

JOB NO.: TCS01267/22

CEDD SERVICE CONTRACT No. WD/07/2022

YUEN LONG SOUTH FIRST PHASE DEVELOPMENT - ENVIRONMENTAL TEAM

BASELINE PLANT (VEGETATION) SURVEY REPORT

PREPARED FOR

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Date Reference No. Certified By

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Tam Tak Wing (Environmental Team Leader)

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1	20 September 2023	First Submission
2	26 September 2023	Amended according to the IEC's comments
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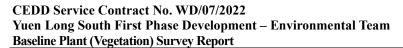




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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.1.1 Ford Business International Limited (hereinafter called "Ford") was awarded the Civil Engineering and Development Department (CEDD) Agreement Contract No. WD/07/2022 Yuen Long South First Phase Development Environmental Team on 26 October 2022. The Contractor period is 78 months, which covers the construction period and the first-year operation period for the Works Contracts 1, 2 and 3 under the Yuen Long South First Phase Development (hereinafter named as "the Project).
- 1.1.2 The Yuen Long South (YLS) Planning and Engineering Study is a Designated Project under *Item 1 Schedule 3* of the Environmental Impact Assessment Ordinance. In November 2017, Environmental Impact Assessment (EIA) report for YLS Development was approved by Director of Environmental Protection pursuant to EIAO. The approved EIA report (AEIAR-215/2017), the approval letter with conditions and recommendations and the relevant Environmental Permit (EP) issued subsequently. To implement the Project, there are various infrastructure items among some of which are classified as DPs under *Schedule 2 of the EIA Ordinance*.
- 1.1.3 The YLS Development is currently being implemented by three phases: First Phase, Second Phase and Third Phase. The site formation and engineering infrastructure works to support the First Phase Development will be delivered through three works contracts, as listed as below:-
 - (a) CEDD Contract No. YL/2021/03 Site Formation and Infrastructure Works for Yuen Long South First Phase Development Contract 1
 - (b) CEDD Contract No. YL/2021/04 Site Formation and Infrastructure Works for Yuen Long South First Phase Development Contract 2 (the designated works of Contract 2 are governed by EP-549/2018 & EP-553/2018/A)
 - (c) CEDD Contract No. YL/2022/01 Site Formation and Infrastructure Works for Yuen Long South First Phase Development Contract 3 (the designated works of Contract 3 are governed by EP-548/2018/A, EP-549/2018, EP-550/2018/A & EP-551/2018/A)
- 1.1.4 The layout plan for Contracts 1, 2 and 3 of YLS First Phase Development is shown in *Appendix* A.

1.2 PURPOSE OF SUBMISSION

- 1.2.1 In accordance with the updated Environmental Monitoring and Audit Manual (Rev.10) (hereinafter named as "updated EM&A Manual") the Project, prior to commencement of construction works, a baseline plant (vegetation) survey is required to ascertain and update if presence the quantities and conditions of any flora species of conservation importance within all proposed work areas of the YLS Development project prior the commencement of construction work.
- 1.2.2 In addition, in accordance with Condition 3.3 of relevant EPs of YLS First Phase Development (i.e., EP-548/2018/A, EP-549/2018, EP-550/2018/A, EP-551/2018/A & EP-553/2018/A), Baseline Monitoring Report for air quality, noise and water quality monitoring was submitted to Environmental Protection Department (EPD) on 7 July 2023. This Baseline Plant (Vegetation) Survey Report is submitted as supplementary to the Baseline Monitoring Report.

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2 BASELINE PLANT(VEGETATION) SURVEY OF YLS FIRST PHASE DEVELOPMENT

2.1 GENERAL

- 2.1.1 According to the approved EIA Report (AEIAR-215/2017), three flora species of conservation importance were identified within Potential Development Area (PDA) or the proposed works footprint, including *Ailanthus fordii*, *Artocarpus hypargyreus* and *Aquilaria sinensis*, and their approximate locations were shown in *Appendix B*.
- 2.1.2 Among these three species, only the *Aquilaria sinensis* recorded within a small private nursery near the southern end of Lam Tei West Road would fall within the Contract 2 of YLS First Phase Development, where 10 young saplings of this species were found planted in ground in December 2016. *Aquilaria sinensis* is listed as Near Threatened (NT) and under State protection (Category II) in China, and it is also classified as Vulnerable (VU) on the IUCN Red List of Threatened Species and protected in Hong Kong by Cap. 586. *Artocarpus hypargyreus* is regarded as Vulnerable in China Red Data Book (Pang et al. 2011) and IUCN (IUCN 2017), and "Near Threatened" by AFCD (2003).

