JOB NO.: TCS00694/13

AGREEMENT NO. CE 45/2008 (CE)
LIANTANG/HEUNG YUEN WAI
BOUNDARY CONTROL POINT AND ASSOCIATED WORKS

ECOLOGICAL MONITORING REPORT FOR THE WOODLAND COMPENSATION AREA (MARCH 2019 TO MAY 2019)

PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CEDD)

Date	Reference No.	Prepared By	Certified By
13 June 2019	TCS00694/13/600/R2096v2	 Keith Wong (Ecologist)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	12 June 2019	First Submission
2	13 June 2019	Amended according to the IEC's comment on 13 June 2019

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Our ref: 7076192/L24641/AW/MCC/rw

13 June 2019

AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, N.T.

By Email & Post

Attention: Mr Owen NG

Dear Sir

Agreement No. CE 45/2008 (CE)
Liantang/Heung Yuen Wai Boundary Control Point and Associated Works
Independent Environmental Checker – Investigation
Quarterly Ecological Monitoring Report for Woodland Compensation Area (No. 7) – March 2019 to May 2019

With reference to the Quarterly Ecological Monitoring Report for Woodland Compensation Area No. 7 for March 2019 to May 2019 (Version 2) certified by the ET Leader, please be noted that we have no adverse comments on the captioned submission. We herewith verify the captioned submission in accordance with Section 8.3.2.2 of the EM&A Manual.

Thank you for your attention and please do not hesitate to contact the undersigned on tel. 3995-8120 or by email to antony.wong@smec.com; or our Mr Arthur CHIU on tel. 3995-8144 or by email to arthur.chiu@smec.com.

Yours faithfully

Antony WONG
Independent Environmental Checker

cc	CEDD/BCP	-	Mr LU Pei Yu / Mr William CHEUNG	by fax: 3547 1659
	AECOM	-	Mr Pat LAM / Mr Perry YAM	by email
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1. INTRODUCTION

1.1 GENERAL

1.1.1 The "Liantang/Heung Yuen Wai Boundary Control Point and Associated Works Project" (hereinafter referred to as "the Project") comprises a new Boundary Control Point (BCP) proposed at Liantang/Heung Yuen Wai (LT/HYW), its connecting road and other associated works; and the Environmental Impact Assessment (EIA) report (Register No.:AEIAR-161/2011) of the Project has identified that ~6.2ha of secondary woodlands will be directly lost due to the construction of the portals of tunnels and some sections of the connecting road. Subsequently, creation of a 18.6 ha compensatory woodland at Cheung Shan has been recommended in the EIA report to avoid residual ecological impacts from the Project.

1.1.2 Under the Environmental Permit (EP-404/2011/D), an updated Woodland Compensation Plan (WCP) detailed with the planting strategy and the subsequent maintenance and monitoring requirements of the compensatory woodland has been submitted and approved by the Authority in the 4th Quarter of 2015, and a revision of the updated WCP (i.e., WCP Revision 2) has been approved by EPD in 2017.

1.1.3 The woodland compensation include an initial planting phase and enhancement planting phase over a 6 years period on the grassland and shrubland at Cheung Shan, i.e., the "Woodland Compensatory Area" (WCA) as shown in the **Drawing No. 60212563/SK7037 of the WCP** and included here as ***Appendix A***; and the planting works fall within the work scope of Contract No. CV/2013/08 Liantang/ Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works - Contract 6.

1.1.4 As part of the EM&A's requirements of the Project and in accordance with the latest status of the initial planting phase (refer to the "as-built" plan as shown in ***Appendix B*** for details), this submission presents the findings of the **7th** quarterly vegetation monitoring after the first year of initial planting, and covers the Reporting Period from ***March 2019 to May 2019.***

2. MONITORING REQUIREMENTS

2.1 MONITORING PROGRAM OF THE INITIAL AND ENHANCEMENT PLANTING PHASES

2.1.1 According to the Section 6.5 of the WCP (ver. 2), the frequency of the monitoring is proposed to be bi-monthly during the first year of the initial planting phase and should be reduced to quarterly from the second year.

2.1.2 Change of monitoring frequency if needed will be advised by the Project Ecologist of the ET and approved by Environmental Protection Department (EPD) and Agriculture, Fisheries and Conservation Department (AFCD) before implementation.

2.2 MONITORING METHODOLOGY

2.2.1 An inspection walk monitoring by means of "transect route" and "direct observation" has been undertaken within the WCP as such to provide an overview and observe the general condition of the WCA; After due considerations of the latest planting arrangement within the WCA, the potential trampling damage to the planted seedlings, as well as the limitations in visibility, site access and safety concern when undertaking the monitoring among the steep hillslope, the transect routes has been selected to cover all representative areas where planting has been undertaken within the WCA as far as practicable.

