Monthly Environmental Monitoring & Audit Report

(July 2014)

Contract No.	:	CV/2012/01
Project	:	Sediment Removal at Yim Tin Tsai (East) Fish Culture Zone
Client	:	Civil Engineering and Development Department (CEDD)
Main Contractor	:	Zhen Hua Engineering Company Limited

Certified By _____

Dr. Priscilla Choy (Environmental Team Leader)
Cinotech Consultants Limited
Date: 15th August 2014

Verified By _____

Mr. Thomas Chan
(Independent Environmental Checker)
Ove Arup & Partners Hong Kong Ltd.
Date: 15th August 2014

Zhen Hua Engineering Company Limited

Contract No. CV/2012/01
Sediment Removal at
Yim Tin Tsai (East) Fish Culture Zone

Monthly Environmental Monitoring &
Audit Report

July 2014

(Version 1.0)

Certified By 

(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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EXECUTIVE SUMMARY

Introduction

1. This is the 9th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for CEDD Contract no. CV/2012/01 "Sediment Removal at Yim Tin Tsai (East) Fish Culture Zone". This report documents the findings of EM&A Works conducted in July 2014.

2. The major site activities undertaken in the reporting month included:

- Daily cleaning and weekly tidying;
- Relocation of fish rafts; and
- Ardeids & White-bellied Sea Eagles monitoring.

Environmental Monitoring and Audit Works

3. Environmental monitoring and audit works for the Project were performed regularly as stipulated in the Environmental Monitoring and Audit Requirements in Project Profile and the results were checked and reviewed. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

4. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I Summary Table for Non-compliance Recorded in the Reporting Month

Media/ Nature	No. of Exceedances		Action Taken	Results of action taken	Remarks
	Action Level	Limit Level			
Water Quality					
DO (S+M)*	0	0	N/A	N/A	N/A
DO (B)*	0	0			
Turbidity	0	0			
SS	0	0			
Copper	0	0			
Zinc	0	0			
Arsenic	0	0			
Lead	0	0			
Coral Quality					
Mortality (%)	0	0	N/A	N/A	N/A
Sediment cover (%)	0	0			
Bleaching (%)	0	0			

*Note: (S), (M) and (B) represent depths of water, such as Surface (1 metre below surface), Middle (mid-water depth) and Bottom (1 metre above seabed).

Water Quality

5. No marine water quality monitoring was conducted during the reporting month as the dredging works was completed in May 2014.

Coral Quality

6. No coral monitoring was conducted during the reporting month as the construction works was completed in May 2014.

Ardeids & White-bellied Sea Eagles Monitoring

7. Ardeids & White-bellied Sea Eagles monitoring were conducted as scheduled in the reporting month.

Environmental Licenses and Permits

8. Environmental related licenses/permits granted to the Project include the Environmental Permit (EP) for the Project.

Key Information in the Reporting Month

9. Summary of key information in this reporting month is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	1	8th Monthly EM&A Report (EP Condition 2.8)	Submitted to EPD on 5th July 2014	N/A	---
Notifications of any summons & prosecutions	0	---	N/A	N/A	---

Future Key Issues

10. Major site activities for the coming month will include:

- N/A

1. INTRODUCTION

Background

1.1 A priority list for removing sediments at the 26 Fish Culture Zones (FCZs) in Hong Kong (HK) had been prepared by the Agriculture, Fisheries and Conservation Department (AFCD). Civil Engineering and Development Department (CEDD) and AFCD consulted marine culturists' representatives on this list in May 2007. The representatives supported the government to carry out the sediment removal at the top five priority FCZs. Yim Yin Tsai (East) Fish Culture Zone was selected as one of them for improvement to the fish farming environment.

1.2 The works "Sediment Removal at Yim Tin Tsai (East) Fish Culture Zone" under Contract No. CV/2012/01 (hereinafter called the "Project") was awarded to Zhen Hua Engineering Company Limited (hereinafter called the "Contractor") by the Civil Engineering and Development Department (CEDD) of the Hong Kong Special Administrative Region (HKSAR).

1.3 Cinotech Consultants Ltd. (CINOTECH) was employed by the Contractor to serve as the Environmental Team (ET) to undertake the environmental monitoring services for the Project. Dr. Priscilla CHOY of Cinotech Consultants Ltd. was appointed as the ET Leader as per the Condition 2.1 of the EP. This is the 9th monthly EM&A report summarizing the EM&A works for the Project in July 2014.

Project Organizations

1.4 Different parties with different levels of involvement in the project organization include:

- Project Proponent / Engineer's Representative (ER) – Civil Engineering and Development Department (CEDD)
- Environmental Team (ET) – Cinotech Consultants Ltd.
- Independent Environmental Checker (IEC) – Ove Arup & Partners Hong Kong Ltd.
- Contractor – Zhen Hua Engineering Co., Ltd. (Zhen Hua)

1.5 The Project Organization during Construction Phase is listed in Table 1.1.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Walter Wong	Engineer Representative	2762 5584	2762 4015
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
		Mr. Tang Wing Kwai	Monitoring Team Leader	2151 2073	
Ove Arup	Independent Environmental Checker	Mr. Thomas Chan	Independent Environmental Checker	2268 3093	2268 3950
Zhen Hua	Contractor	Mr. Y F Cho	Senior Project Manager	2727 0128	2512 0427
		Mr. C K Li	Site Agent		

Construction Programme

1.6 The site activities undertaken in the reporting month were:
- Daily cleaning and weekly tidying;
- Relocation of fish rafts; and
- Ardeids & White-bellied Sea Eagles monitoring.

Summary of EM&A Requirements

1.7 The EM&A programme requires construction phase water quality monitoring and coral monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

1.8 As set out in Specific Conditions 2.7 of the EP for this Project, a monitoring programme on ardeids and White-bellied Sea Eagles nesting at Yeung Chau was submitted and approved by the Authority. The monitoring programme will commence when the relocation of fish rafts begins until completion of subsequent relocation of fish raft to the original Fish Culture Zone after dredging.

1.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 7 of this report.

1.10 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality, coral quality and bird counts as well as audit works for the Project in the reporting month.

2. WATER QUALITY

Monitoring Requirements

General

2.1 Water Quality Monitoring took place two times per monitoring day during mid ebb and mid flood tides at three depths (1 meter from surface, mid depth and 1 meter from the bottom). If the water depth is less than 6m, the mid-depth measurement may be omitted. If the depth is less than 3m, only the mid-depth measurements need to be taken.

2.2 Duplicate *in-situ* measurements (Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity) and one water sample at each depth (suspended solids (SS) and metals) shall be monitored in accordance with the requirements set out in the Project Profile.

2.3 For selection of tides for *in-situ* measurement and water sampling, tidal range of individual flood and ebb tides shall not be less than 0.5m.

2.4 Other relevant data shall also be recorded, such as monitoring location / position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or work underway nearby.

2.5 Action/Limit Levels for the environmental monitoring works are shown in **Appendix A**.

Monitoring Locations

2.6 The monitoring stations for water quality monitoring are shown in **Figure 2**. **Table 2.1** summarizes the water quality monitoring stations for the Project.

