



21st March 2019

Our Ref: L201902-010

Keppel Seghers – Zhen Hua Joint Venture
19/F, China Harbour Building,
370-374 King's Road,
North Point, Hong Kong

By Hand and Email

Attn: Mr. Yu Yung Hong, Kenny

Dear Sir,

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

Proposal for Proposal for Relocating Marine Water Quality Monitoring Station F1 (Rev B)

We refer to your comment in EPD letter ref (12) in Az(1) EP2/G/G/131 Pt. 22 dated 11th March 2019 for your letter ref. KSZHJV/OUT/2019/01/03.01/002187 dated 29th January 2019 and would like to re-submit you the document with IEC's approval pursuant to Clause 4.3.1 of the Updated Environmental Monitoring and Audit Manual.

Should you need further detail, please do not hesitate to contact the undersigned, or our Environmental Consultant Mr. Nelson Tsui on 6939 5551.

Yours sincerely,

For and on behalf of

Acuity Sustainability Consulting Limited

Kevin Li

Deputy Environmental Team Leader

Encl.

c.c. AECOM	Mr. Fred Yeung – Senior Resident Engineer (sre2@iwmf-aecom.com)
AECOM	Mr. Henry Chan – Chief Resident Engineer (cre1@iwmf-aecom.com)
ERM	Ms. Mandy To – Independent Environmental Checker (mandy.to@erm.com)


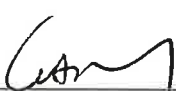




吉寶西格斯 - 振華聯營公司
KEPPEL SEGHERS - ZHEN HUA JOINT VENTURE

Proposal for Relocating Marine Water Quality Monitoring Station F1

Document No.

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	Prepared by:	Certified by:	Approved by:	Agreed by:
Name	Nelson Tsui	Gabriel Lam	Mandy To	Kenny Yu
Position	Environmental Team	Environmental Team Leader	Independent Environmental Checker	Project Manager
Signature				
Date:	18 March 2019	18 March 2019	19 March 2019	19 March 2019

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Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1

Revision History

Rev.	Description of Modification	Date
A	First Issue	14 Feb 2019
B	Revised for IEC's comments	20 Feb 2019



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Proposal for Relocating Marine Water Quality Monitoring Station F1

(Revision 1, 20 Feb 2019)

For

Contract No. EP/SP/66/12

Integrated Waste Management Facilities, Phase 1



Revision History

Revision Date	Revised for	Revision No.
14 Feb 2019	1 st Issue	0
20 Feb 2019	Incorporating IEC comments	1



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Appendix 1 - E-mail from AFCD to Support the Rationale of Relocating F1



1 Rationale for Relocating Water Monitoring Location F1

Dr. Y. M. Mak, Marine Conservation Officer/ West1 of Agriculture, fisheries and conservation department raised concerns of mariculturists on possible adverse impacts to the Cheung Sha Wan fish culture zone due to the present marine water quality monitoring. Therefore, AFCD suggested to ET to relocate the F1 marine water quality monitoring location outside the fish culture zone. The e-mail from Dr Mak is attached in Appendix 1 for reference.

As such and pursuant to Condition 3.1 of the Environmental Permit and 4.3.1 paragraph of EM&A Manual, it is thus proposed to relocate the F1 water monitoring location to a new location to be named as F1A. as shown in Figure 1 for verification by IEC and approval by EPD.

