

Contract No. DC/2022/02 Drainage Improvement Works at Yuen Long

Pre-construction Survey and Translocation Report of CH.A 300.00 ~ CH.A653.949 at Ha Che

Wing Tat Civil Engineering Co. Limited

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**Contract No. PM 10/2022 -
Independent Environmental Checker for Drainage Improvement Works at
Yuen Long – Stage 2**

**Verification of Pre-construction Survey and Translocation Report
(Ha Che Section CH.A300.00 ~ CH.A653.949)**

4 November 2024

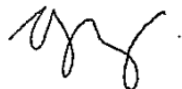
Dear Sir,

We refer to the Pre-construction Survey and Translocation Report under the captioned Project, which was certified on 1 November 2024 by the Ecologist appointed under Condition 2.3 of the Environmental Permit No. EP-596/2021 (hereinafter referred to as "EP").

We would like to inform you that we have no adverse comment on the captioned submission. Therefore, we hereby verify the abovementioned submission in accordance with EP Conditions 1.9 and 2.8.

Should you have any queries regarding the captioned, please contact our Hin Chan at 2828 5764 or the undersigned at 2828 5751.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



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1 Introduction

1.1 Background

- 1.1.1 The Contract No. DC/2022/02 Drainage Improvement Works at Yuen Long – Stage 2 (hereafter as “The Project”) is carried out by the Drainage Services Department (DSD, the Project Proponent) to undertake drainage improvement works near four villages in Yuen Long, namely Sung Shan New Village, Tai Wo, Lin Fa Tei and Ha Che. The Project aims at enhancing the capacity of the existing drainage systems to lower the flood risk to these villages.
- 1.1.2 This Project is a Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499), with an approved Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-229/2021) and an Environmental Permit (EP-596/2021).
- 1.1.3 An ecological baseline survey was conducted for the Project, during which, two endemic freshwater crab species of conservation importance were recorded within the work sites. *Somanniathelphusa zanklon* was recorded at Lin Fa Tei and Ha Che, while *Cryptopotamon anacoluthon* was recorded in the upstream area at Ha Che. Both species are endemic to Hong Kong and considered to be “Endangered” and “Vulnerable” by the IUCN, respectively (IUCN 2024). The construction activities of the project will disturb their natural habitats thus potentially causing a direct loss of these two species due to their limited mobility.
- 1.1.4 To fulfil the conditions stipulated in Sections 25.32 of the Particular Specification of the Contract, Conditions 2.8 of the Environmental Permit (EP-596/2021) as well as sections 5.2.6 and 5.2.7 of the Environmental Monitoring and Audit Manual of the EIA, a Freshwater Crab Translocation Plan (FCTP) was prepared by the Environmental Team Ecologist such that aquatic species of conservation importance found within the works area will be translocated to selected receptor sites outside of the proposed works area in accordance with the FCTP.
- 1.1.5 Consequently, pre-construction surveys and translocation activities were carried out within the proposed drainage CH.A 300.00 ~ CH.A 653.949 works sections of Ha Che (**Figure 1**) in accordance with the approved FCTP, as construction in the section of drainage was scheduled to commence on 23 September 2024. Pre-construction survey for other sections will be carried out and reported prior to the commencement of proposed works.
- 1.1.6 As stipulated in Section 2.5 of the approved FCTP, a Pre-construction Survey and Translocation Report will be prepared within 2 weeks after the translocation activities. Accordingly, this Report is prepared to detail the findings of the capture and translocation activities in the affected works areas in proposed drainage CH.A 300.00 ~ CH.A 653.949 works sections of Ha Che.

2 Capture-Translocation Methodology

2.1 General

- 2.1.1 The capture and translocation scheme presented in this section is adopted from the FCTP. EPD approval of the methodology and approach detailed in the FCTP was sought prior to the pre-construction surveys and actual translocation activities.

2.2 Personnel

- 2.2.1 The pre-construction surveys and the translocation activities were carried out by a team of ecologists and supervised by the qualified ecologist with adequate relevant experience and whose credentials were certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC).