2.2 REQUIREMENT

2.2.1 According to the Section 10 of the updated EM&A Manual of the Project, a baseline plant (vegetation) survey covers all proposed works areas should be undertaken prior the commencement of construction works so as to ascertain the presence and update the quantities and conditions of any flora species of conservation importance; and if recorded those flora species of conservation importance shall either be properly protected or transplanted to suitable receptor site(s), and properly maintained throughout the construction phase of the Project.

2.3 SURVEY METHOD

- 2.3.1 Subject to the land resumption program under each of the work contract and hence the accessibility of the work sites, walk-through vegetation surveys have been carried out in phases and covered the accessible areas of the three work contracts in between March 2023 to June 2023. The survey was conducted by the qualified ecologist of Environmental Team and the relevant CV is shown in *Appendix C*.
- 2.3.2 According to the Note 3 of the Annex 16 of the EIAO's TM, "plant species of conservation importance" is defined as "wild' flora that are:
 - listed in Threatened Categories of IUCN Red List or those of the South China region;
 - listed in international conventions for conservation of wildlife;
 - endemic to Hong Kong or South China;
 - listed under the legislation of Hong Kong:
 - The Forestry Regulations (under the Forests and Countryside Ordinance, Cap. 96);
 - The Wild Animals Protection Ordinance (Cap. 170);



- The Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- Other relevant ordinances or subsidiary legislation including but not limited to the Marine Parks and Marine Reserves Regulation (under the Marine Parks Ordinance, Cap. 476);
- · (References shall also be made to species protected by legislation in Mainland China, especially the Guangdong Province.)
- considered as rare in the territory or having special conservation importance by scientific studies other than those listed above.

3 RESULTS

3.1 CONTRACT 1

- 3.1.1 Generally speaking, the work areas of Contract 1 cover three land parcels, in which two of them are located in the vicinity of Lam Tei East and Lam Tei West Road, whereas the other one is located in between Long Hon Road and Shan Ha Tsuen. From an ecological perspective, all of the three land parcels are covered by "Developed Area", i.e., road, warehouse. workshop and open storage etc. for the former two sites, as well as warehouse and wasteland for the latter site. Photographs and key plan to illustrate the site condition of Contract 1 are provided in *Appendix D*.
- 3.1.2 Vegetation covers within the former two land parcels are mostly linear in shape and composed of a mix of ornamental trees planted along the land lot boundary or edge of the premises, self-seeded or wild vegetation are mostly be found as ground cover under the planted ornamental trees or along the Lam Tei West and Lam Tei East Road, and dominated by weedy plant species of no ecological interest. On the other hand, the wasteland on the eastern part of the last land parcel was found overgrown with a mix of weedy plant species (in particularly the invasive exotic tree *Leucaena leucocephala*) with the ground cover dominated by the grass *Panicum maxima* and the herb *Bidens alba*.
- 3.1.3 Nonetheless, plant species of conservation importance has not be found within these three land parcels during the baseline plant (vegetation) survey.

3.2 CONTRACT 2

- 3.2.1 With respect to the location and land use characteristic, the work areas of Contract 2 could be broadly categorized into three areas: the work areas parallel and along Kung Um Road and and Lam Tei East/West Road, the work areas parallel to Yuen Long Highway, as well as the work areas of the connection road in between Area 1 and Area 2/3 south of Shan Ha Tsuen. Photographs and key plan to illustrate the site condition of Contract 2 are provided in *Appendix E*.
- 3.2.2 As shown in the *Appendix E* and photographic illustration, the work areas of Contract 2 parallel and along Kung Um Road and Lam Tei East/West Road are linear in shape and covers the Kung Um Road and Lam Tei East/West Road and their immediate vicinity, where the former are sparsely vegetated and the latter is lined with rows of planted ornamental trees with the ground cover densely covered by a mix of ornamental shrubs and weedy plant. No floral species of conservation interest was recorded in this work area.