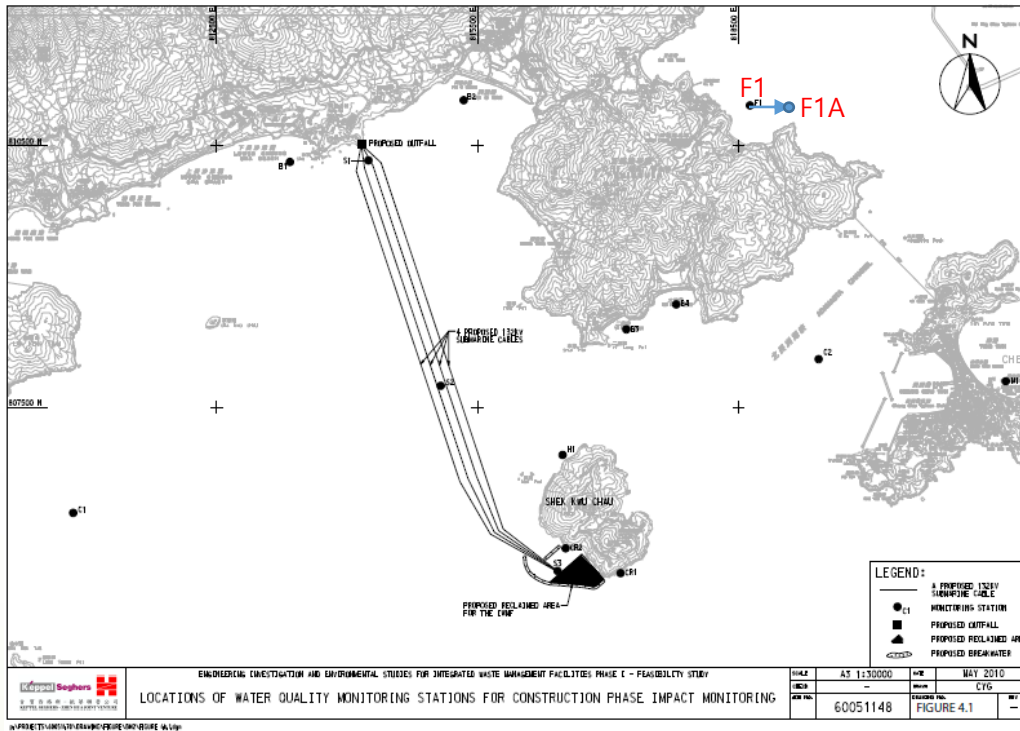


Figure 1 – Location of marine water monitoring location of F1 (existing) and F1A (newly proposed) for Cheung Sha Wan fish culture zone



2 Marine Water Quality Monitoring Locations for the Project (refer to the Updated EM&A Manual)

- 2.1 Marine water quality monitoring stations have been proposed at different water quality sensitive receivers to monitor the water quality impact due to the proposed marine works under this Project.
- 2.2 Monitoring station F1 is located at the Cheung Sha Wan Fish Culture Zone while monitoring station M1 is located at Tung Wan at Cheung Chau.
- 2.3 Monitoring stations B1 to B4 are located at 4 beaches respectively at the southern shore of Lantau Island.
- 2.4 Monitoring station H1 is located at the horseshoe crab habitat at northern SKC, while CR1 and CR2 are located at the coral communities at southwestern shore of SKC.
- 2.5 Water quality monitoring at the northern landing site, midway and southern landing site of the proposed submarine cable is proposed at monitoring stations S1, S2 and S3 for monitoring the SS impact due to the laying of submarine cable.
- 2.6 Control stations C1 and C2 have been proposed at far field locations for comparison.
- 2.7 The 14 nos. of monitoring stations for Marine Water Quality for Baseline and Impact Monitoring during Construction Phase are tabulated below with F1 highlighted:

Station	Description	Easting	Northing
B1	Beach - Cheung Sha Lower	813342	810316
B2	Beach - Pui O	815340	811025
B3	Beach - Yi Long Wan	817210	808395
B4	Beach - Tai Long Wan	817784	808682
H1	Horseshoe Crab - Shek Kwu Chau	816477	806953
C1	Control Station	810850	806288
C2	Control Station	819421	808053
F1	Cheung Sha Wan Fish Culture Zone	818631	810966
S1	Submarine Cable Landing Site	814245	810335
S2	Submarine Cable	815076	807747
S3	Submarine Cable Landing Site	816420	805621
CR1	Coral	817144	805597
CR2	Coral	816512	805882
M1	Tung Wan	821572	807799



3 Criteria and Selection of a New Monitoring Station for Replacing F1

3.1 The new monitoring station F1A to replace F1 should satisfy the following criteria:

- a) The new monitoring station shall be outside but near to the fish culture zone for fulfilling the purpose of monitoring the impact from the construction site.