2.3 Permit

- 2.3.1 A special permit (**Appendix B**) in compliance with Sections 7 and 15 of the Wild Animals Protection Ordinance (Cap. 170) was obtained from AFCD as the pre-construction survey and translocation works involved the use of “appliance” i.e., hand nets to collect freshwater fauna in the streams.

2.4 Capture Activities

Collection Site and Survey Timing

- 2.4.1 As confirmed by the Contractor, the proposed drainage works in section CH.A 300.00 ~ CH.A 653.949 of Ha Che is scheduled to commence on 23 September 2024. Consequently, the capture-translocation activities were carried out on 11 to 13 September 2024, within the time frame of 7 to 14 days before the actual commencement of the drainage works, to avoid the recolonisation of *S. zanklon* and *C. anacoluthon* in this section after the pre-construction survey.

- 2.4.2 Pre-construction surveys were scheduled at time with lower surface water, i.e., avoiding period of heavy rainfall and/ or during period of lower rainfall to maximise the survey extent.

Capture Methodology

- 2.4.3 Standard survey methodology as indicated in the approved FCTP was adopted during the pre-construction surveys.
- 2.4.4 Hand netting was used by actively sweeping the potential micro-habitats and hiding spaces that are favoured by the crabs (Stanton & Leven 2016, Stanton *et. al.* 2017) such as rocks, organic debris, leaf litter, and riparian vegetation. Any species of conservation importance flushed or caught by this practice were sorted and collected.

- 2.4.5 Kick-netting was also conducted moving parallel from downstream to upstream, where hand net opening was positioned facing the water current at suitable locations. Using the toe or heel, the streambed substrate in front of the net was disturbed by kicking such that aquatic species dislodged by the disturbance were trapped in the net. All species with conservation importance were identified, measured, and photographed.



Plate 1. Size measurement of a captured *S. zanklon*.

Marking

- 2.4.6 Using an ink marker, dorsal side of the carapace of the captured individuals of *C. anacoluthon* and *S. zanklon* was marked with their assigned individual number/code. Earlier laboratory and field trials had established that crab survival and behaviour were unaffected by paint marking on the carapace (Eaton et. al. 2001).



Plate 2. Marking the carapace of a captured *S. zanklon*.

2.5 Translocation Activities

- 2.5.1 To avoid translocated individuals from re-entering the streams within the works area, suitable receptor sites outside and far from the affected sections were selected. To avoid stress and mortality, the collected *C. anacoluthon* and *S. zanklon* were immediately translocated shortly after capture. Translocation duration from the collection site to the receptor sites only took less than one hour as the receptor sites had accessible routes.
- 2.5.2 Captured *C. anacoluthon* were translocated to the section of shallow fast-flowing semi-natural watercourse south-east of Chuk Hang Village. As described in the approved FCTP, this proposed receptor site is within a shrubland at an altitude of around 50m and has both riffles and pools. The site has a comparable substrate type, width, water depth, water velocity, plant litter presence and riparian vegetation characteristics with the collection site. The proposed receptor site has rocky substratum with abundant riparian vegetation such as *Blechnopsis orientalis* and *Acorus gramineus*. This section was generally considered as a suitable receptor site for the *C. anacoluthon* considering the stream characteristics, which met the habitat requirements of the species.
- 2.5.3 *S. zanklon* collected were translocated to the section of shallow slow-flowing semi-natural channel characterised with silt sand and pebble substratum, similar to the collection site. The site is encompassed by a small patch of woodland and village houses. Riparian vegetation in the forms of native shrubs and trees such as *Sterculia lanceolata* and *Cinnamomum camphora* are sources of leaf litter that can be found in the stream bed. The soft soil stream substrate and the availability of riparian vegetation would be ideal for *S. zanklon* to inhabit.
- 2.5.4 Upon arrival to the receptor sites, acclimatisation was conducted by gradually mixing the water at receptor sites into the plastic containers. This would lower the risk of mortality due to temperature shock on the translocated *S. zanklon* and *C. anacoluthon*.



Plate 3. Releasing of *S. zanklon* to the receptor site.