2.2.2 The transect routes are illustrated in **Appendix C,** and the following observations have been made during the inspection walk:

- Weather condition during the time of monitoring
- The general condition of the WCA, including any signs of anthropogenic or natural disturbance/events (such as landslide, lighting strikes, wildlife damage) that has affected the health condition of the planted seedlings, or regeneration or invasive of grassy or self-seeded weedy plants that would or have affected the establishment of the planted vegetation
- The general health condition of each planted species graded in "Good", "Fair" or "Poor" with the following criteria:
  - i) Phenology – signs of any abnormality in the phenology of the species (such as abnormal flowering/fruiting/ leaf shedding)
  - ii) Foliage – colour, size and general appearance, signs and severity of insect and fungal infection
  - iii) Branches – presence and extent of die-back, and signs and severity of insect and fungal infection
  - iv) Stem/Trunk - signs and severity of cavities or internal/external decay; signs and severity of insect infection and mechanical damage

2.2.3 Since the monitoring approach adopted for the transect inspection, i.e., "*direct observations*", would not yield any quantitative information, the survival rate (%) of the planted seedling will be evaluated from the results collected from the quadrat sampling as detailed in next section.

2.3 QUADRAT SAMPLING

2.3.1 A sampling approach has been proposed in the WCP to monitor the survival rate of the planted seedlings by the use of nine 20mx20m quadrats which are to be evenly located within the planted area of the WCA. Based on the as-built planting plan provided by the contractor (see **Appendix B)**, as well as the local topography of the planted area within the WCA, the practicality in accessing, placing and monitoring nine 20m x 20m fixed quadrats within the planted area of the WCA has been extensively reviewed, 2 of the monitoring quadrats are fixed on the ridgeline of Cheung Shan and 7 of them are located on the north-facing slope of the WCA (see **Appendix C**).

2.3.2 Information collected within each sampling unit include:

- General condition of the sampling quadrat especially those factors that would or have found affected the survival rate of the planted vegetation, including biological or environmental factors (such as inter-specific competition as well as signs of stress from water, heat, or pest and disease, etc)
- The total number of established seedlings for each planted tree and shrub species
- Health condition of each planted species graded in "Good", "Fair" or "Poor" with the following criteria:
  - i) Phenology – signs of any abnormality in the phenology of the species (such as abnormal flowering/fruiting/ leaf shedding)
  - ii) Foliage – colour, size and general appearance, signs and severity of insect and fungal infection
  - iii) Branches – presence and extent of die-back, and signs and severity of insect and fungal infection
  - iv) Stem/Trunk - signs and severity of cavities or internal/external decay; signs and severity of insect infection and mechanical damage

2.3.3 The survival rate of the planted species during the initial planting phase will be evaluated against the referenced baseline updated for the monitored quadrats after the supplementary planting work undertaken in September 2017, and if needed the implementation of the measures as detailed in the "Trigger and Action Levels" specified in the **Table 3** of the WCP would be recommended (included here as **Table 1** below) .

Table 1 Trigger and Action Levels for Monitoring and Action Plan

Parameters	Trigger and Action Level	Action Plan
General Health Condition of planted species (i.e. good/fair/poor; based on parameters e.g. wilting, insect attack, disease, fungal infection, browsing damage)	Trigger Level: % of individual plant species in poor health condition >20%	- the ET should inform Contractor and IEC immediately; - identify the causes(s) of the exceedance; - advise Contractor the necessity of replanting
	Action Level: % of individual plant species in poor health condition >30%	- the ET should inform Contractor and IEC immediately; - identify the cause(s) of the exceedance; - advise remedial action and work out solution including change of species in re-planting, re-soiling of the target areas; and seek acceptance from AFCD; - once the remedial action has been accepted by AFCD, the Contractor should implement the remedial action.
Survival of Planted Species (i.e. dead)	Trigger Level: Survival rate of individual plant species <80%	- the ET should inform Contractor and IEC immediately; - identify the causes(s) of the exceedance; - advise Contractor the necessity of replanting.

	Action Level: Survival rate of individual plant species <70%	- the ET should inform Contractor and IEC immediately; - identify the cause(s) of the exceedance; - advise remedial action and work out solution including change of species in re-planting, re-soiling of the target areas; and seek acceptance from AFCD; - once the remedial action has been accepted by AFCD, the Contractor should implement the remedial action.

2.3.4 Since most of the planted native species are also naturally grown within the WCA and it would be infeasible and impracticable to differentiate whether the individual plant encountered along the transect or within the quadrat is planted, natural recruited, or regenerated after the pre-planting clearance of the site; and hence all established individuals of the planted species found within the sampling unit has been counted during the monitoring.

