai Kung

工程項目名稱: 西 貢 清 水 灣 道 兩 塊 田 天 然 山 坡 研 究 地 區 編 號 12NW/C/SA1

天然山坡災害緩減工程

Environmental Permit No.: EP-448/2013 環境許可證編號: EP-448/2013 Figure 1: Location of the Project

圖 1: 工程項目位置

(This figure was prepared based on Figure 1 of the Project Profile (Register No.: PP-480/2013)) (本圖是根據工程項目簡介(登記冊編號: PP-480/2013) 圖 1 編製)

Appendix A Environmental Inspection Checklist

August 2014 Black & Veatch



			Chec	klist Nur	nber:		GE/2013	/16_No. 6	
Project:		Contract No. GE/2013/16	Inspe	ected by:					
		Leung Fai Tin along Clear Water Bay Road	IEC's Representative:			Ms. Esther Tong			
	an Datas	Study Area: 12NW-C/SA1 (Study Area H)		Represe		-	-		
Time:	ion Date:	22 Jul 2014	ET's Representative: Contractor's Representative: Mr. Roy Leung						
Time			COIIC	ractor 3	кергезеп	-	IVII. KOY I	Leung	
PART A	:	GENERAL INFORMATION							
Weathe	er:	Sunny Haze Cloudy	Rain	ıy	Fine				
Temper	ature:	₹ °c							
Humidit	ty:	High Moderate Low							
Wind:		Strong Breeze \(\sqrt{\text{Light}} \)	Caln	n					
Major	Constructi	ion Works Observed							
	N	o construction work is observe							19.7
									,
PART B		SITE AUDIT						4	
Note:	-	Applicable; Yes : Compliance; N/C : Non-Compliance; : Observations requiring follow-Up actions		N/A	Yes	Follow Up	N/C		Photo/ Remarks
Section	1: Constru	ction Noise							
1.01		equipment and activities positioned as far as practicable sensitive receivers?	2	X					10 miles 17
1.02	Is silence	d equipment adopted?		X					
1.03	Is idle equ	uipment turned off or throttled down?		\nearrow					
1.04	Are plant	and equipment kept to a minimum?		\nearrow					2541 E.J.
1.05	Is parallel	use of noisy equipment / machinery avoided?		X					nitt, in the
1.06	Are all pla	ant and equipment well maintained and in good condition	n?	\triangleright					
1.07		barriers or enclosures provided at areas where ion activities cause noise impact on sensitive receivers?		Ø					
1.08	Are hand operation	held breakers fitted with valid noise emission labels duri 1?	ing	\boxtimes					
1.09	Are air co	impressors fitted with valid noise emission labels during n?		\bowtie					
1.10	Are flaps operation	and panels of mechanical equipment closed during n?		X					14 - 1 18 - 1
1.11		truction Noise Permit(s) applied for general construction ring restricted hours?		K					
1.12	Are valid site?	Construction Noise Permit(s) displayed on the construction	on	X					



		Checklist N	lumber:		GE/2013,	/16_No. 6
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?	\boxtimes				
2.02	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?					
2.03	Is the exposed earth properly treated within six months after the last construction activities?	\times				
2.04	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	\times				1 /20
2.05	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	X				
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?	1				
3.02	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	\boxtimes				q
3.03	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	\boxtimes				
3.04	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	X				SA National and Security
3.05	Are the maintenance access and/or anchor built within the stream?	K				
3.06	Are temporary exposed slopes properly covered?	X				STATES TO STATE OF THE STATE OF
3.08	Are earthworks final surfaces well compacted or protected?	X				
3.09	Are there any procedures and equipment for rainstorm protection? $ \\$	X				
3.10	Are the vehicle and plant servicing areas paved and located within roofed areas?	X				
3.11	Is the oil leakage or spillage avoided?	X				
3.12	Are there any measures to collect spilt cement and concrete washings during concreting works?	X				
3.13	Are the oil interceptors/grease traps maintained properly?	X				
3.14	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	X				
3.15	Mobile toilets should provide on-site and located away the stream course.	\angle				
3.16	License collector should be employed for handling the sewage of mobile toilet.	$leve{\triangle}$				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1