3 Pre-construction Survey Results

3.1 Site Conditions

- 3.1.1 The lower course of CH.A300.00 ~ CH.A653.949 is situated next to a few village houses and open storage areas, with steep banks covered by herbaceous vegetation such as *Boehmeria nivea* and *Wedelia trilobata*. The bottom substrate of the section is muddy in nature, and the water is milky in colour with a lot of algae and large colonies of Chironomidae larvae observed. It is suspected that the low water quality is due to discharge from village houses/ brownfield operations upstream.
- 3.1.2 The middle course of the section is next to open storage areas including the aforementioned soy product factory. Water levels at the start and end of the middle course are considered too high and therefore the section is not surveyed due to safety concerns. Despite this, a good number of Mosquitofishes were recorded from the visual search and hand netting in the reachable areas, as these fishes appear to be attracted to larger and stiller pools of water. The banks of parts of this section consist of concrete blocks instead of a natural slope, as shown in **Appendix D**.
- 3.1.3 The upper course of the section is fully channelised with steep concrete walls, as it is situated next to a residential development. The bottom of the section is concrete, although it is covered by a sandy substrate as a result of sedimentation. Small patches of *Cyperus involuocratus* *Rottb.* occur in the channel, providing limited hiding spaces for freshwater invertebrates such as Odonata larvae. However, no vegetation is recorded on the vertical walls of the channel at all.
- 3.1.4 Relevant site photos of all courses of the site are provided in **Appendix D**.

3.2 Freshwater Crab Species and Abundance

- 3.2.1 A total of seven freshwater crabs were collected, marked, and translocated from Ha Che. Details of the captured individuals were summarized in **Table 1** below.

Table 1 Summary of Freshwater Crab Species captured during the Pre-construction Surveys

Species	ID No./ Code	Sex	Carapace Size (mm)	Date of Capture	Time of Capture	Remarks
<i>C. anacoluthon</i>	BC1	F	19.8	11-Sep-24	20:49	
<i>S. zanklon</i>	BS1	M	15.3	11-Sep-24	21:11	
<i>S. zanklon</i>	BS2	M	27.9	12-Sep-24	19:27	
<i>S. zanklon</i>	BS3	F	27.1	12-Sep-24	19:32	
<i>S. zanklon</i>	BS4	F	27.8	12-Sep-24	19:40	
<i>S. zanklon</i>	BS5	M	20.0	12-Sep-24	19:56	right pincer missing
<i>S. zanklon</i>	BS6	F	29.1	13-Sep-24	20:04	

- 3.2.2 A single *C. anacoluthon* was collected. Meanwhile, six *S. zanklon* were also collected during the pre-construction surveys. All crabs recorded were from the upper course, presumably due to the higher water quality of the section. Aside from individual BS1, most were noted as relatively mature which ranging from 19.8 to 29.1 mm.
- 3.2.3 Detailed findings and representative photographs of captured *C. anacoluthon* and *S. zanklon* are presented in **Appendix A**.
- 3.2.4 Additionally, it was noted that no individuals of *Cryptopotamon anacoluthon* or *Somanniathelphusa zanklon* were recorded in the receptor site as well.

3.3 Incidental Catch/Sightings

- 3.3.1 Albeit the pre-construction surveys only targeted *S. zanklon* and *C. anacoluthon*, several fauna species were also unintentionally caught during the pre-construction surveys (**Appendix C**). A species of conservation importance recorded was also translocated to the proposed receptor site. The species of conservation importance caught and released is summarized in **Table 2** below.
- 3.3.2 A Chinese Soft-shelled Turtle was captured in the lower course of the stream section on the survey on 12 September 2024, and was quickly released at the lower receptor site.

Table 2 Other Species of Conservation Importance Captured during the Pre-construction Surveys

Species	Conservation and Protection Status ¹	Distribution and Rarity ²
Herpetofauna		
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	GC; RLCV(EN); IUCN(VU); Cap.170	Locally found in reservoirs and fishponds in Deep Bay area.