- 3.2.3 A mix of habitats were found within the work areas parallel to Yuen Long Highway, including the plantation woodland established on the highway's embankments, the upper course of Yuen Long Bypass Floodway, as well as developed area composed of villages and industrial areas. Besides the exotic and/or ornamental tree/shrub species planted in those areas, most of the other plants species are weedy in nature and no floral species of conservation interest was recorded in this work area.
- 3.2.4 Finally, the connection road in between Aera 1 an Area 2/3 south of Shan Ha Tsuen passed through a range of habitats, including the industrial areas east and west of Lam Tei West Road, a wasteland and orchard area southwest of Shan Ha Tsuen, as well as agricultural land in between Long Hon Road and Shan Ha Tsuen. According to the EIA Report, 10 young saplings of the protected *Aquilaria sinensis* were recorded within a small private nursery near the southern end of Lam Tei West Road in December 2016, which was reported within the proposed road connecting Area 1 and Areas 2/3 of PDA (see *Appendix B*).
- 3.2.5 However, the local environment south of Shan Ha Tsuen has been drastically changed in recent years as a result of the village development and drainage improvement work; in particularly, the footpath connecting the Lam Tei West Road to Shan Ha Tsuen have been broadened to allow movement of heavy construction vehicles and the vegetation in the immediate west of the footpath, including the area used to be part of the nursery/orchard, was cleared for drainage improvement work (see Photo C2-P in *Appendix E*).
- 3.2.6 During the baseline (vegetation) plant survey, the area marked for the presence of the planted Incense Tree was found to be heavily disturbed, i.e., either barren or densely covered by weedy vegetation, and no signs of active plant nursey or any floral species of conservation importance was found in this area. Similarly, no floral species of conservation importance was recorded in the abandoned orchard or the agricultural land within the other work areas of the connection road.

3.3 CONTRACT 3

- 3.3.1 Contract 3 mainly cover the area west of Tong Yan San Tsuen Interchange and parallel to the Yuen Long Highway, and the work areas could be categorized based on the habitat characteristics and location, including the "plantation" within the Tong Yan San Tsuen Interchange and along or at the bottom of the embankment of the Yuen Long Highway, the "developed area" alongside the Long Ha Road, Long Bin Road, Shan Ha Rand and Lam Yu Road, the "developed area" in between Yuen Long Highway and Tong Yan San Tsuen Road, as well as the "developed area" formed by villages area south of a cycling track and the Tong Yan San Tsuen Interchange. Photographs and key plan to illustrate the site condition of Contract 3 are provided in *Appendix F*.
- 3.3.2 Most of the vegetation covers within the first two work area types (i.e. the interchange and roadside) are formed by exotic species planted for ornamental purposes (such as Acacia sp. and *Lagerstromeia speciosa*), and the self-seeded vegetation are either weedy herbaceous plants or pioneer tree species that are common and widespread in Hong Kong. No floral species of conservation importance was recorded in these two work areas.
- 3.3.3 On the other hand, the "developed area" in between Yuen Long Highway and Tong Yan San Tsuen Road is mainly formed by workshop, warehouse and open storage, and naturally grown vegetation is limited in coverage and mostly be found on the wasteland west of the storm water drainage channel in the western part of the work areas, where the area is densely covered by a mix of weedy species including the weedy tree *Leucaena leucocephala* and the ground cover



Wedelia trilobata. Floral species of conservation importance have not been recorded in this work area.

3.3.4 Finally, the vegetation within the "developed area" formed by villages area south of the cycling track and Tong Yan San Tsuen Interchange has already heavily modified and planted with a mix of fruit trees and ornamental plants, and no floral species of conservation importance was recorded in this work area during the baseline (vegetation) plant survey.

3.4 UNRESUMED LANDS UNDER THE THREE CONTRACTS

- 3.4.1 It is noticed that the land lots have not yet fully resumed or partially resumed under the three Contracts. The unresumed lands under the three Contracts are shown in *Appendix G*. Although with the uncertainty on their resumption program as it is understood that they may be left out from the development under the current Contracts, has been visited or inspected as thorough as possible under the access constraints during the vegetation baseline survey, and all of the plant species noted are either planted or self-seeded common or weedy plants with no conservation interest. Therefore, with respect to the field findings and current land use of those areas,, i.e. industrial or residential, presence of any wild population of floral species of conservation importance would not be anticipated.
- 3.4.2 Nonetheless, with the concern of the comprehensiveness of the baseline vegetation survey, further surveys will be undertaken to supplement the current findings once those areas make available for field work.