Table 2.1 Water Quality Monitoring Stations

Stations	Marine Water Quality Stations	Coordinates	
		Easting	Northing
F4	Relocation site for Yim Tin Tsai FCZ	840174	833468
F5	Temporary Fish Raft Relocation site for Yim Tin Tsai East FCZ	840303	835819
F6		843004	835347
F7	Existing Yim Tin Tsai FCZ	839720	834870
F8	Existing Yim Tin Tsai East FCZ	840871	835101
G2	Gradient Station	839760	834165
G3	Gradient Station	840637	835503
G4	Gradient Station	842184	835872

Results and Observation

2.7 No marine water quality monitoring was conducted during the reporting month as the dredging works was completed in May 2014.

3. CORAL MONITORING

Monitoring Requirement

3.1 Impact Monitoring Survey is required to determine whether impacts are occurring on the tagged corals during the construction phase. A particular focus of the Impact Monitoring will be the effects of sedimentation, bleaching and mortality on corals.

3.2 Post-Project Monitoring Survey was completed in June 2014 to confirm there is no adverse impact to the coral communities due to the Project.

3.3 All monitoring surveys were conducted by a qualified marine biologist with specialist knowledge of corals and sound experience at identifying corals in the field.

3.4 According to Section 3.3.3 of Annex G – "Environmental Monitoring and Audit Requirements" of the Project Profile, the coral monitoring programme shall comprise a baseline survey (prior to the dredging work), impact monitoring surveys (during the dredging period) and a post-project monitoring survey (after completion all the dredging works). In addition, the corals should be monitored twice a month during the first 2 months of the construction works in accordance with approved Proposal for Coral Monitoring.

Monitoring Locations

3.5 The locations plan of the impact coral monitoring stations is shown in **Figure 3**. The summary for impact coral monitoring stations is shown in **Table 3.1**.

Table 3.1 Summary of Coral Monitoring Stations

Monitoring	Nature of Monitoring Station	Monitoring ID and Location
Impact Monitoring	Impact Coral Monitoring Station	T2 – North of Shuen Wan Typhoon Shelter
		T3 – Southeast of Shuen Wan Typhoon Shelter
	Impact Coral Control Station	Site C –Whitehead Peninsula

Results and Observations

3.6 No coral monitoring was conducted during the reporting month as the construction works was completed in May 2014.

4. ARDEIDS AND WHITE-BELLIES SEA EAGLES MONITORING

Monitoring Requirements

4.1 In accordance with the approved monitoring programme under condition 2.7 of Environmental Permit No. EP-419/2011/A, surveys by counts on ardeids and White-bellied Sea Eagles should be conducted to quantify their existence in vicinity of the proposed dredging area and temporary relocation sites for fish rafts as well as to monitor ardeids and White-bellied Sea Eagles nesting at Yeung Chau. Their nests will be monitored if identified. The survey results enable comparison of their populations before, during and after construction works.

4.2 By comparison and evaluation of the survey results, any impact on the target species could be verified.

Monitoring Routes & Locations

4.3 Transect route with some vantage points is shown in **Figure 4**. There are a total of 9 point count locations. The counting vantage points are selected with at least 500m distance with each other to avoid double-counting. The main focus areas of survey are the location of existing fish rafts before and after dredging works and Yeung Chau, where ardeids were observed in the past records.

Monitoring Frequencies & Durations

4.4 The bird count was conducted at monthly intervals since the relocation of fish rafts begins. The survey would be carried out until completion of subsequent relocation of fish raft to the original Fish Culture Zone after dredging. Counts normally started after sunrise and last for 2-3 hours (normally before 10:00). Bird count should be postponed when it is on inclement weather.

Monitoring Methodology

4.5 The target species were surveyed quantitatively by transect count and point count method covering the survey area. Birds heard or seen within the survey area were identified to species and counted. They were counted directly from vantage points or along the edge of a colony with the use of 10x binoculars or by the naked-eye, depending on the proximity between the surveyor and the colony. It is advisable to travel with a pace of 10 km/hr by small boat for transect method, and point count was last for less than or equal to 10 mins for each station. The quantitatively monitoring results were undertaken by experienced bird watchers. Photographic records were taken when possible.

4.6 Furthermore, during each survey (both transect and point counting), nests of ardeids and White-bellied Sea Eagles were counted by tracking the landing locations of the found species at Yeung Chau. Similar to the method mentioned above, active nests, determined by the presence of incubating adults or chicks, were counted directly from vantage points or along the edge of the colony. If they were invisible due to dense vegetation, their landing locations were recorded and repeated landings around the same location were considered as one nest.

Results & Observations

4.7 Bird counts were conducted on 14 July 2014. The species and number of birds observed, the nature of construction works within works area conducting during the impact monitoring visit were recorded. Also, weather condition and other noticeable activities occurring within the survey area were recorded. The data sheet showing the results was attached in **Appendix J**. The photographic records were attached in **Appendix K**.

4.8 A total of 37 and 1 individuals of Ardeids and White-bellied Sea Eagle were recorded respectively from the transect count and point count locations in the reporting month (**Table 4.1** refers).

Table 4.1 Number of Ardeids and White-bellied Sea Eagle recorded

Data of Survey	Abundance		Total number of birds	Nest of ardeids and White-Bellied Sea Eagles
	Ardeids	White-bellied Sea Eagle		
14 July 2014	37	1	38	1 (1 nest of White-Bellied Sea Eagles)

5. ENVIRONMENTAL AUDIT

Site Audits

5.1 Site audits were carried out by ET to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

5.2 Site audits were conducted by ET on 3, 10, 17, 24 and 31 July 2014. The details of observations during site audit can refer to **Table 5.2**.

Status of Environmental Licensing and Permitting

5.3 All permits/licenses obtained for the Project are summarized in **Table 5.1**.

Table 5.1 Summary of Environmental Licensing and Permit Status

Permit / License No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-419/2011/B	11/2/2014	N/A	Sediment Removal at Yim Tin Tsai (East) Fish Culture Zone: (a) A dredging operation within a Fish Culture Zone and relocation of existing fish rafts and setting up of temporary sites for the relocated fish rafts; (b) To remove seabed sediments at the Yim Tin Tsai (East) Fish Culture Zone for a depth of 2m.	Valid
Construction Noise Permit (CNP)				
GW-RN0043-14	7/2/2014	6/8/2014	Use of powered mechanical equipment for carrying out construction work at Yim Tin Tsai (East) Fish Culture Zone, Tai Po, N.T. during 0000 – 2400 hours on general holidays (including Sundays), 0000 – 0700 hours and 1900 – 2400 hours on any day not being a general holiday.	Valid

Permit / License No.	Valid Period		Details	Status
	From	To		
GW-RN0327-14	23/5/2014	6/8/2014	Use of powered mechanical equipment for carrying out construction work at Yim Tin Tsai (East) Fish Culture Zone, Tai Po, N.T. during 0000 – 2400 hours on general holidays (including Sundays), 0000 – 0700 hours and 1900 – 2400 hours on any day not being a general holiday.	Valid
Dumping Permit				
EP/MD/15-014	9/5/2014	8/6/2014	Under the Dumping at Sea Ordinance, authorizes the loading for dumping from Hong Kong and/or dumping in the sea of the materials described : Dredged Sediment Requiring: Type 1 – Open Sea Disposal Type 1 – Open Sea Disposal (Dedicated Site) Type 2 – Confined Marine Disposal	Expired
Waste Disposal (Chemical Waste)				
WPN : 5411-728-Z4027-01	26/7/2013	End of Project	Disposal of Chemical Waste including surplus diesel, paint, spent lubricating oil, solvent and batteries containing heavy metal.	Valid

Implementation Status of Environmental Mitigation Measures

5.4 According to the EIA Study Report, Environmental Permit and the Project Profile of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. A summary of the EMIS is provided in **Appendix G**.