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), Red List of China's Vertebrates (Jiang *et al.* 2016), China Species Red List (Wang & Xie 2004), IUCN (2024), China State Major Protection Status, CITES (2024), Native fish of conservation concern in HK (KFBG 2019), BSAP Marine Fishes Sub-group (2014), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): GC = Global Concern.
 - b. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.* 2016): EN = Endangered.
 - c. Conservation status by IUCN (VU): VU = Vulnerable.
 - d. Cap. 170 = Wild Animals Protection Ordinance.
2. Distribution and rarity follow the data of the latest HKBIH (AFCD 2024).

- 3.3.3 Additionally, a single individual of *C. anacoluthon* was recorded in the lower receptor site on 11 September 2024 during the release of individual BS1. The individual lacks marking on its body and is therefore not an individual that was translocated from previous pre-construction surveys.

4 Post-translocation Monitoring

- 4.1.1 According to Section 5.2.5 of EM&A Manual for the Project, monthly post-translocation monitoring shall be conducted for at least 12 months after pre-construction surveys to monitor their establishment.
- 4.1.2 During the monitoring, active visual search by hand netting and kick sampling for aquatic fauna species would be performed at the respective receptor sites. Potential micro-habitats and hiding spaces that are favoured by the crabs such as rocks, organic debris, leaf litter, and riparian vegetation etc., will also be overturned or raked.
- 4.1.3 Upon discovery of any marked individuals from the pre-construction survey, date and time of capture, size and health condition of the individual will also be recorded once again.
- 4.1.4 The practice of mark and recapture of the translocated population of *S. zanklon* and *C. anacoluthon* at the receptor site can then be used to estimate population size, as well as inform the health and survival status of the translocated population.
- 4.1.5 The tentative monitoring schedule for the individuals captured during this series of pre-construction surveys is highlighted below in **Table 3**, which is shown along with the monitoring schedules of other pre-construction surveys of the project.

Table 3 Tentative Capture and Monitoring Schedule in Ha Che and Lin Fa Tei

Works Location		2024												2025												2026	
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Ha Che	CH.A11.13~ CH.A300.00	20/2/2024 – 7/12/2024																									
	CH.A300.00~ CH.A653.949	✓	○	○	○	○	○	○																			
	CH.A653.949~ CH.A905.63							✓																			
	CH.A818.86~ CH.A500.00	to be scheduled																									
Lin Fa Tei	CH.A500.00~ CH.A200.00	29/4/2024- 18/1/2025																									
	CH.A0.00~ CH.A200.00	20/3/2024 – 11/1/2025																									
	CH.B0.00~ CH.B149.77			*																							
	CH.C117.50~ CH.D239.03	20/3/2024 – 21/8/2025																									
		*																									

Notes: Cells in Orange = Scheduled Pre-construction Survey; Cells in Blue = Scheduled Post-translocation Monitoring; ✓ = Survey Completed with translocated crabs, * = Survey completed without crabs translocated, O = Post-translocation Monitoring Completed

5 Conclusion

- 5.1.1 To avoid/minimise potential direct impacts to the local population of the two endemic freshwater crab species, a total of one *Cryptopotamon anacoluthon* and six *Somanniathelphusa zanklon* were captured, marked, and translocated during the pre-construction surveys in Ha Che on 11 to 13 September 2024.
- 5.1.2 The captured endemic freshwater crabs were translocated to the identified receptor sites indicated in the approved Freshwater Crab Translocation Plan. *Cryptopotamon anacoluthon* were translocated in the section of a shallow fast-flowing semi-natural watercourse with rocky substratum located south-east of Chuk Hang Village. Meanwhile *Somanniathelphusa zanklon* were translocated to the section of a shallow slow-flowing semi-natural channel characterised soft soil substrate encompassed by a small patch of woodland and village houses. The receptor sites have comparable characteristics with the collection site.
- 5.1.3 Post-translocation monitoring for at least 12 months to monitor the establishment and effectiveness of the measures given to the endemic freshwater crabs shall be conducted.
- 5.1.4 As a conservation measure, other aquatic fauna of conservation importance incidentally captured throughout the survey period were likewise translocated to the receptor sites.