- b) The new monitoring station shall have similar sea water influent during flood tide and tide turning from flood to ebb tide as that for F1. This allows detection of any possible contamination plume from construction site to the fish culture zone with similar monitoring results. See below Figure 2 – 4 for the tidal stream pattern and predicted tide obtained from Marine Department (MD) and Hong Kong Observatory (HKO) website.

As other tide periods such as ebb-tide, see below Figure 2, 5 & 6, the tide pattern will not bring contamination plume from the construction site to the fish culture zone. Therefore, the new monitoring location at eastern side of F1 is more appropriate than at northern side of F1.

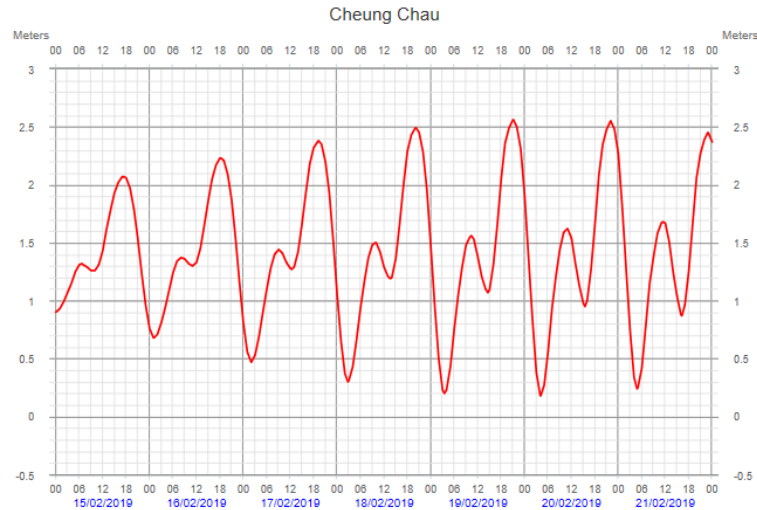


Figure 2 – Predicted Tide 15-21.Feb.19 Information from HKO

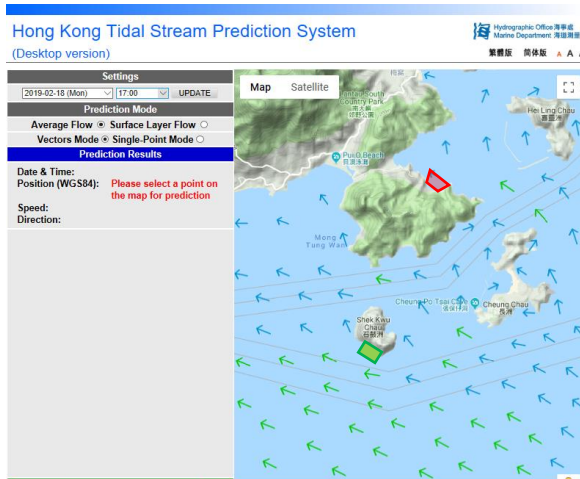


Figure 3 – Tide Pattern at Flood Tide 1700 on 18.2

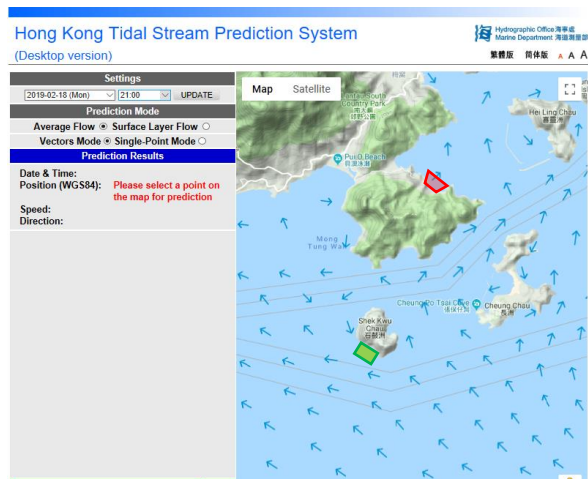