2.3.5 The WCA monitoring was undertaken by the Environmental Team (ET) and under the supervision of the Qualified Ecologist of the ET, and the Qualified Ecologist has also undertaken a joint transect inspection with representative of the IEC in the reporting.

2.4 REPORTING

Bi-monthly Woodland Compensation Monitoring Reports

2.4.1 The results and findings of the bi-monthly (i.e., once every two months) monitoring including the landscape inspection during the first year of the initial planting phase and the first year of the enhancement planting phase will be recorded in a bi-monthly woodland compensation monitoring reports prepared and submitted by the ET Leader within 10 working days from the end of each reporting month. The details to be included in the report will follow the Section 7.3 of the WCP.

Quarterly Woodland Compensation Monitoring Reports

2.4.2 Starting from the second year of the initial planting phase and the enhancement planting phase, the frequency of the monitoring is reduced to quarterly basis, the results and findings of the quarterly monitoring as well as the landscape inspection after the first year of the initial planting phase and the first year of the enhancement planting phase shall be recorded in the quarterly woodland compensation monitoring reports prepared and submitted by the ET Leader within 10 working days from the end of each reporting month. The details to be included in the report will follow the Section 7.3 of the WCP.

3. RESULTS

3.1 TRANSECT INSPECTION

3.1.1 The transect inspection was carried out on 23rd April 2019 with the ecological specialist of the IEC, an overview of the site condition is presented in ***Appendix D*** and the following presents the observations made during the transect inspection:

- It was a sunny day with humidity ranged from 68-91% on the day of the transect inspection.
- Recovery from the mechanical damage caused by the weeding activities as reported in previous monitoring, i.e., re-sprouting of new leaves or shoots, was commonly noted on the plants along the transect, whether they are planted or self-seeded.
- Tagging of selected young trees of the two exotic tree species, i.e., *Acacia confusa* and *Acacia mangium* for thinning was noted along the transect.
- Vegetation maintenance by others was noted around the elevation column at the summit of Cheung Shan, which has caused disturbance to the seedlings that were planted around that area during the 2nd stage of the initial planting phase (Photo ref. No.4 & 5 in Appendix D).
- The overall health condition of the plants along the inspection transect was found to be generally fair despite white-mildew was occasionally noted on the foliage of the planted exotic tree *Acacia mangium.*
- Re-sprouting of the deciduous tree species, the *Phyllanthus emblica*, was noted and foliage of this species was mostly found to be much denser when compared to previous site inspection; whereas re-sprouting was only occasionally noted on the other deciduous tree species *Sapium discolor*, where the latter was only occasionally noted and usually smaller in size..

3.1.2 The general health condition of the planted species, based on the observations made along the transect, is tabulated in the following table.

Table 2 Health condition of the established seedlings noted during the transect inspection

Species	Health Condition		
	Good	Fair	Poor
Trees			
Acacia confusa		√	
Acacia mangium	√ (1)		
Castanopsis fissa		√	
Litsea glutinosa		√ (3)	
Mallotus paniculatus		√ (3)	
Phyllanthus emblica		√ (2), (3)	
Sapium discolor			√ (2), (3)
Schima superba	√(3)		
Shrubs			
Gordonia axillaris	√		
Melastoma candidum		√ (3)	
Melastoma sanguineum		√ (3)	
Rhaphiolepis indica		√ (3)	
Rhodomytus tomentosa		√ (3)	

Note:
(1) White mildew was occasionally noted on the leaves
(2) Deciduous species and most of the foliage is smaller in size
(3) Self-seeded seedlings or wild population of this species was presence within the planting area

(initial planting) of the WCA, and since it is impracticable and sometimes unfeasible to differentiate them from the planted seedlings, the health condition was evaluated as a whole for this species encountered during the transect walk.

3.2 QUADRAT SAMPLING

3.2.1 The nine 20m x 20m sampling quadrats have been placed within the planted area of the WCA, and at area where the majority of the seedlings were planted and considered suitable for long term monitoring; in which 2 of them were located on the ridgeline and the rest are located on the north-facing slope of Cheung Shan (see **Appendix C**). The quadrat monitoring was conducted on 23rd and 24th April 2019, and the weather was sunny on both days.

3.2.2 The condition of the quadrats during the time of monitoring is shown in ***Appendix D*** and the monitoring result of the reporting period and the survival rate of the planted species since the commencement of the quarterly monitoring (initial planting phase) are shown in ***Table 3*** and ***Table 4*** respectively.