6 References

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Stanton, D.J., M.R Leven & T.C.H. Hui. 2017. Distribution of *Cryptopotamon anacoluthon* (Kemp, 1918) (Crustacea: Brachyura: Potamidae), a freshwater crab endemic to Hong Kong. *Journal of Threatened Taxa* 9(2): 9786–9794; <http://doi.org/10.11609/jott.3007.9.2.9786-9794>

Wang & Xie. 2004. China Species Red List (CSRL). Higher Education Press.

Appendices

Appendix A

Photos of Collected *C. anacoluthon* and *S. zanklon*

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***Cryptopotamon anacoluthon* BC1**



***Somanniathelphusa zanklon* BS1**



***Somanniathelphusa zanklon* BS2**



***Somanniathelphusa zanklon* BS3**



Somanniathelphusa zanklon BS4



Somanniathelphusa zanklon BS5



Somanniathelphusa zanklon BS6



Appendices

Appendix B

Special Permit obtained from AFCD under Cap. 170



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長沙灣政府合署五樓



覆函請寄交
「漁農自然護理署署長」
Please address all replies to
Director of Agriculture, Fisheries and Conservation

AGRICULTURE, FISHERIES AND
CONSERVATION DEPARTMENT

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5th floor, 303 Cheung Sha Wan Road
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來函檔號 Your Ref. :
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電郵地址 E-mail Address : mailbox@afcd.gov.hk
圖文傳真 Faxline No. : (852) 2311 3731

22 December 2023

**Permission to Possess Hand Nets for the Surveys
and Translocation of Aquatic Fauna**

I hereby give permission to:

**HUI, Chung Hong; CHAN, Lai Ying; CHAN, Lap Hang; CHEUNG, Hin Kit;
HUNG, Pak Yam; LEE, Wing Yau; MA, Chun Ning; TAM, Hoi Yan and TAM, Sze
Hon of Aurecon Hong Kong Limited** to possess hand nets to capture freshwater
macro-invertebrates for surveys and translocation, subject to the conditions on the
reverse side of this permit.

The Special Permit is given in accordance with Section 15 of the Wild Animals Protection Ordinance (Cap.170).

This Special Permit expires on **31 December 2024.**

(Chan Kin Fung)
for Director of Agriculture, Fisheries and Conservation

Mr. Tommy HUI
Aurecon Hong Kong Limited
122-127 Commercial Centre,
Palm Springs,
Yuen Long,
New Territories,
Hong Kong

**Conditions of Permission to Possess Hand Nets for the Surveys
and Translocation of Aquatic Fauna**

1. This permission is limited to the possession of hand nets by HUI, Chung Hong; CHAN, Lai Ying; CHAN, Lap Hang; CHEUNG, Hin Kit; HUNG, Pak Yam; LEE, Wing Yau; MA, Chun Ning; TAM, Hoi Yan and TAM, Sze Hon of Aurecon Hong Kong Limited to capture freshwater macro-invertebrates for surveys and translocation at Lin Fa Tei and Ha Che in Yuen Long under the project "Drainage Improvement Works at Yuen Long" (Contract No. DC/2022/02) as proposed to this department on 5 December 2023.
2. This permission does not exempt the permit holders from having to acquire any other necessary permission under the Laws of Hong Kong.
3. This permission does not authorise the entry to any leased land or licensed area or the collection or disturbance of the flora or fauna therein, in which case the prior approval of the lessees or the licence holders would be necessary.
4. The permit holders shall release the captured target species to the approved receptor sites.
5. The permit holders shall handle the animals humanely and in a manner that will avoid their suffering.
6. The permit holders shall release all the accidentally captured animals other than the target species on site immediately. The permit holders shall hand over any protected wild animals listed under Schedule 2 to the Wild Animals Protection Ordinance or scheduled species under the Protection of Endangered Species of Animals and Plants Ordinance accidentally hurt by the nets and deemed unsuitable for immediate release to this Department as soon as possible.
7. The permit holders shall produce a copy of this permit for inspection on demand by any officer of this Department or police officer.
8. The permit holders shall provide a report on the location, quantity and species of specimens surveyed to this Department upon request.
9. The Director of Agriculture, Fisheries and Conservation reserves the right to recall or cancel this permission at any time.