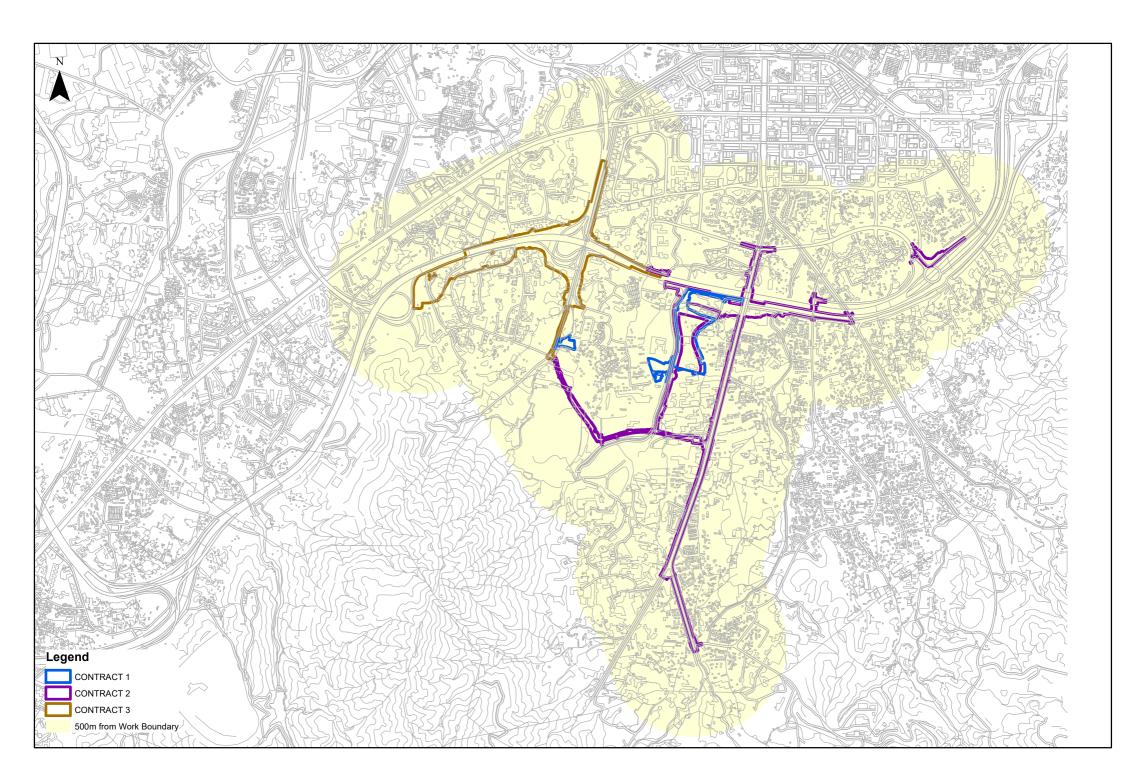
4 CONCLUSION

- 4.1.1 A baseline plant (vegetation) survey to actively search for the presence of any floral species of conservation importance was conducted in between March 2023 to June 2023 within the respective work areas of the Contract 1, 2 and 3 of the Site Formation and Infra-structure Works for the Yuen Long South First Phase Development. The results of the survey has noted that most of the work areas of these three contracts are located in developed area or areas with intensive human activities, where natural vegetation cover if presence is mostly limited to weedy species that are common and widespread in Hong Kong.
- 4.1.2 Although 3 floral species of conservation importance were recorded within the proposed development footprints of the YLS NDA during the EIA study, including 10 saplings of the protected *Aquilaria sinensis* planted in a small private nursery within the connection road between Area 1 and Area 2/3 and hence within the work area of the Contract 2, this area has already been severely modified by the village development and drainage work in recent years, and was found to be barren and/or covered by weedy plant species with no signs of nursery operation.
- 4.1.3 In conclusion, no floral species of conservation importance was found within the work areas of the Contract 1, 2 and 3 of the Site Formation and Infra-structure Works for the Yuen Long South First Phase Development.