5.5 During site inspection in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 5.2**. The summaries of site audits are attached in **Appendix H**.

Table 5.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
--	3/7/2014	No environmental deficiency was identified during the site inspection.	N/A
--	10/7/2014	No environmental deficiency was identified during the site inspection.	N/A
--	17/7/2014	No environmental deficiency was identified during the site inspection.	N/A
--	24/7/2014	No environmental deficiency was identified during the site inspection.	N/A
--	31/7/2014	No environmental deficiency was identified during the site inspection.	N/A

Summary of Exceedances

5.6 No exceedance of monitoring results was recorded in the reporting month. Summary of exceedance is provided in **Appendix F**.

Summary of Complaint and Prosecution

5.7 No environmental related complaint, prosecution or notification of summons was received in the reporting month.

5.8 There was no environmental complaint, prosecution or notification of summons received since the Project commencement. The Complaint Log is attached in **Appendix I**.

Status of Waste Management

5.9 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix L**.

6. FUTURE KEY ISSUES

6.1 The major construction activities in the coming month will include:

- N/A

7. CONCLUSIONS

Conclusions

7.1 Environmental monitoring and audit works were conducted in the reporting month. Site inspections were conducted on 3, 10, 17, 24 and 31 July 2014. The results were reviewed and checked.

7.2 No exceedance of monitoring results was recorded in the reporting month.

7.3 There was no environmental complaint, prosecution or notification of summons received.

Recommendations

7.4 According to the environmental audit performed in the reporting month and site activities in coming month , the following recommendations were made:

Dust Impact

- To prohibit any open burning on site.
- To regularly maintain the machinery and vessels on site.

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.

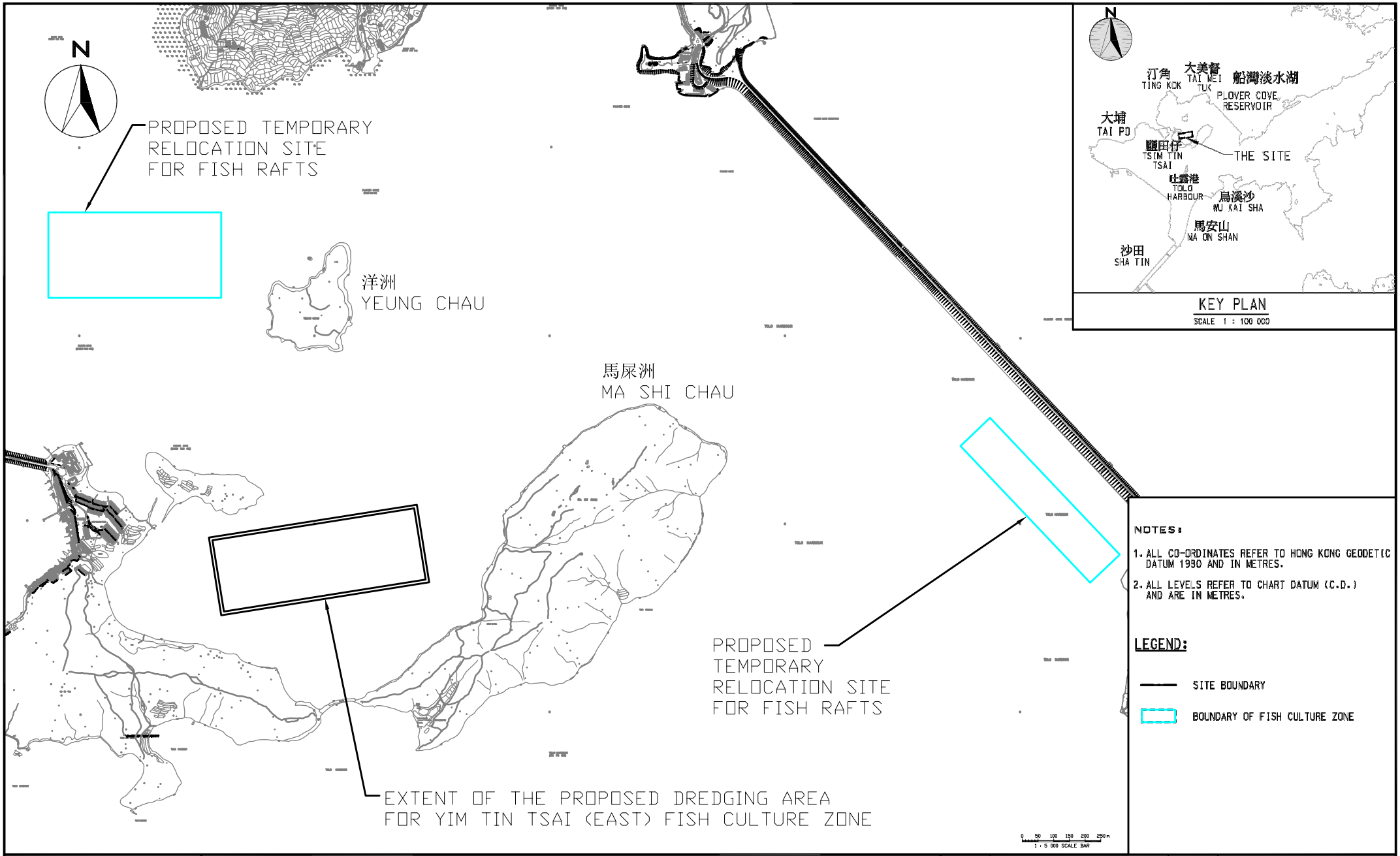
Water Impact

- To identify any wastewater discharges from site.