		Checklist Number:			GE/2013/	16_No. 6	
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		75				
4.01	Are the maintenance access and/or anchor built within the stream?	R					
4.02	Is there any opening (at least 0.5m allowed) between the stream bed and the bottom of the flexible barrier provide?						
4.03	Are protected plants species are retained in-situ?	\overline{X}					
4.04	Is there any tree pruning to damage the preserved trees?	\boxtimes					
4.05	Are all <i>Aquilaria sinensis</i> (85 nos.) and <i>Pavetta hongkongensis</i> (10 nos.) retained in-situ and fenced off?	\boxtimes					
4.06	Are there any tagged provided at retained in-situ trees?	K					
4.07	Are all retained trees closed to the construction works providing protective wrapping properly to minimize the damage?	\boxtimes				i.	
4.08	Are only 25 nos. of non-protected trees are felled?	X					
4.09	Are any native light standard trees provided as compensatory planting (ratio 1:3)?	\bowtie					
4.10	Are the proposed compensatory trees planting native and shade-tolerant trees species according to the recommendation of Project Profile?	\boxtimes					
4.11	Is the positioning the alignment has minimum 1.5m in radius away from the alignment?						
4.12	Any induction training course to all site personnel (both supervision staff and workers) to brief the persevered trees location and importance?	X					
4.13	Any adjustment of the foundation of flexible barriers and staircases to avoid the damage of root systems of existing trees?	X					
4.14	Is there any re-vegetation area to compensate the temporary loss of 200m² (due to temporary access) understorey area?	X					
4.15	Is there any re-vegetation area to compensate the permanent loss of 200m² (due to maintenance access and anchor) understorey area?						
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	
Section 5: Landscape and Visual							
5.01	Is the landscape design including the compensatory planting follow GEO Publication No. 1/2011?	X					
5.02	Is there any erecting of hoarding to minimize the unsightly construction activities?						
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?	ιχ					
5.05	Any provision Pit-planting of native light standard trees and planting of climbers in front of the fence to provided screening effect?						
5.06	Is the dark colour of the flexible barrier used?	Ø					



		Checklist	Number:		GE/2013	/16_No. 6
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?	X				
5.08	Are the maintenance accesses apply masonry finished to blend with surroundings?	X				
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
Section	on 6: Waste Management			•		TI T
6.01	Has the Waste Management Plan prepared according to ETWB TC(W) No. 19/2005 and submit to Engineer?	X				
6.02	Are receptacles available for general refuse collection?	×				
6.03	Is general refuse sorting or recycling implemented?	\times				
6.04	Is general refuse disposed of properly and regularly?	×				
6.05	Is the Contractor registered as a chemical waste producer?	×				
6.06	Are the chemical waste containers properly labelled?	\boxtimes				
6.07	Are the chemical wastes stored in proper storage areas?	X				
6.08	Is the chemical waste storage area properly labelled?	\times				4
6.09	Is the chemical waste storage area used for storage of chemical waste only?	X				
6.10	Are incompatible chemical wastes stored in different areas?	X				
6.11	Are the chemical wastes disposed of by licensed collectors?	X				
6.12	Are trip tickets for chemical wastes disposal available for inspection?	X				pk
6.13	Are chemical/fuel storage areas bunded?	\times				
6.14	Are designated areas identified for storage and sorting of construction wastes?					
6.15	Are construction wastes sorted (inert and non-inert) on site?	X				
6.16	Are construction wastes reused?	\triangleright				
6.17	Are construction wastes disposed of properly?	X				_
6.18	Are site hoardings and signboards made of durable materials instead of timber?	X				
6.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	X				
6.20	Are appropriate procedures followed if contaminated material exists?	X				
6.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	\boxtimes				
6.22	Site cleanliness and appropriate waste management training had provided for the site workers.					



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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 N	lumber:		GE/2013/	/16_No. 6
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
Section	n 7: Licence					
7.01	Is relevant Environmental Permit posted at all vehicle site entrances/exits?	X				
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
Note: 8.01		N/A	Yes		N/C	,
	Follow Up: Observations requiring follow-Up actions		Yes		N/C	,
8.01	Follow Up: Observations requiring follow-Up actions Is the situation in item improved / rectified?	X	Yes		N/C	,
8.01 8.02	Is the situation in item improved / rectified? Is the situation in item improved / rectified?		Yes		N/C	,
8.01 8.02 8.03	Is the situation in item improved / rectified? Is the situation in item improved / rectified? Is the situation in item improved / rectified? Is the situation in item improved / rectified?		Yes		N/C	,



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. 6
Remarks / Observations:			
	N/: 1		
	· V (·		
			4
Signature:			
IEC's Representative	RE's representative	ET's representative	Contractor's representative
Name: Ms. Esther Tong	Name: Mr. Joe Nam	Name: NIL	Name: Mr. Røy Leung
Date: 22 Jul 2014	Date: 22 Jul 2014	Date: -	Date: 22 Jul 2014



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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)

Environmental Inspection Checklist

Checklist Number:

GE/2013/16_No. 6

Observation (O) or Reminder (R) during site inspection on 22 Jul 2014.

Ni