Table 3 The number of seedling recorded for each species within the sampling quadrats

	Quantity* and General Health^ Condition of the Established Seedling Recorded in Each Sampling Quadrat									**Total Qty.**
	R1	**R2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	
Trees										
Acacia confusa	17	15	8	5	9	4	6	6	19	**89**
Acacia mangium	24	29	20	10	19	2	14	20	23	**161**
Castanopsis fissa	5	11	2	5	2	4	6	3	5	**43**
Litsea glutinosa	4	6	7	4	3	2	6	5	3	**40**
Mallotus paniculatus	26	9	9	13	18	17	11	21	38	**162**
Phyllanthus emblica	5	8	2	2	4	2	1	6	4	**34**
Sapium discolor	*2*	*0*	*2*	*0*	*1*	*0*	*2*	*1*	*5*	**13**
Schima superba	15	15	5	8	6	58	1	0	0	**108**
Sub-Total	***98***	***93***	***55***	***47***	***62***	***89***	***47***	***62***	***97***	**650**
Shrubs										
Gordonia axillaris	13	37	30	33	40	17	13	21	9	**213**
Melastoma candidum	19	7	19	18	25	9	8	16	15	**136**
Melastoma sanguineum	10	42	26	28	56	3	14	13	24	**216**
Rhaphiolepis indica	31	35	40	10	26	22	26	36	50	**276**
Rhodomyrtus tomentosa	56	81	38	33	52	24	46	34	79	**443**
Sub-Total	***129***	***202***	***153***	***122***	***199***	***75***	***107***	***120***	***177***	**1284**

Notes: ^ General Health Condition:

- Good - No. in normal font type (e.g., "99")
- Fair - No. in Italic font (e.g., "*99*")
- Poor - No. in italic & underlined (e.g., "*<u>99</u>*")

***** the quantity include all individuals of the planted species within the quadrat regardless whether they are self-seeded or planted (see Section 2.3.4)

Table 4 Survival Rate of the Planted Species since the Commencement of the Quarterly Monitoring of the Initial Planting Phase

Species	Reference baseline^	Survival Rate* (%)						
		Nov 17	Jan 18	Mar 18	Aug 18	Nov 18	Feb 19	Apr 19
Acacia confusa	113	**52.21**	**52.21**	**56.64**	**68.14**	88.50	81.42	78.76
Acacia mangium	193	97.41	98.45	95.85	95.34	88.60	86.53	83.42
Castanopsis fissa	39	**35.90**	**33.33**	**33.33**	**38.46**	**48.72**	**30.77**	100.00
Litsea glutinosa	79	**65.82**	**64.56**	**63.29**	**67.09**	**67.09**	**45.57**	**50.63**
Mallotus paniculatus	80	100.00	100.00	100	100.00	100.00	80.00	100.00
Phyllanthus emblica	64	95.31	**59.38**	**78.13**	**75.00**	**70.31**	**18.75**	**53.13**
Sapium discolor	39	**69.23**	**56.41**	**56.41**	**56.41**	**46.15**	**17.95**	**33.33**
Schima superba	82	100.00	96.34	84.15	100.00	100.00	100.00	100.00
Gordonia axillaris	148	100.00	100.00	100	100.00	100.00	100.00	100.00
Melastoma candidum	352	**63.07**	**60.80**	**59.94**	**62.50**	**61.65**	**35.80**	**38.64**
Melastoma sanguineum	313	**72.52**	85.94	84.66	84.98	82.11	**60.38**	**69.01**
Rhaphiolepis indica	438	**71.23**	**71.46**	**68.95**	**65.98**	**75.80**	**49.54**	**63.01**
Rhodomyrtus tomentosa	824	**66.63**	**67.72**	**65.05**	**65.17**	**70.51**	**50.61**	**53.76**

^ updated in Sep 2017 in accordance with the "as-built" planting plan for the initial planting phase as well as the monitoring findings between Aug 2017 and Nov 2017
** no. in bold denotes the survival rate trigger action listed in Table 1*

3.2.3 Based on the recorded data and observations made within the sampled quadrats and the data presented in ***Table 3*** and ***Table 4***, the following provides a brief account of the findings from the quadrat monitoring:

- Health condition: Generally speaking the health condition of the planted tree/shrub species was found mostly in fair or good condition, except the deciduous tree species *Sapium discolor* where only small and newly emerged leaves were noted on their branches/branchlets.
- Re-sprouting of plants found damaged from the vegetation maintenance activities as reported in previous monitoring report has been noted in the surveyed quadrats, especially *Castanopsis fissa* where its survival rate has improved from 30.7% to 100%. Moreover, 7 of the planted species were recorded with a survival rate less than 70%, including the tree species *Litsea glutinosa* (50.63%), *Sapium discolor* (33.33%) and *Phyllanthus emblica* (53.13%), as well as the shrubs *Melastoma candidum* (38.64%), *Melastoma sanguineum* (69.01%), *Rhaphiolepis indica* (63.01%) and *Rhodomyrtus tomentosa* (53.76%).