* End of Conditions *

December 2023
Agriculture, Fisheries and Conservation Department

Appendices

Appendix C

Incidental Catch/Sightings during the Pre-construction Surveys



Table 1. Incidental Catch/Sightings during the Pre-construction Capture Surveys

Species Name	Conservation Status ⁽¹⁾	Hong Kong Status ⁽²⁾	Maximum Abundance
Amphibians			
Paddy Frog <i>Fejervarya multistriata</i>	-	Widely distributed in Hong Kong.	1
Günther's Frog <i>Sylvirana guentheri</i>	-	Widely distributed throughout Hong Kong.	2
Brown Tree Frog <i>Polypedates megacephalus</i>	-	Widely distributed throughout Hong Kong.	1
Greenhouse Frog <i>Eleutherodactylus planirostris</i>	-	(Introduced species)	2
Reptiles			
Chinese Waterside Skink <i>Tropidophorus sinicus</i>	-	Widely distributed in streams throughout Hong Kong.	1
Chinese Soft-shelled Turtle <i>Pelodiscus sinensis</i>	GC; RLCV(EN); IUCN(VU); Cap.170	Locally found in reservoirs and fishponds in Deep Bay area.	1
Freshwater Fishes			
Oriental Weatherfish <i>Misgurnus anguillicaudatus</i>	-	Common	1
North African Catfish <i>Clarias gariepinus</i>	-	-	1
Mosquito Fish <i>Gambusia affinis</i>	-	Common	~50
Guppy <i>Poecilia reticulata</i>	-	Common	~500
Variable Platyfish <i>Xiphophorus variatus</i>	-	Common	~200
Aquatic Invertebrates			
Orange-tailed Sprite <i>Ceriatrion auranticum</i>	-	Abundant	5
Common Blue Skimmer <i>Orhetrum glaucum</i>	-	Abundant	5
Bloodworm <i>Chironomidae sp.</i>	-	-	~500
Freshwater Snail <i>Sulcospira hainanensis</i>	-	-	~50
Freshwater Snail <i>Melanoides tuberculata</i>	-	-	~20
Housefly Larva <i>Muscidae sp.</i>	-	-	5
Notes:			
<p>1. Conservation and protection status refers to Fellowes et al. (2002), IUCN (2023), RLCV (Jiang et al., 2016), List of National Key Protected Wild Animal (2021), CITES (2023), Cap. 170 and Cap. 586.</p> <p>a. Conservation status by Fellowes et al. (2002): GC = Global Concern.</p> <p>b. Conservation status by IUCN (2023): VU = Vulnerable.</p> <p>c. Conservation status by RLCV (Jiang et al., 2016): EN = Endangered.</p> <p>d. Cap 170: Wild Animals Protection Ordinance.</p> <p>2. Distribution and rarity follow the data of the latest HKBIH (AFCD, 2024).</p> <p>3. Species of conservation importance is highlighted in bold.</p>			