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

FIGURE(S)



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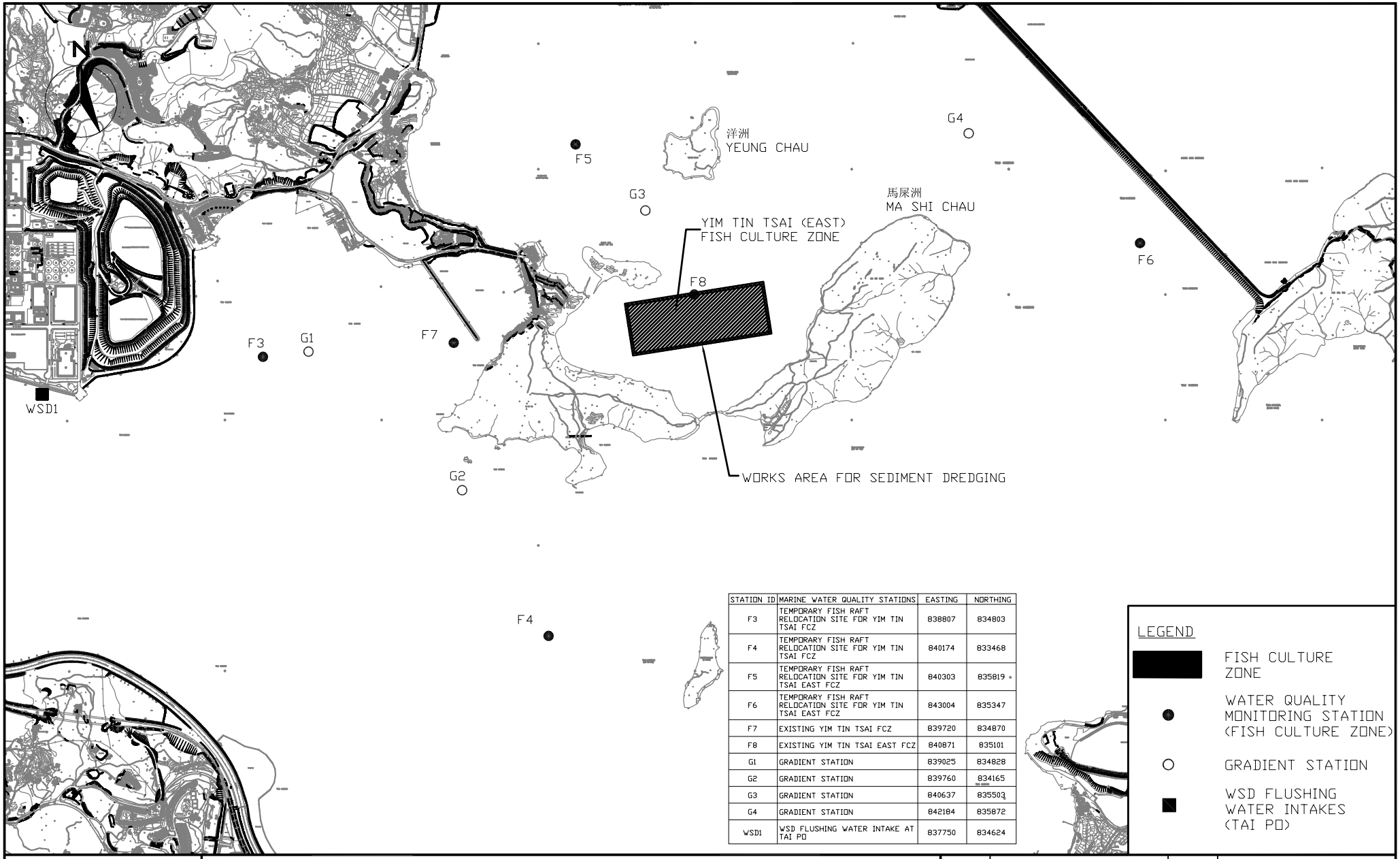
SEDIMENT REMOVAL AT YIM TIN TSAI (EAST) FISH CULTURE ZONE

SITE LAYOUT PLAN

SCALE	1:400 @ A4	DATE	DEC 2013
CHECK	IT	DRAWN	JW
JOB No.	MA13027	FIGURE NO. 1	REV –



STATION ID	MARINE WATER QUALITY STATIONS	EASTING	NORTHING
F3	TEMPORARY FISH RAFT RELOCATION SITE FOR YIM TIN TSAI FCZ	838807	834803
F4	TEMPORARY FISH RAFT RELOCATION SITE FOR YIM TIN TSAI FCZ	840174	833468
F5	TEMPORARY FISH RAFT RELOCATION SITE FOR YIM TIN TSAI EAST FCZ	840303	835819
F6	TEMPORARY FISH RAFT RELOCATION SITE FOR YIM TIN TSAI EAST FCZ	843004	835347
F7	EXISTING YIM TIN TSAI FCZ	839720	834870
F8	EXISTING YIM TIN TSAI EAST FCZ	840871	835101
G1	GRADIENT STATION	839025	834828
G2	GRADIENT STATION	839760	834165
G3	GRADIENT STATION	840637	835503
G4	GRADIENT STATION	842184	835872
WSD1	WSD FLUSHING WATER INTAKE AT TAI PO	837750	834624

LEGEND

- FISH CULTURE ZONE
- WATER QUALITY MONITORING STATION (FISH CULTURE ZONE)
- GRADIENT STATION
- WSD FLUSHING WATER INTAKES (TAI PO)

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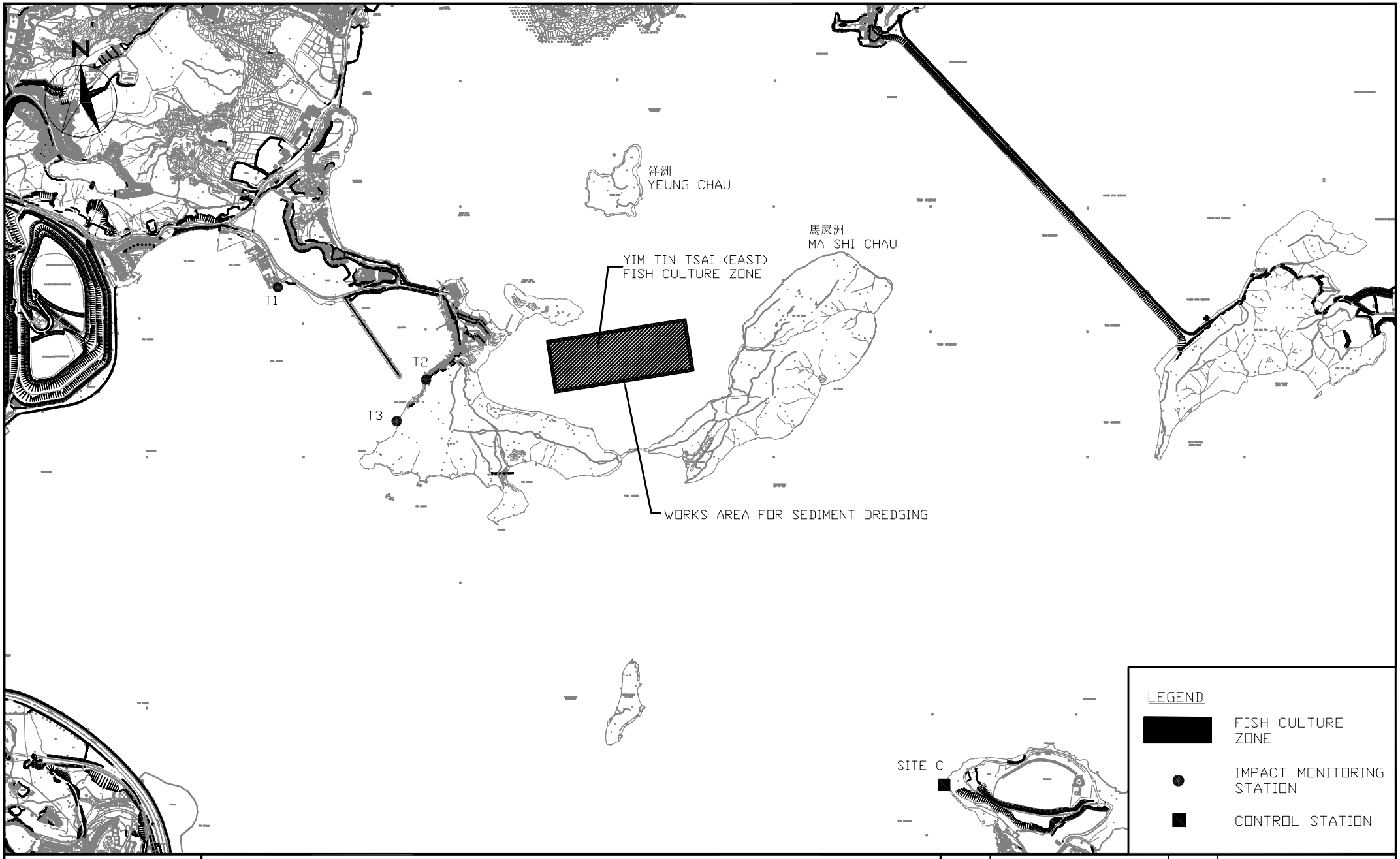
SEDIMENT REMOVAL AT YIM TIN TSAI (EAST) FISH CULTURE ZONE