3.2.4 The possible causes of poor survival rate of the planted species has been postulated in

previous monitoring reports (see Table 5), but the disturbance caused by the maintenance activities as described in previous monitoring report, as well as general poor/slow recovery of the disturbed plants, would account for the <70% survival rate recorded for those 7 species.

Table 5 Possible Cause of Poor Survival Rate of the Planted Species and Recommended Remedial Actions

Possible Cause	Remedial Action
Animal disturbance	Prominent signs of disturbance from animal activities, in addition to those previous noted, has not been observed within the WCA as a whole after the replanting conducted in September 2017, and the necessity for further action to be reviewed
Poor vigor of the planted seedlings	The project team should ensure that: 1) the planting work has been carried out in accordance with the applicable specifications of the project; 2) all of the site preparation works have already been completed before the arrival of the planting material on-site; 3) all of the planting material is conform to the specified size and in good condition; 4) the delivered seedlings would be planted on the same day of arrival as far as possible, and they should be properly handled/stored after arrival to avoid/minimize water stress.
Vegetation maintenance	Strengthen the vegetation maintenance (in particularly weeding and if necessary fertilizing) within the WCA, and provide adequate briefing to the maintenance team to avoid any potential trampling/mechanical damage to the woody plants during the process WCA. In addition, the use of motorized weeding equipment in areas densely covered by woody plant should be avoided as far as practicable, and the removed weed should also be properly disposed to avoid shadowing of the planted seedlings
Inter-specific competition	

3.2.5 According to the action plan as stated in the ***Table 1***, replanting of species with survival rate less than 70% would be required and the quantity of seedlings to be replanted for each of the 7 species is shown in **Table 6** below. Since the 2nd stage of the enhancement planting work have been scheduled in the growing season of 2019, and taking into account of the survival rate recorded for all of the planted species since the commencement of the quadrat monitoring, the general condition of the woodland compensatory area and the establishment and natural colonization status of woody plants observed during the transect inspection, it is recommended to substitute the *Litsea glutinosa*, *Sapium discolor*, *Melastoma candidum*, *Melastoma sanguineum* and *Rhaphiolepis indica* with other woody plant species listed in the planting schedule of the initial or enhancement planting phase as such to strive a balance between species diversity as well as the potential adaptability of the species within the woodland compensatory area.

3.2.6 Plant species considered suitable for substitution for each of the species has been recommended in **Table 6**, and they should be reviewed based on the availability of the stock as well as other logistics agreement to be made between the ER and the Contractor, and a finalized replanting list to be submitted to EPD/AFCD for endorsement and record.

3.2.7 Regardless the species to be replanted, suitable planting area for each of the chosen species should be strategically allocated within the WCA/quadrat based on their

habitat/micro-habitat requirements.

Table 6 Recommended Replanting Quantity for Species Recorded with Survival Rate <70%

Species	Survival Rate %	Quantity		Recommended Substitution
		As-built	To be Replant	
Litsea glutinosa	50.63	2350	1160 (39)	*Litsea glutinosa/ Liquidamber formosana*
Phyllanthus emblica	53.13	2350	1102 (30)	nil
Sapium discolor	33.33	2350	1567 (26)	*Schima superba*
Melastoma candidum	38.64	15340	9413 (216)	*Polyspora axillaris*
Melastoma sanguineum	69.01	15240	4723 (97)	*Ilex asprella*
Rhaphiolepis indica	63.01	15240	5637 (162)	*Psychotria asiatica*
Rhodomytus tomentosa	53.76	15240	7047 (381)	nil