Appendix A

The Layout Plan for YLS First Phase Development

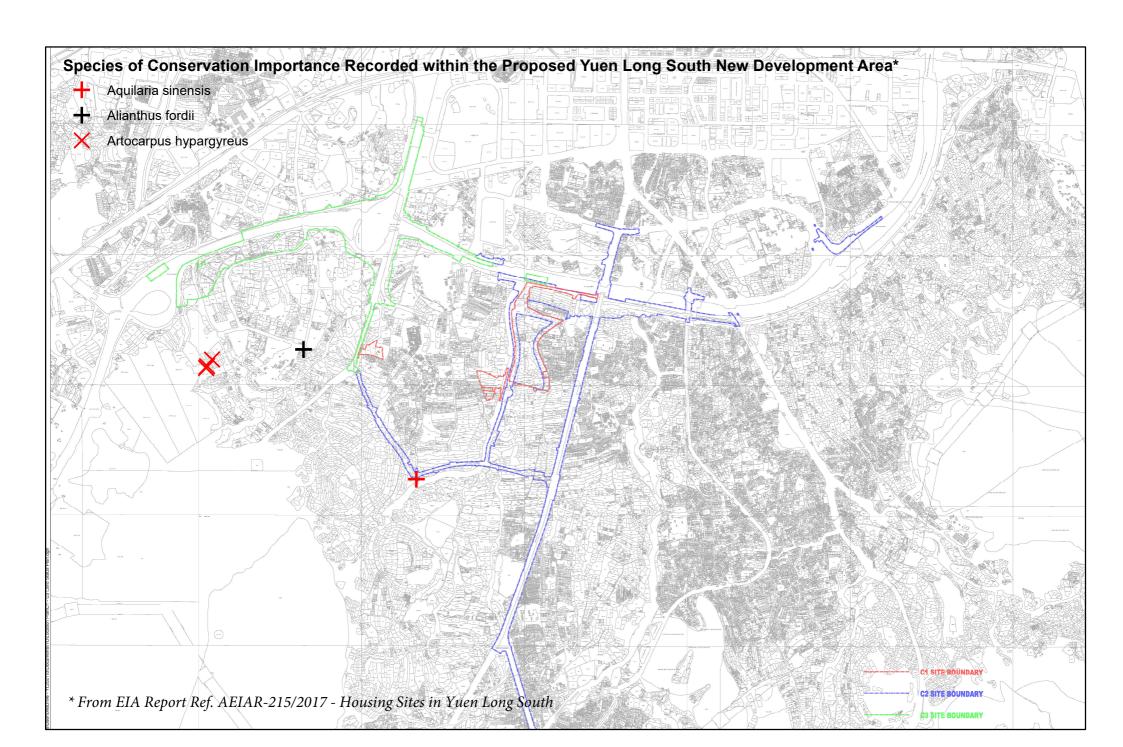




Appendix B

Flora Species of Conservation Importance

recorded in the EIA





Appendix C

CV of the Qualified Ecologist

Name: Dr Keith, Yim Wah WONG

Nationality: Chinese

Profession: Ecologist/Arborist

Specialisation: • Ecological Assessment, Restoration Ecology,

Landscape Ecology, Wetland Ecology, Tree Assessment and Management

Qualifications: • BSc, University of Hong Kong, 1992

PhD, University of Hong Kong, 1998

· Certified Arborist, International Society of Arboriculture,

since 2009

Years of Experience: 26 years

Profile

Dr Wong is an Ecological Specialist and Tree Specialist with more than 26 years ecological consultancy experience in Hong Kong, and has special interest in ecological census, landscape ecology, wetland restoration and arboriculture management. He is experienced in designing, managing and conducting ecological studies that utilizing remote sensing technology in habitat, flora and fauna survey, ecological evaluation and habitat assessment, ecological impact assessment and monitoring, as well as tree risk management. Dr Wong is also experienced in the design and supervision of ecological mitigation projects that involved sensitive ecological habitats (wetland and woodland), rare or protected species.

Dr Wong has more than 26 years practical experience in providing his expertise knowledge in ecological conservation and tree management to a wide array of organizations in Hong Kong, including government, developers, environmental/engineering consultants, construction/landscaping contractors, school and NGO; and he has been engaged in different capacities during a project cycle of a infra-structure project and has extensive experience in working with different professionals of the Project Team and hence familiar with the statutory and non-statutory arrangements in nature and tree conservation in Hong Kong as well as other aspects. In recent years, Dr Wong has also involved in the national wetland park development project in the Mainland China, the LNG Terminal development project in Singapore, as well as several residential development projects in Macau.

Relevant Projects

Agreement No. CE45/2008 (CE) Liantang/Heung Yuen Wai Boundary Control Point and Associated Works, Environmental Monitoring And Audit, CEDD: Dr Wong is the Ecological Specialist of the Environmental Team and responsible for advising the Environmental Team Leader of the implementation status of the mitigation measures recommended for alleviating the identified impact, as well as supervising the ET in monitoring the establishment of a 18.6ha compensatory woodland created under the project.

CEDD Service Contract No. NTE/07/2016 Development of Anderson Road Quarry Site – Site Formation and Associated Infrastructure Works. Dr Wong is the Environmental Team's Ecological Specialist, and has undertaken a detailed vegetation survey and wildlife survey to identify the presence of any floral/faunal species of conservation interest within the project area, and prepared a transplanting proposal for the project.

Contract No., TSW-C004 Ocean Park Tai Shue Wan Development, Site Formation and Foundation Works, 2015 – 2017. Dr Wong was the Environmental Team's Ecological Specialist and responsible for the auditing and monitoring of the ecological mitigation measures recommended for the construction (site formation) phase of the project, including monthly monitoring of the protective measures for plant species of conservation interest.

Agreement No. CE 66/2017(CE) - Site Formation and Infrastructure Works for Industrial Sites in Tuen Mun, Hung Shui Kiu and Yuen Long Areas - Investigation, Design & Construction, CEDD: Dr Wong is the Project Ecologist and Tree Specialist of this project, and responsible for undertaking the ecological field survey, identifying the potential ecological impact associated with the site formation works

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of this project, as well as undertaking the tree assessment and preparing the Tree Preservation and Removal Proposal.