LOCATION OF WATER QUALITY MONITORING STATIONS

SCALE	1:600	DATE	JUN 2013
CHECK	IT	DRAWN	JW
JOB No.	MA13027	FIGURE NO. 2	REV –



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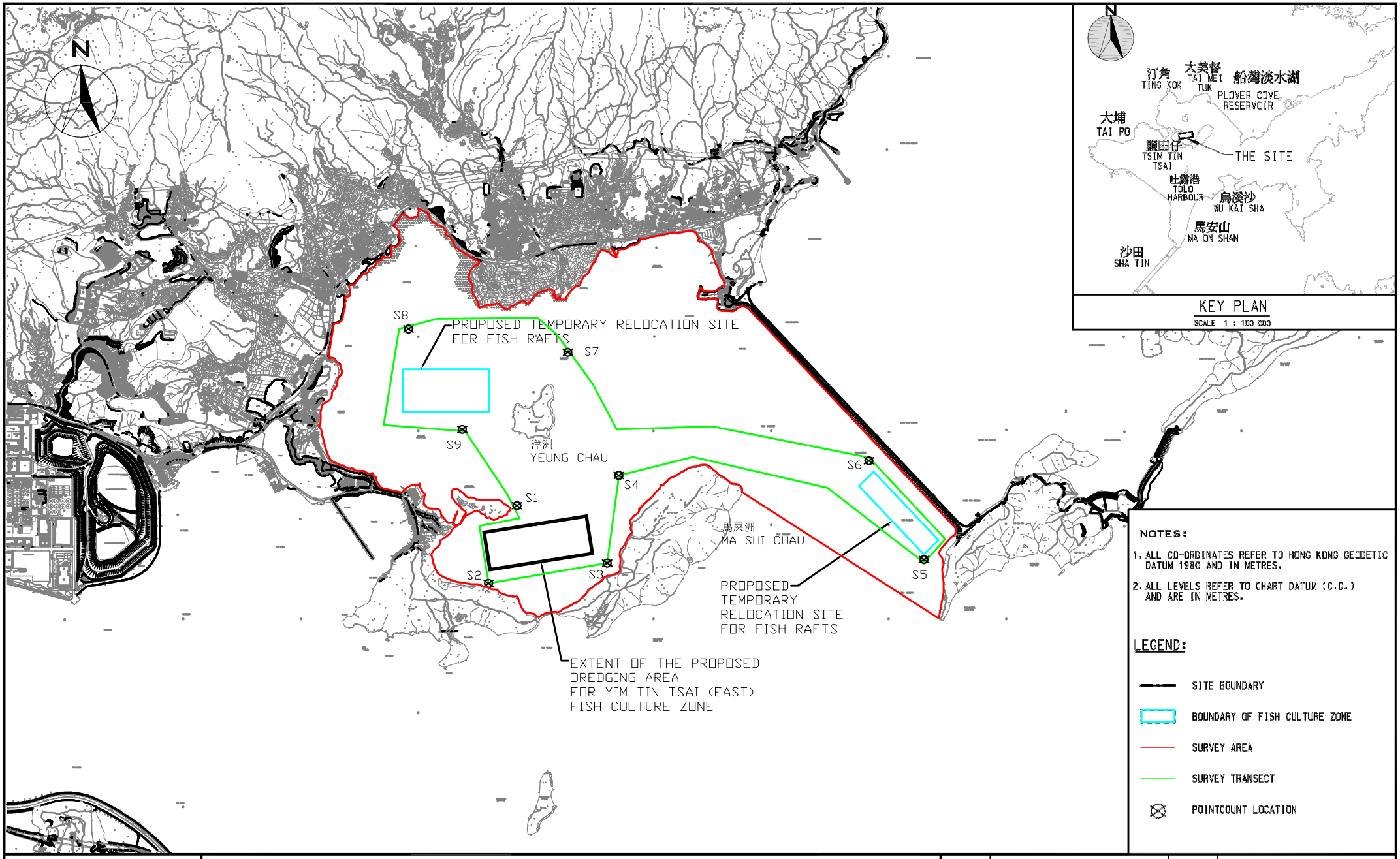
SEDIMENT REMOVAL AT YIM TIN TSAI (EAST) FISH CULTURE ZONE

LOCATION OF CORAL MONITORING STATIONS

SCALE	1:600	DATE	JUN 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13027	FIGURE NO. 3	REV –