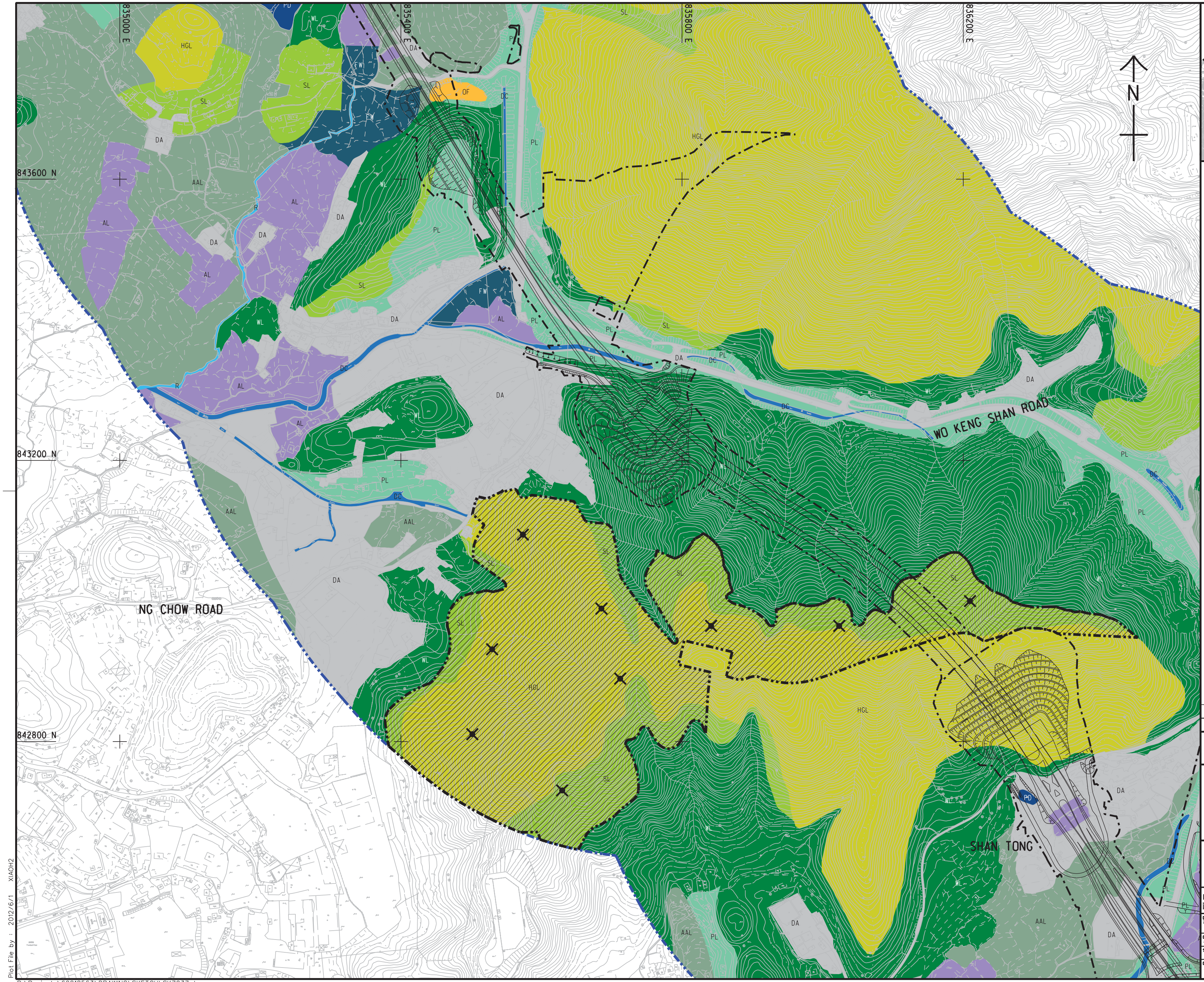
* *Qty in the blanket indicate the replanting quantity required to restore the referenced baseline data in the monitoring quadrats*

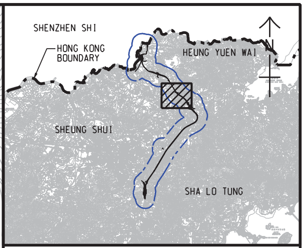
3.2.8 According to Table 1, the Contractor would be responsible for implementing action of replanting and other remedial measures agreed by AFCD. All of the replanting works should make reference and conform to the Section 5 "Planting Management" of the approved Woodland Compensation Plan (WCP), in particularly it should be undertaken within the planting season and in suitable locations within the WCA where pre-planting site preparation such as clearance of herbaceous plants (in particularly the fern *Dicranopteris pedata*) should be undertaken prior the planting work as such to expedite the planting work once the seedlings on-site and facilitate their recovery from the planting shocks and establishment; and the planted seedlings would not be shaded from adjacent plants to avoid competition for light and other resources (see Section 4.9 of the WCP).

-End-

Appendix A

Drawing No. 60212563/SK7037 of the Woodland Compensation Plan





KEY PLAN
SCALE 1 : 150000

LEGEND:

- 500m ASSESSMENT AREA
- TENTATIVE WORKS AREA
- TUNNEL SECTION
- WL WOODLAND
- SL SHRUBLAND
- PL PLANTATION
- FW FRESHWATER WETLAND [WET AGRICULTURAL LAND (ACTIVE/ABANDONED)]
- AL ACTIVE AGRICULTURAL LAND
- AAL ABANDONED AGRICULTURAL LAND
- HGL HILLSIDE GRASSLAND
- PD POND
- DC DRAINAGE CHANNEL
- R WATERCOURSE
- OF OPEN FIELD
- DA DEVELOPED AREA
- EXTENT OF WOODLAND COMPENSATION PLANTING AREA
- TENTATIVE WOODLAND MONITORING QUADRAT (THE EXACT LOCATION TO BE DETERMINED BY THE ENGINEER ON SITE)