Agreement No. CE 52/2017 (CE) 4 Engineering Feasibility Studies for Site Formation and Infrastructure Works for Housing Developments In North District – Feasibility Study, CEDD: Dr Wong is the Project Ecologist of this project, and responsible for undertaking the ecological survey, identifying the ecological sensitivity of the proposed development areas and assessing the potential ecological impact from the site formation project, in particularly the wetland habitat in Long Valley as well as the woodland habitat at the Tong Hang area.

Agreement No. CE 61/2017(CE) - Site Formation and Infrastructure Works for Development at To Yuen Tung, Tai Po – Feasibility Study, CEDD. Dr Wong is the Project Ecologist and Tree Specialist of this project, and responsible for undertaking the ecological field survey, identifying the potential ecological impact associated with the site formation works of this project, as well as undertaking the tree survey/assessment and preparing the Tree Preservation and Removal Proposal.

Agreement No. CE34/2015 (WS) Water Supply to New Housing Developments in Sheung Shui and Fanling - Investigation, Design and Construction, WSD: Dr Wong is the Project Ecologist and Tree Specialist of this project, and responsible for undertaking the ecological field survey, assessing the potential ecological and tree impact arising from the construction of a new freshwater service reservoir in the Tong Hang area, as well as the water mains alignment in the Tong Hang, Sheung Shui and Fanling Area.

Agreement No. CE 45/2016 (CE) Site Formation and Infrastructural Works for the Development at Shek Pai Street, Kwai Chung - Feasibility Study, CEDD: Dr Wong is the Project Ecologist of this project, and responsible for undertaking the ecological field survey, identifying the ecological sensitivity of the proposed development area and assessing the potential ecological impact from the site formation project. Practical mitigation measures have been recommended to mitigate the identified ecological impact, including compensate for the loss of woodland habitat and natural stream courses.

Agreement No. CE79/2014 (DS) Energizing Kowloon East - Revitalization of Tsui Ping River - Investigation, DSD: Dr Wong is the Project Ecologist of this project, which is aim to enrich the landscaping and ecological functions of the exiting concreted channel, and the work scope of Dr Wong include undertake a ecological review of the potential impact, and recommend practical measures to enhance the ecological value of the riverine environment along the Tsui Ping River.

Agreement No. CE25/2013 (DS) West Kowloon and Tsuen Wan Village Sewerage and North District Sewerage - Investigation, Design and Construction, Hong Kong, DSD: Project Ecologist of this drainage improvement project and responsible for the ecological impact assessment and ecological review for more than 20 villages within the Project areas in 3 Districts, and managing/supervising the field survey, as well as investigating and proposing mitigation measures to alleviate the potential ecological impact to any sensitive ecological resources within the Study Area, in particularly the natural woodland and pristine watercourses on Tai Mo Shan.

Agreement No. CE22/2013 (DS) Drainage Improvement Works in Yuen Long, Stage 1 - Investigation, Design and Construction, Hong Kong, DSD: Dr Wong is the Ecologist of the project and responsible for the ecological impact assessment of the Environmental Review and EIA studies, and during which he has organised and supervised the ecological baseline survey for 8 villages where the potential impact to watercourses, woodland and farmlands has been identified as the key ecological issues.

Agreement No. CE57/2011 (DS) Drainage Improvement at Northern New Territories - Package A - Drainage Improvement Works in San Tin (Remaining Works) - Investigation, Hong Kong, DSD: Dr Wong is the Project Ecologist of this drainage improvement project and responsible for managing and supervising the field survey, as well as undertaking the ecological impact assessment of the proposed works at different sections of the tributaries at the San Tin Basin, with a particular focus on the sensitive ecological resources including various wetland habitats and egretries in the vicinity of the project area.

Employment History

2010 to date	Oikos Consulting Limited - Director
2008 to 2010	The Open University of Hong Kong - Tutor for Ecology Course
2004 to 2008	Hong Kong Quality Assurance Agency - Environmental Auditor
2001 to 2004	Environmental Resources Management Hong Kong - Consultant
1998 to 2001	Open Learning Institution - Ecology Field Instructor
1996 to 1998	Independent Ecological Consultant
Language	