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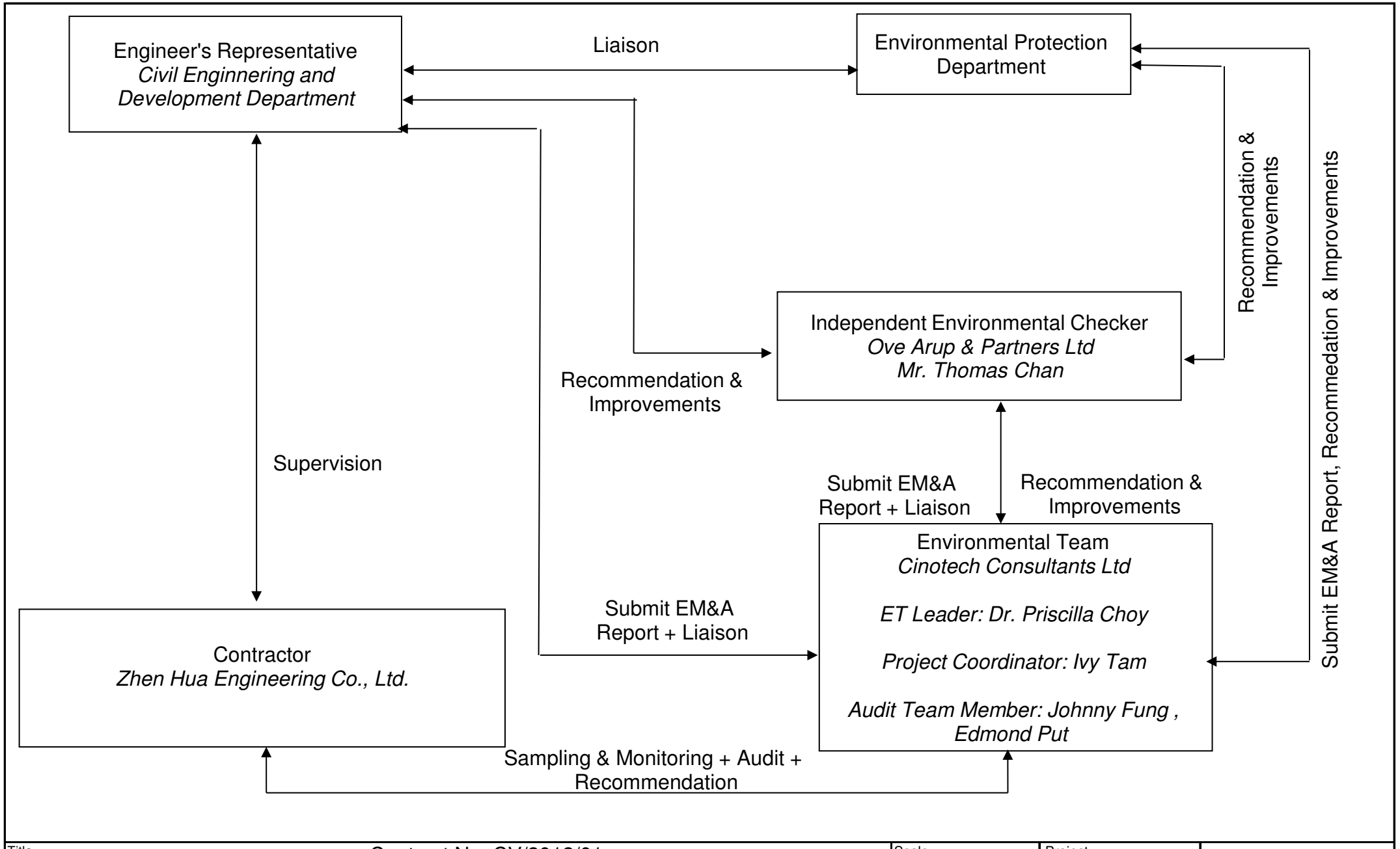
SEDIMENT REMOVAL AT YIM TIN TSAI (EAST) FISH CULTURE ZONE

SURVEY AREA, TRANSECT ROUTE AND POINT COUNT LOCATIONS OF BIRD COUNT

SCALE	1:800 @ A4	DATE	DEC 2013
CHECK	IT	DRAWN	JW
JOB No.	MA13027	FIGURE NO. 4	REV –



Title	Scale	Project
Contract No. CV/2012/01 Sediment Removal at Yim Tin Tsai (East) Fish Culture Zone Management Structure	N.T.S	No. MA13027
	Date: Apr-14	Figure: 5

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APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A

Guidelines for Establishment of Action and Limit Levels

Parameter (unit)	Action Level	Limit Level
DO in mg/L (See Note 1)	**For Stations F4 and F7** Surface or Mid-Depth 5 percentile of baseline surface / mid-depth data or <4mg/L Bottom 5 percentile of baseline bottom data or <2mg/L	**For Stations F4 and F7** Surface or Mid-Depth 1 percentile of baseline surface / mid-depth data or <4mg/L Bottom 1 percentile of baseline bottom data or <2mg/L
	For Stations F5, F6, F8 Surface or Mid-Depth 5 percentile of baseline surface / mid-depth data or <4mg/L Bottom 5 percentile of baseline bottom data or <3mg/L	**For Stations F5, F6, F8** Surface or Mid-Depth 1 percentile of baseline surface / mid-depth data or <4mg/L Bottom 1 percentile of baseline bottom data or <3mg/L
Turbidity in NTU (See Note 2)	95 percentile of baseline data	99 percentile of baseline data
SS in mg/L (See Note 2)	95 percentile of baseline data or 10mg/L	99 percentile of baseline data or 10mg/L
Copper in μg/L (See Note 2 and 4)	95 percentile of baseline data or 4.8μg/L	99 percentile of baseline data or 4.8μg/L
Zinc in μg/L (See Note 2 and 4)	95 percentile of baseline data or 40μg/L	99 percentile of baseline data or 40μg/L
Arsenic in μg/L (See Note 2 and 4)	95 percentile of baseline data or 25μg/L	99 percentile of baseline data or 25μg/L

Lead in mg/L (See Note 2 and 4)	95 percentile of baseline data or 25μg/L	99 percentile of baseline data or 25μg/L

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS and metals, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values of metals are based on the assessment criteria adopted under the water quality impact assessment (refer to Appendix B of Project Profile).

Calculated Action and Limit Levels for Water Quality

Parameter (unit)	Depth	Action Level			Limit Level		
		For Stations F4, F7 and G2	For Stations F5, F6, F8, G3 and G4		For Stations F4, F7 and G2	For Stations F5, F6, F8, G3 and G4	
DO in mg/L (See Note 1 and 4)	Surface	5.4mg/L	4.0mg/L		5.0mg/L	3.8mg/L	
	Middle	4.3mg/L	3.8mg/L		4.0mg/L	3.5mg/L	
	Bottom	2.2mg/L	For Stations F5, G3 2.2mg/L	For Stations F6, F8 and G4 2.8mg/L	1.9mg/L	For Stations F5, G3 1.8mg/L	For Stations F6, F8 and G4 2.4mg/L
Turbidity in NTU (See Note 2 and 4)	Depth-averaged	4.5NTU			4.7NTU		
SS in mg/L (See Note 2 and 4)	Depth-averaged	11.2mg/L			11.9mg/L		
Copper in μg/L (See Note 2 and 4)	Depth-averaged	8.0μg/L			8.4μg/L		
Zinc in μg/L (See Note 2 and 4)	Depth-averaged	22.0μg/L			26.4μg/L		
Arsenic in μg/L (See Note 2 and 4)	Depth-averaged	24.0μg/L			25.5μg/L		
Lead in mg/L (See Note 2 and 4)	Depth-averaged	1.0μg/L			1.0μg/L		

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS and metals, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Level for Coral Monitoring

Parameter	Action Level Definition	Limit Level Definition
Sedimentation	If during Impact Monitoring a 20% increase in the percentage of sediment cover on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of sediment cover occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.
Bleaching	If during Impact Monitoring a 15% increase in the percentage of bleaching (bleached white) on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of bleaching (bleached white) occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of partial mortality occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.