Figure 4 – Tide Pattern at Flood Turns to Ebb Tide at 2100 on 18.2

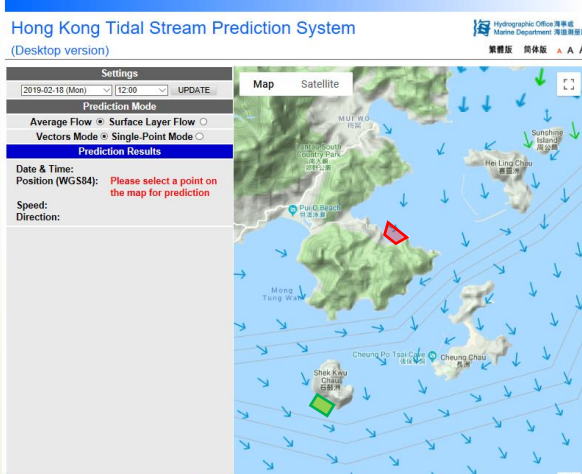


Figure 5 – Tide Pattern at Ebb Tide at 1200 on 18.2

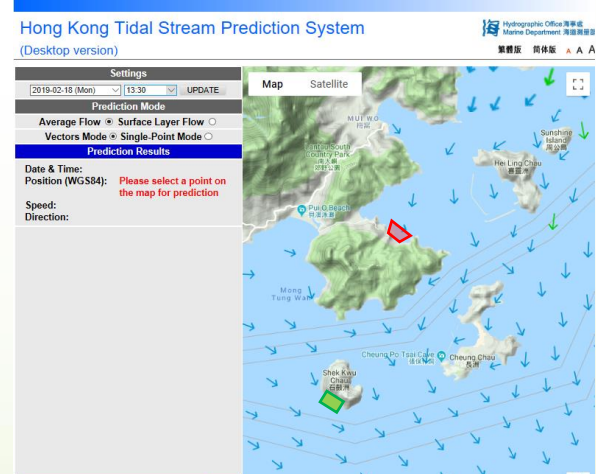




Figure 6 – Tide Pattern at Ebb Turns to Flood Tide at 1330 on 18.2

 The Fish Culture Zone

 IWMF Construction Site

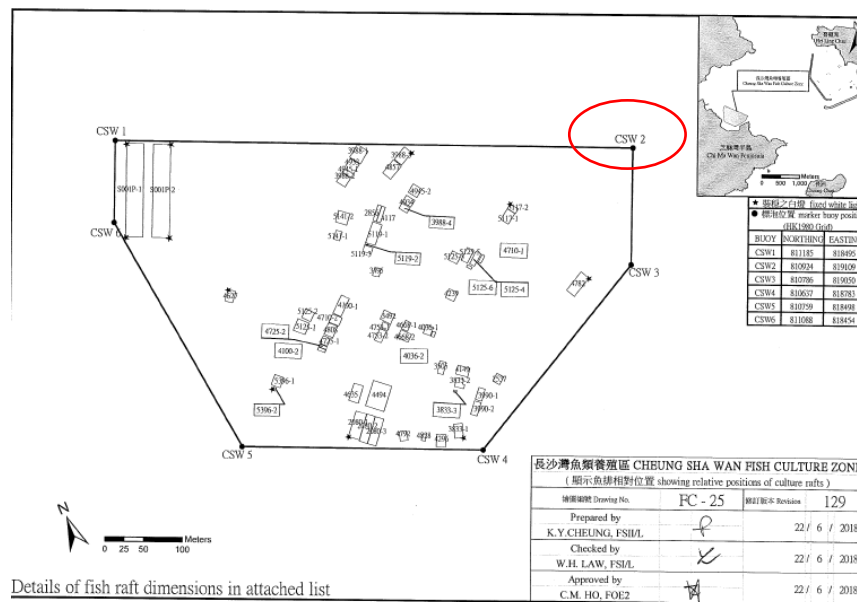


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c) Location of the new monitoring station can be easily presented by AFCD to the mariculturists in addressing their concerns on the present monitoring work within the fish culture zone.

3.2 Selection the Location for the New Monitoring Station

Having considered the above three criteria, we propose to select the location of CSW2 shown in Figure 7. This location is at the boundary of the fish culture zone, having similar sea water influent characteristics from the construction site as for F1, see Figure 8 & 9, and is well known by the mariculturists.