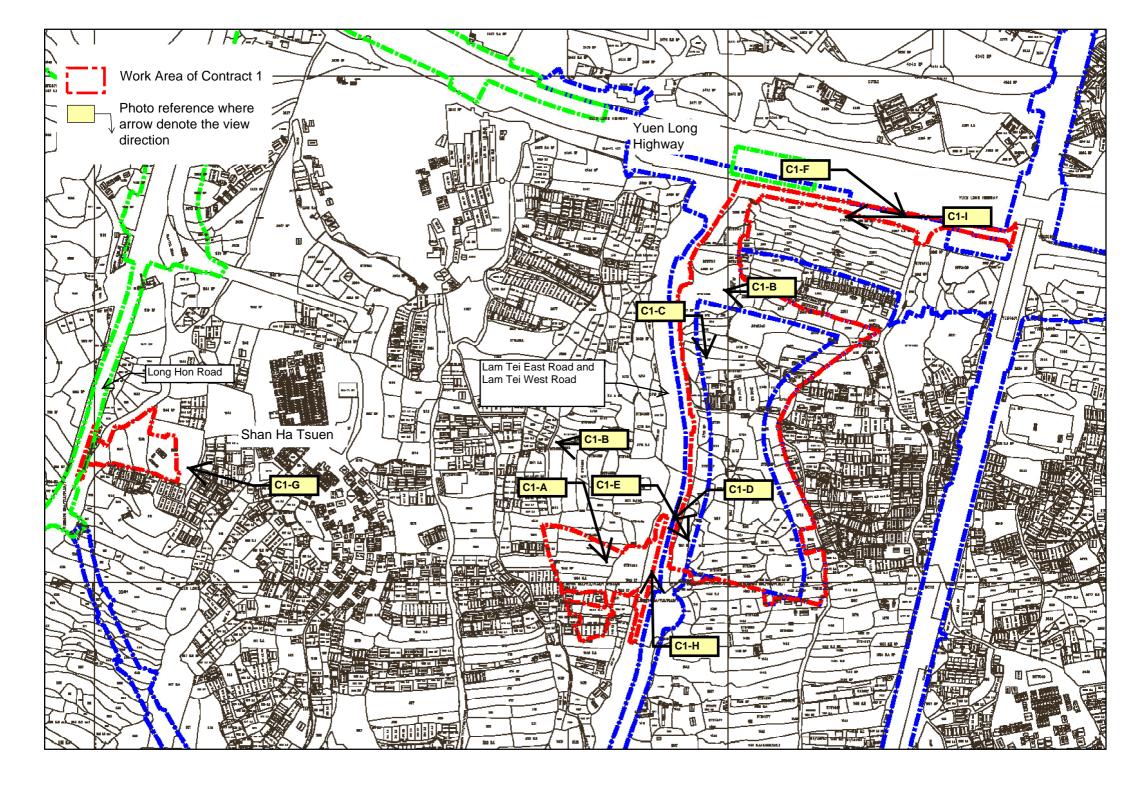
Cantonese mother tongue; fluent in English.