APPENDIX B
NOT USED

APPENDIX C
NOT USED

APPENDIX D
NOT USED

APPENDIX E
NOT USED

APPENDIX F
SUMMARY OF EXCEEDANCE

Exceedance Report

(A) Exceedance Report for Water Quality
(NIL in the reporting period)

(B) Exceedance Report for Coral Monitoring
(NIL in the reporting period)

APPENDIX G
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

Appendix G – Environmental Mitigation and Implementation Schedule

Project Stage / Location	Potential Environmental Impact	Mitigation Measure	Implementation Agent
Construction / Construction Site and along the dredged sediment transportation route	Air quality	(1) The dredged sediment placed on barge will be properly covered as far as practicable. (2) Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, will be adhered to during the construction period. (3) Ultra low sulphur diesel fuel should be used for all diesel-operated plants and equipment on-site.	Contractor
Construction / Construction Site	Construction Noise	(1) Only well-maintained plantswill be operated on-site and plants should be serviced regularly during the construction program. (2) Plants will be sited as far away from nearby NSRs as possible.	Contractor
Construction / Construction Site	Water quality impact	(1) Closed grab will be used for dredging to minimize release of fines and contaminants. (2) The maximum production rates as indicated in the approved Project Profile will be adopted for the proposed dredging activities. (3) Silt curtains will be deployed around the dredging operation. (4) Good site practices (as outlined in Section 5.7 above) will be adopted during dredging and during transportation and disposal of dredged sediments. (5) Discharge of sewage effluent into drainage and water environment is not allowed. Appropriate numbers of portable chemical toilets will be provided by a licensed contractor as necessary to serve the construction workers. (6) Collection and removal of floating refuse will be performed at regular intervals on a daily basis at or near the dredging sites. (7) Water quality monitoring will be undertaken before, during and after the dredging works	Contractor

Construction / Construction Site	Waste management	(1) Disposal of dredged sediment will follow the requirements and procedures specified under the ETWB TCW No. 34/2002. (2) All chemical wastes from equipment maintenance will be handled, stored and disposed of in accordance with the requirements of the Waste Disposal (Chemical Waste) Regulation. (3) General refuse will be stored and disposed of separately from general construction waste and chemical waste. The storage bins for general refuse will be provided with lids, which will be kept closed to avoid odour nuisance and wind blown litter. The general refuse would be removed regularly and disposed of to licensed landfills.	Contractor
Construction / Construction Site	Ecological impact	(1) Mitigation measures to control water quality, i.e. constriction of dredging rate, use of closed grab for dredging and deployment of silt curtains, proposed in the water quality impact assessment will be adopted. (2) Standard good site practice and management proposed in the water quality impact assessment, such as tight fitting seals to bottom openings of barges/dredgers, effective site drainage, and provision of chemical toilets will be adopted. (3) Good site practices on noise control proposed in the noise impact assessment will be adopted. (4) The health status of the nearby coral colonies will be regularly monitored during the construction phase	Contractor
Construction / Construction Site	Fisheries impact	(1) Mitigation measures to control water quality, i.e. constriction of dredging rate, use of closed grab for dredging and deployment of silt curtains, proposed in the water quality impact assessment will be adopted. (2) Standard good site practice and management proposed in the water quality impact assessment, such as tight fitting seals to bottom openings of barges/dredgers, effective site drainage, and provision of chemical toilets will be adopted.	Contractor
Construction / Construction Site	Visual impact	(1) All construction plants would be sited as far away from nearby shoreline as possible. (2) All the sediment removal works will be carried out in day time (7:00 to 19:00) to minimize the use of night-time lighting. (3) Lighting will be carefully controlled if required	Contractor

Construction / Construction Site	Cultural heritage impact	Antiquities and Monuments Office should be informed of any discovery of antiquities or supposed antiquities in the course of dredging work at all the Project sites in accordance with the Antiquities and Monuments Ordinance.	Contractor
Construction / Construction Site	Air quality, noise, water quality, ecology, fisheries, visual and cultural heritage	An environmental monitoring and audit programme as recommended in the approved Project Profile should be followed.	Contractor

Remarks: No environmental complaint was received in the reporting month.

APPENDIX H
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140703
Date	3 July 2014 (Thursday)
Time	14:30-16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140626), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put		3 July 2014
Checked by	Dr. Priscilla Choy		3 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140710
Date	10 July 2014 (Thursday)
Time	14:00-15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140703), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put		10 July 2014
Checked by	Dr. Priscilla Choy		10 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	10:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140710), all environmental deficiencies were observed to be improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Edmond Put		17 July 2014
Checked by	Dr. Priscilla Choy		17 July 2014

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	140724
Date	24 July 2014 (Thursday)
Time	14:30-15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140717), no environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		24 July 2014
Checked by	Ivy Tam		24 July 2014

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	140731
Date	31 July 2014 (Thursday)
Time	10:30-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	A. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	B. Ecology	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	G. Others	
	• Follow-up on previous site audit session (Ref. No. 140724), no environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Johnny Fung		31 July 2014
Checked by	Ivy Tam		31 July 2014

APPENDIX I
COMPLAINT LOG

Appendix I – Complaint Log

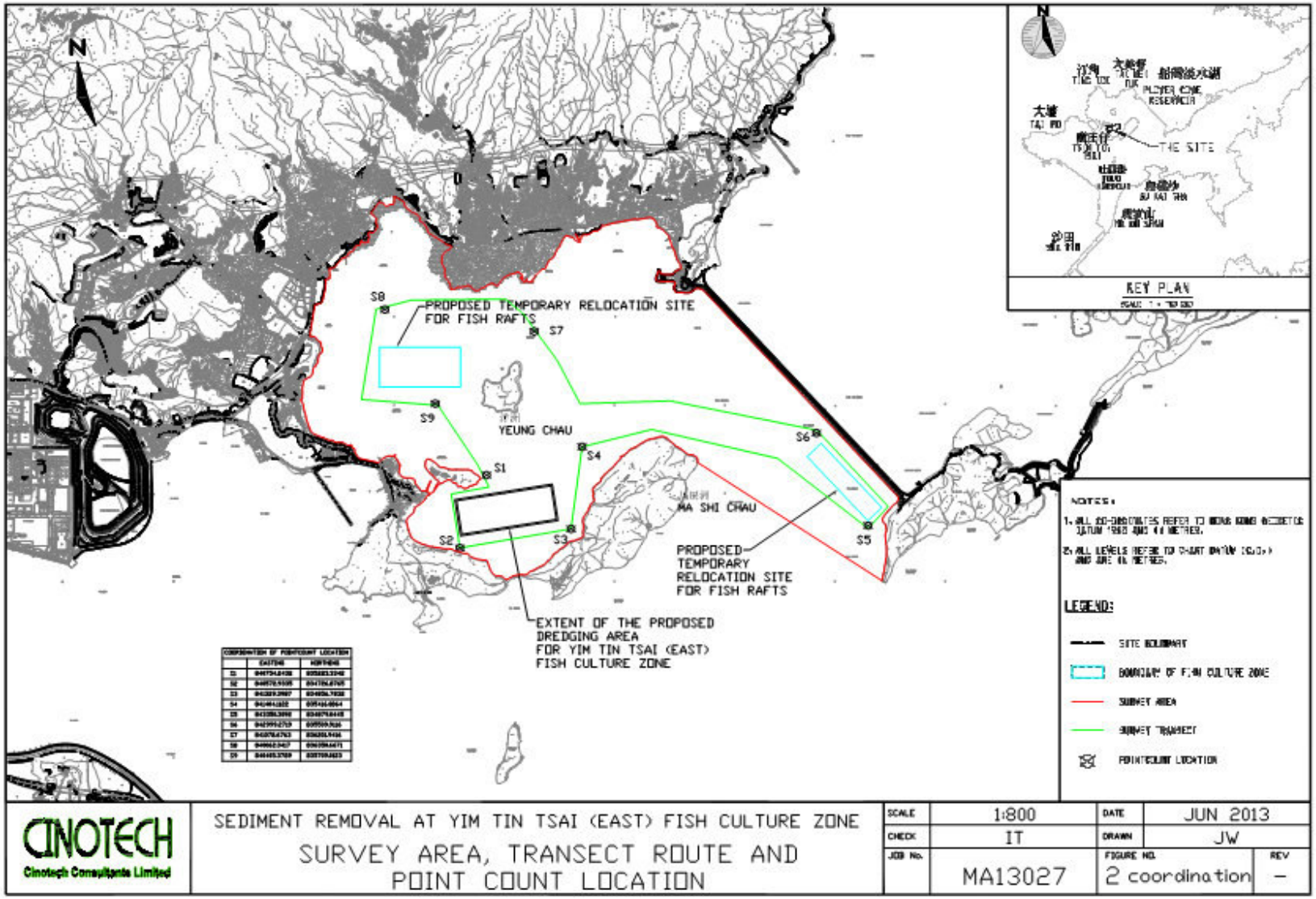
Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A	N/A