REV. 修訂	DESCRIPTION 內容摘要	D.E. CHECKED 複核	P.E.	DATE 日期

土木工程拓展署
CEDD Civil Engineering and Development Department

LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT AND ASSOCIATED WORKS (SITE FORMATION AND INFRASTRUCTURES) - DESIGN AND CONSTRUCTION

PROPOSED WOOLAND COMPENSATION AREA

DRG.NO. 圖紙編號

DESIGNED BY 設計 KW	CONTRACT NO. 合約編號 -	P. Dir. APPROVED 批准人 -
DRAWN BY 繪圖 YJP	STATUS 階段	
SCALE 比例 A1 1 : 2500		
DIMENSIONS ARE IN 尺寸單位 METRES		

Plot File by : 2012/6/1 XIAOH2

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Appendix B

As-built Planting Schedule for Initial Planting Phase

WOODLAND COMPENSATION PLANTING AREA

PLANTING SCHEDULE FOR INITIAL PLANTING PHASE

SPECIES	CHINESE NAME	SIZE (MM)	QUANTITY (NR)	REMARK
TREES				
Acacia confusa	台灣相思	SEEDLING TREE	5,480	TREES TO BE PLANTED IN A GROUP OF 3 NOS. TO 5 NOS. OF THE SAME SPECIES
Acacia mangium	大葉相思	SEEDLING TREE	5,480	
Castanopsis fissa	黧蒴	SEEDLING TREE	3,300	
Litsea glutinosa	潺槁樹	SEEDLING TREE	2,350	
Mallotus paniculatus	白楸	SEEDLING TREE	2,350	
Phyllanthus emblica	餘甘子	SEEDLING TREE	2,350	
Sapium discolor	山烏桕	SEEDLING TREE	2,350	
Schima superba	荷樹	SEEDLING TREE	3,250	
		TOTAL:	**26,910**	
SHRUBS				
Gordonia axillaris	大頭茶	250(H) x 250(S)	15,340	SHRUBS TO BE PLANTED IN A GROUP OF 5 NOS. TO 8 NOS. OF THE SAME SPECIES
Melastoma candidum	野牡丹	250(H) x 250(S)	15,340	
Melastoma sanguineum	毛菶	250(H) x 250(S)	15,240	
Rhaphiolepis indica	車輪梅	250(H) x 250(S)	15,240	
Rhodomyrtus tomentosa	桃金孃	250(H) x 250(S)	15,240	
		TOTAL:	**76,400**	

Seeding trees and shrubs mainly concentrate in yellow dotted area.

PT 1 +75mPD

PT 2 +110mPD

PT 3 141.6mPD

PT 4 145.2mPD

Purple highlighted area is not suitable for initial compensation planting due to existing woodland.

LEGEND:

- SITE BOUNDARY
- UNDERGROUND SITE BOUNDARY
- EXTENT OF WOODLAND COMPENSATION PLANTING AREA
- PT 2 +110mPD — REFERENCE POINT SITE BOUNDARY
- Planting Area I
- Planting Area II