Table 2. Photos of captured aquatic species of conservation importance

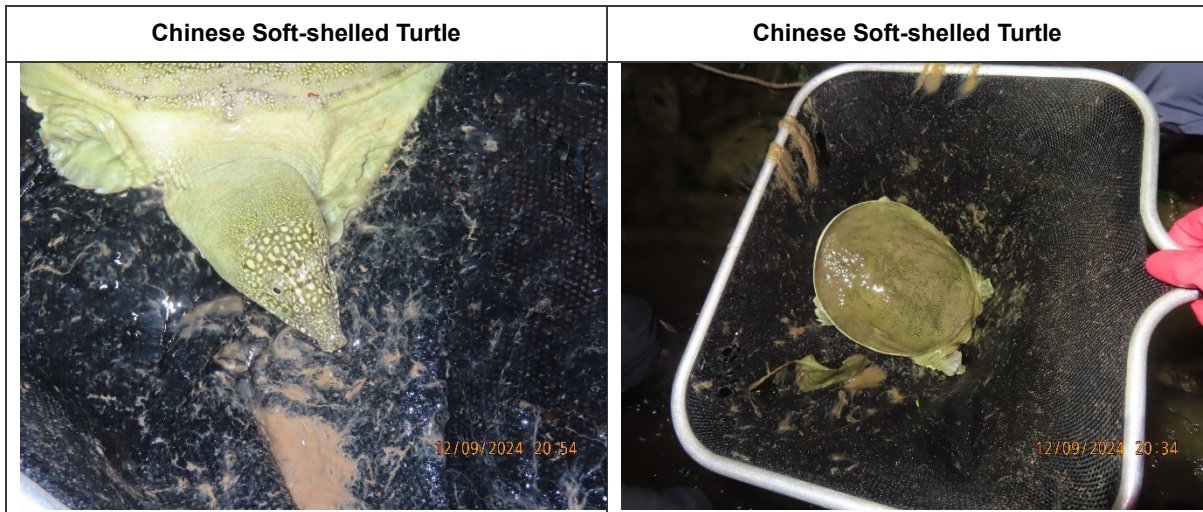
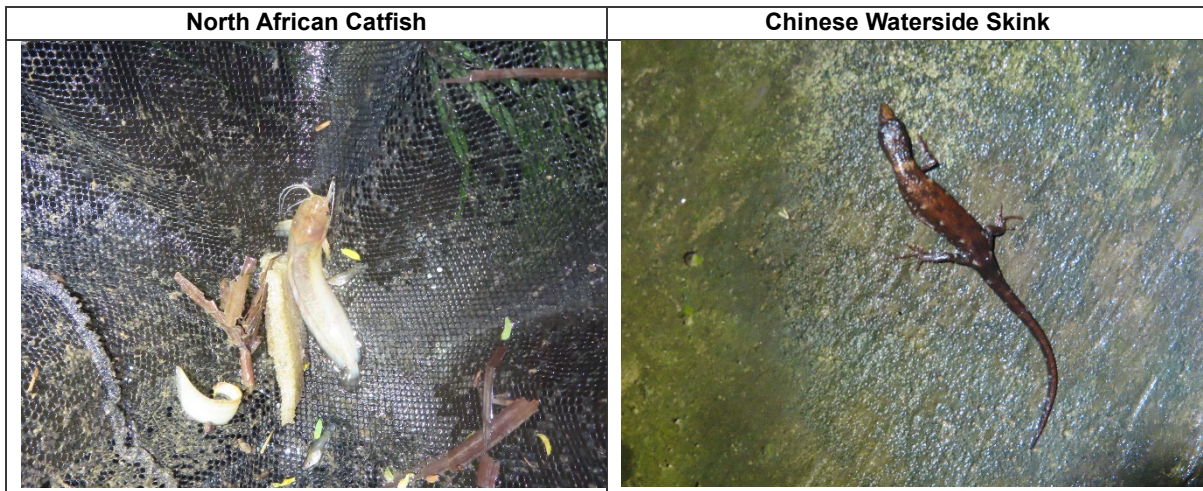


Table 3. Photos of other incidental captures



Appendices

Appendix D

Site Photos of Collection and Receptor Sites



Collection Site (Lower Course)



Collection Site (Middle Course)



Collection Site (Lower Course)



Receptor Sites (left: receptor site of *C. anacoluthon*, right: receptor site of *S. zanklon*)