Details of fish raft dimensions in attached list

Figure 7 – The Layout of Cheung Sha Wan Fish Culture Zone and Location of CSW2

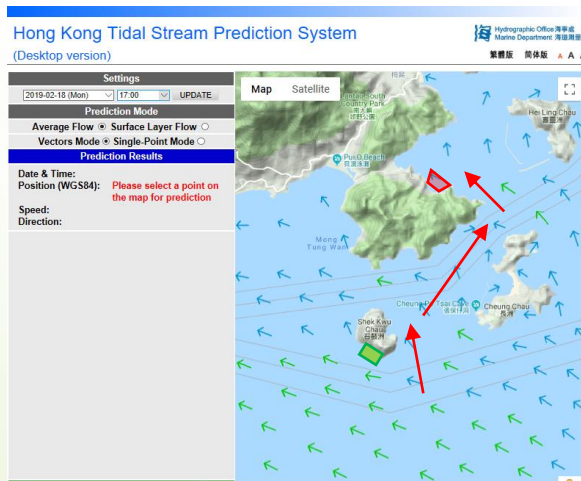


Figure 8 – Water Flow at Flood Tide

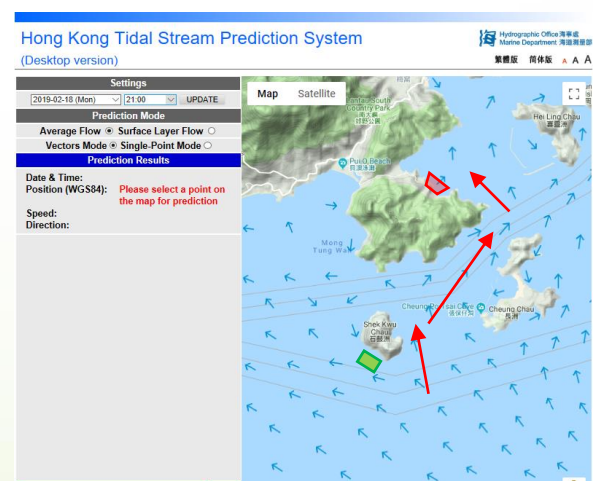


Figure 9 – Water Flow at Flood to Ebb Transition

The Fish Culture Zone IWMF Construction Site Water Flow Direction



(Cont'd 3.2)

This new monitoring station will be named as F1A with the following coordinates, the close proximity between F1 and F1A is also shown in Figure 10.

Coordinates of F1 & F1A

Monitoring Stations	Northing	Easting
F1	810966	818631
F1A	810924	819109



Figure 10 – Distance between F1 and F1A is about 450m

4 Conclusion

- 4.1 After relocation of the monitoring locations, the concern of the Mari-culturist on the possible adverse impact due to the present marine water quality monitoring to the fish culture zone can be addressed.
- 4.2 The proposed relocation will not adversely affect the integrity and accuracy of water quality monitoring programme.



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Appendix 1

E-mail from AFCD to Support the Rationale of Relocating F1

Nelson Tsui

寄件者: ym_mak@afcd.gov.hk
寄件日期: Wednesday, 16 January, 2019 3:42 PM
收件者: ntsui@acuityhk.com
主旨: Master Plan of Cheung Sha Wan Fish Culture Zone
附件: CSWv12922062018.pdf

郵件標幟: 待處理
標幟狀態: 已完成

Dear Nelson,

Re to our telecommunication, enclosed pls find attached the gazette plan of CSW FCZ for your ref.

Pls check whether the water quality monitoring station F1 (N810966, E818631) of Cheung Sha Wan Fish Culture Zone under the IWMMF EM&A is within the zone.

If yes, you may need to inform us the vessel # and the monitoring frequency to alert the mariculturists accordingly.

In the long run, it might be more appropriate to move the station outside the FCZ without compromising the water quality monitoring results.

Many thanks,
Dr YM Mak
Marine Conservation Officer/ West1
Agriculture, Fisheries and Conservation Department
T: 2150 6881