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Appendix D

Photographs and Key Plan of Contract 1

















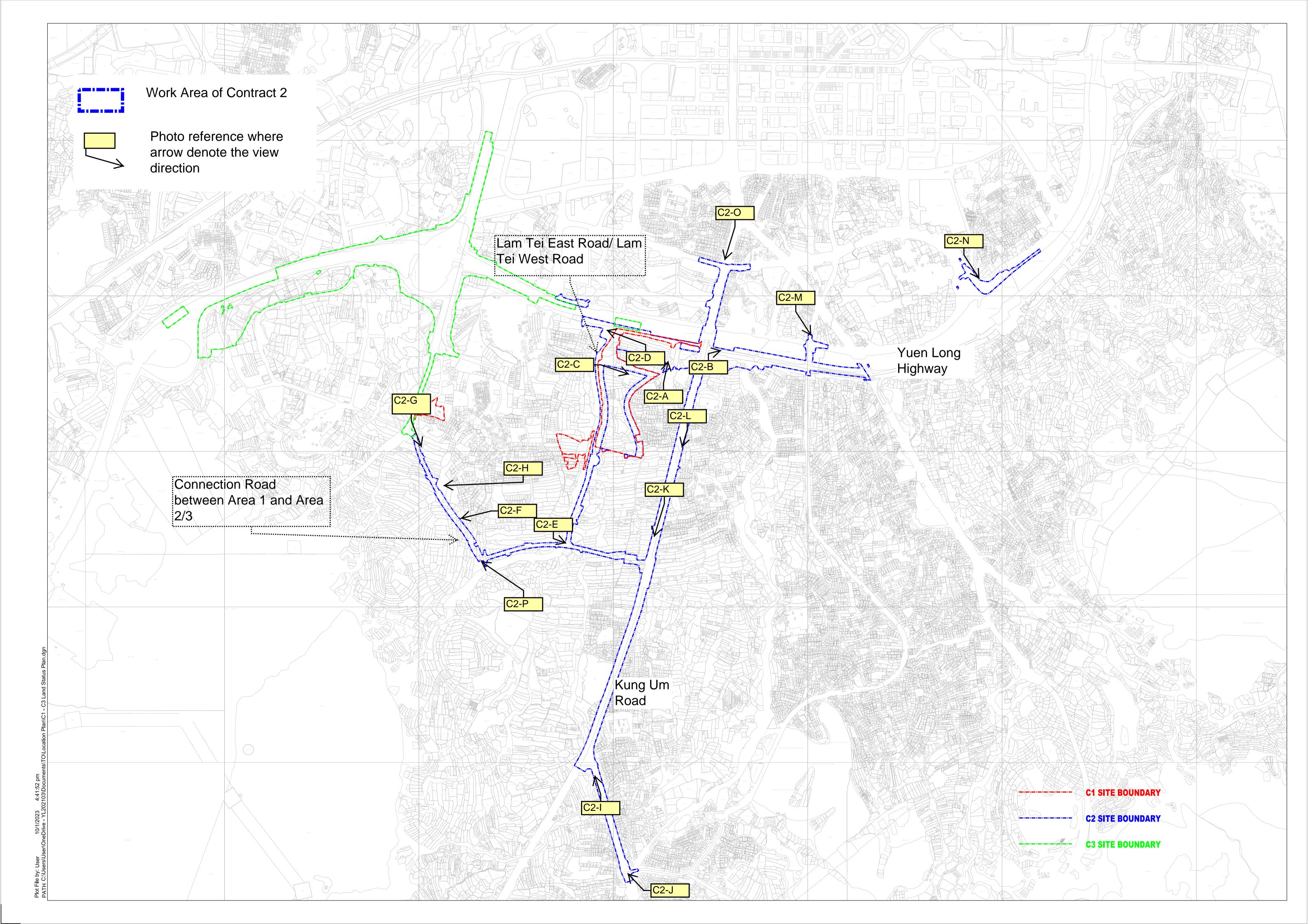






Appendix E

Photographs and Key Plan of Contract 2















C2-E



















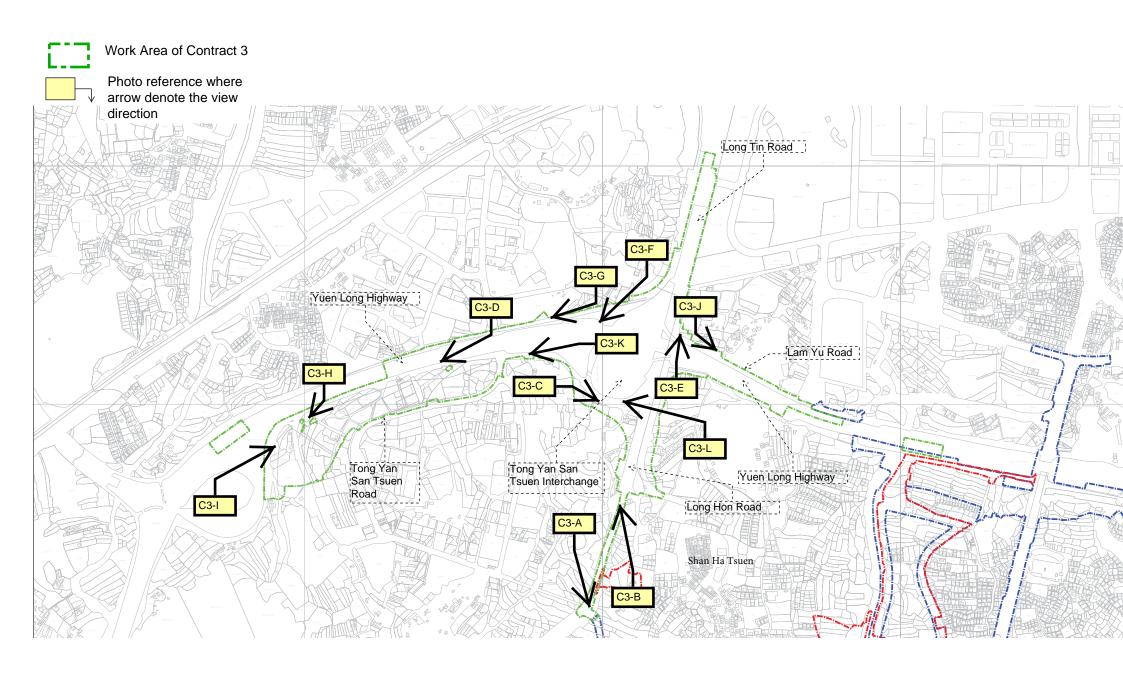


C2-P



Appendix F

Photographs and Key Plan of Contract 3















C3-D

C3-E

C3-F















Appendix G

Unresumed Lands under the three Contracts