Appendices

Appendix E

Survey Data Sheet



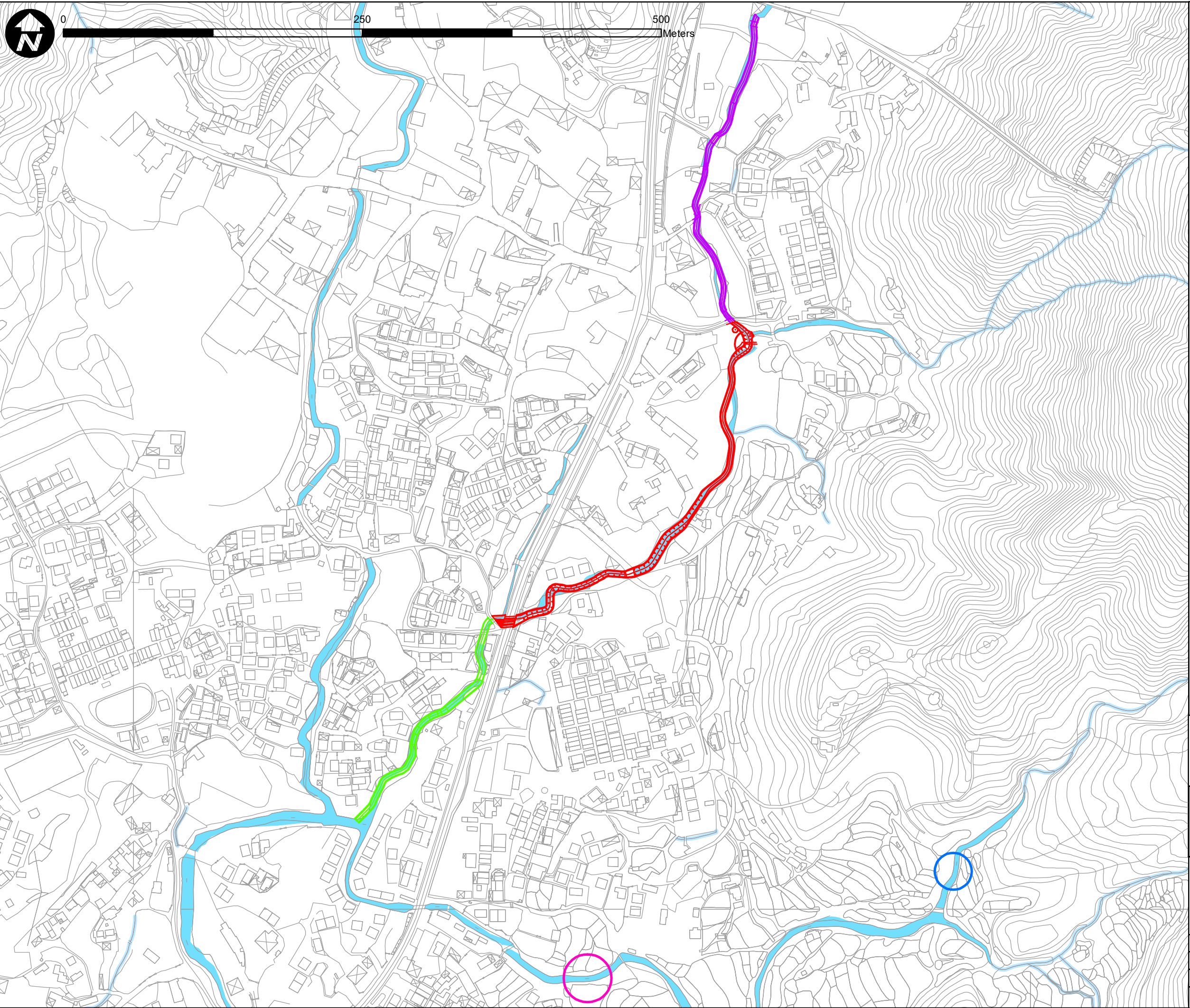
Figures

Figure 1

Collection and Receptor Sites of *C. anacoluthon* and *S. zanklon*

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0 250 500 Meters

- Section CH.A 11.13 ~ CH.A 300.00
- Section CH.A 300.00 ~ CH.A 653.949
- Section CH.A 653.949 ~ CH.A 905.63
- Proposed Receptor Site for *Cryptopotamon anacoluthon* Captured at Ha Che
- Proposed Receptor Site for *Somanniathelphusa zanklon* Captured at Ha Che
- Watercourse

Project Title:
 Contract No. DC/2022/02 Drainage Improvement Works at Yuen Long - Stage 2 (Subcontract No. DC/2022/02/SC/004 Provision, Operation and Maintenance of Environmental Services)

Figure Title:
 Collection and Receptor Sites of *C. anacoluthon* and *S. zanklon*



Drawn by:	PC	Scale:	1:3,000 on A3
Checked By:	NT	Date:	20 Feb 2024
Approved by:	DJS		
Figure Number:	Figure 1	Revision:	0