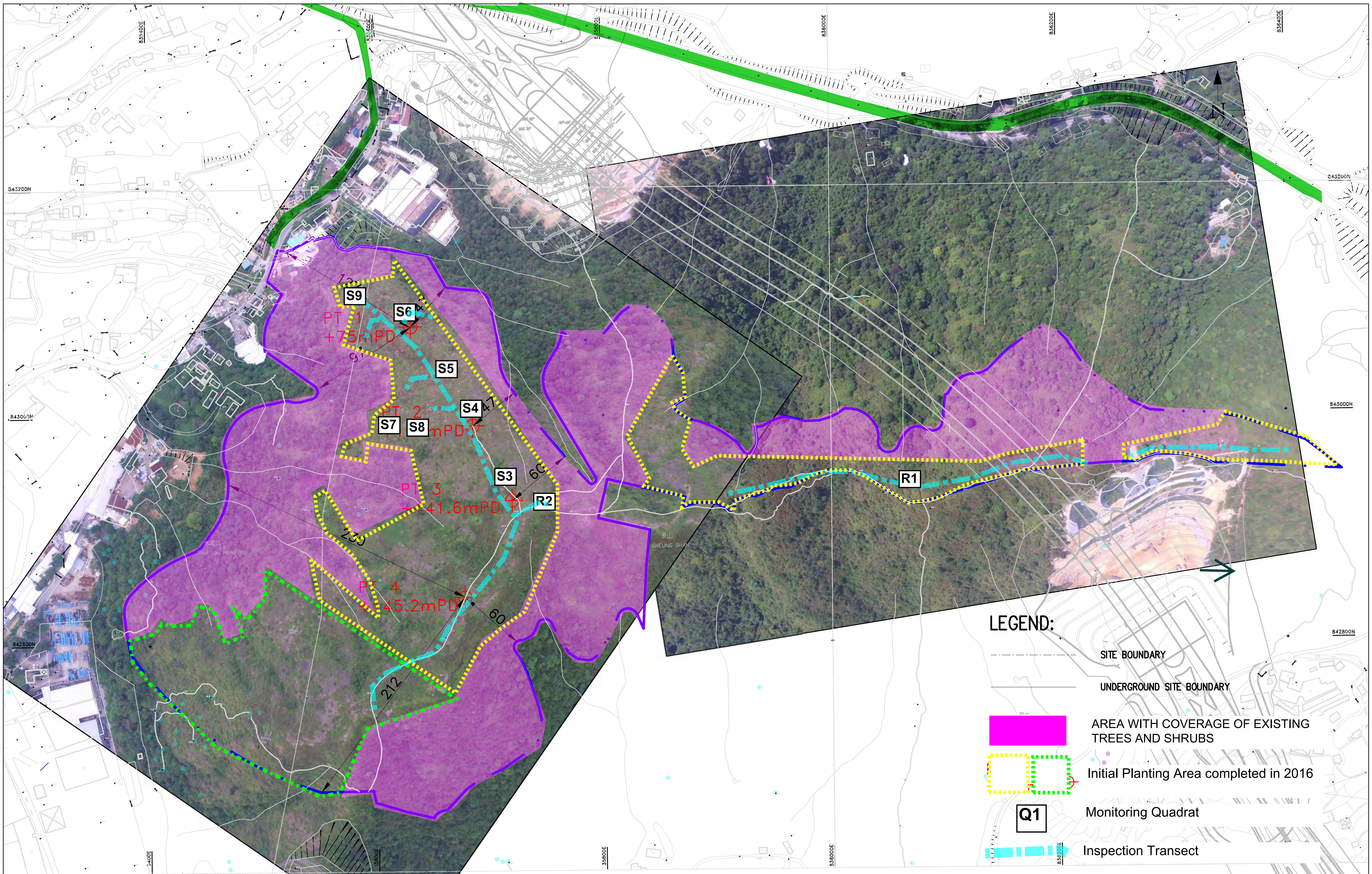
CONTRACT NO. CV/2013/08
LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT SITE FORMATION AND INFRASTRUCTURE WORKS – CONTRACT 6

APPENDIX B - As-built Planting Schedule for Initial Planting Phase

SCALE	1: 3000(A3)	SURVEY DATE	8 September 2016
CHECK		DRAWN	K W
JOB NO.	SKETCH NO.	REV	—

Appendix C

Transect Routes and Sampling Quadrats of Woodland Compensation Monitoring



CONTRACT NO. CV/2013/08 LIANTANG/HEUNG YUEN WAI BOUNDARY CONTROL POINT SITE FORMATION AND INFRASTRUCTURE WORKS – CONTRACT 6	**APPENDIX C - LOCATION OF THE THE INSPECTION TRANSECTS AND MONITORING QUADRATS, 2016**	SCALE 1:3000(A3)	SURVEY DATE N/A
		CHECK	DRAWN K W
		JOB NO.	SKETCH NO. WCA_Monitoring Plan-161130 REV –

Appendix D

Photographic Records

Photographic Record of the Woodland Compensation Area - Site Condition

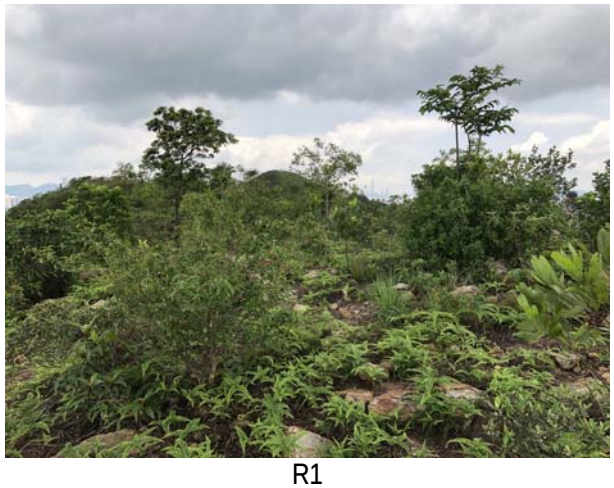
1 - North-facing Slope

2 - Eastern Ridgeline

3 - Western Ridgeline

4 - Vegetation Maintenance at Cheung Shan (by others)

5 - Vegetation Disturbance at Summit of Cheung Shan



R1

R2

S3

Photographic Record of the Woodland Compensation Area - Site Condition

S4

S5

S6

S7

S8

S9