Remarks: No environmental complaint was received in the reporting month.

APPENDIX J
ARDEIDS AND WHITE-BELLIED SEA EAGLE MONITORING RESULTS

Appendix J - Ardeids and White-bellied Sea Eagle Monitoring Results

Date	Time	Location	Construction Works within Works Area	Weather Conditions	Observed Activities outside Works Area
14/07/14	6:15-8:40	• Point Count Location S1 – S9 • Survey Transect Route (Refer to figure below)	Not Observed	Sunny	Not Observed


N
S8
PROPOSED TEMPORARY RELOCATION SITE FOR FISH RAFTS
S7
S9
YEUNG CHAU
S6
S4
S1
MA SHI CHAU
S2
S3
S5
PROPOSED TEMPORARY RELOCATION SITE FOR FISH RAFTS
EXTENT OF THE PROPOSED DREDGING AREA FOR YIM TIN TSAI (EAST) FISH CULTURE ZONE
KEY PLAN
THE SITE
NOTES:
LEGEND:
SITE BOUNDARY
BOUNDARY OF FISH CULTURE ZONE
SURVEY AREA
SURVEY TRANSECT
POINT COUNT LOCATION
CINOTECH
Cinotech Consultants Limited
SEDIMENT REMOVAL AT YIM TIN TSAI (EAST) FISH CULTURE ZONE
SURVEY AREA, TRANSECT ROUTE AND POINT COUNT LOCATION
SCALE 1:800
DATE JUN 2013
CHECK IT
DRAWN JW
JOB No. MA13027
FIGURE NO. 2 coordination
REV –

Point count

Species	Point 1	Point 2	Point 3	Point 4	Point 5	Point 6	Point 7	Point 8	Point 9	Subtotal	Walk Transect
Ardeids											
● Great Egret	**4**	**3**	**7**	**0**	**0**	**1**	**1**	**2**	**0**	**18**	
● Little Egret	**2**	**1**	**4**	**0**	**1**	**0**	**3**	**5**	**2**	**18**	
● Grey Heron	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
● Chinese Pond Heron	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
● Night Heron	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	
White-bellied Sea Eagle	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	
No. of Birds at Each Point:	**6**	**4**	**12**	**0**	**1**	**1**	**5**	**7**	**2**	**38**	
No. of Birds recorded from Point Count:	**38**										

No. of Nests at Yeung Chau	Great Egret	Little Egret	Black-crowned Night Heron	Cattle Egret	White-bellied Sea Eagle	Other: (Specify) _____
	Not Observed				**1**	**Not Observed**

Transect Count

Species	Transect 1→2	Transect 2→3	Transect 3→4	Transect 4→5	Transect 5→6	Transect 6→7	Transect 7→8	Transect 8→9	Transect 9→1	Subtotal
Ardeids										**25**
● Great Egret	**4**	**3**	**4**	**0**	**0**	**0**	**3**	**1**	**1**	**16**
● Little Egret	**1**	**1**	**3**	**0**	**0**	**0**	**2**	**2**	**0**	**9**
● Grey Heron	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
● Chinese Pond Heron	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
● Night Heron	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
White-bellied Sea Eagle	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Summaries of total of Ardeids,, White-bellied Sea Eagles and Nests recorded each month

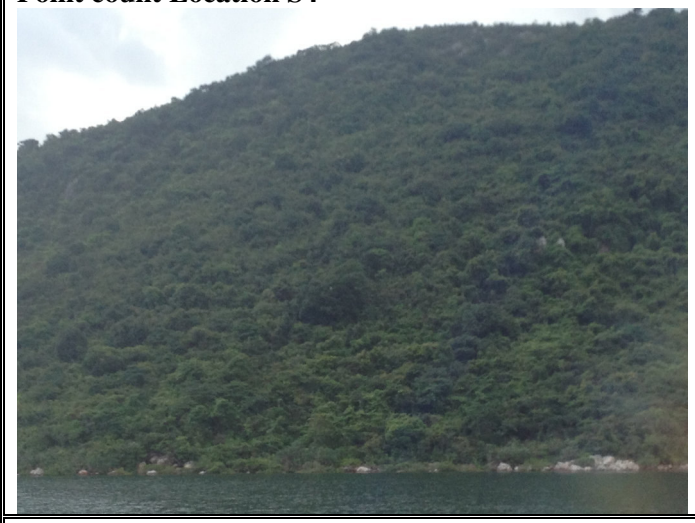
Species		Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014	April 2014	May 2014	Jun 2014	Jul 2014
Point count	Ardeids	54	45	46	39	34	36	64	28	37
	● Great Egret	36	17	17	13	14	11	12	18	18
	● Little Egret	14	18	15	21	10	22	50	8	18
	● Grey Heron	4	5	4	1	6	1	2	1	0
	● Chinese Pond Heron	0	4	10	2	4	1	0	0	0
	● Little Green Heron	0	1	0	0	0	0	0	0	0
	● Night Heron	0	0	0	0	0	0	0	1	1
	White-bellied Sea Eagle	2	2	1	2	0	2	1	1	1
	No. of Nests at Yeung Chau	0	1	1	1	1	1	1	1	1
Transect Count	Ardeids	56	43	40	31	32	14	13	10	25
	● Great Egret	25	21	18	19	15	7	8	4	16
	● Little Egret	26	18	16	9	11	5	4	3	9
	● Grey Heron	3	4	4	3	4	1	1	0	0
	● Chinese Pond Heron	2	0	2	0	2	1	0	0	0
	● Night Heron	0	0	0	0	0	0	0	3	0
	White-bellied Sea Eagle	0	0	0	0	0	0	0	0	0

APPENDIX K
PHOTOGRAPHIC RECORDS OF ARDEIDS AND WHITE-BELLIED SEA EAGLE MONITORING

Appendix K - Photographic records of Ardeids and White-bellied Sea Eagle Monitoring

Point count Location S1	**Point count Location S1**
	
Point count Location S2	**Point count Location S2**
	
Point count Location S3	**Point count Location S3**
	

Point count Location S4



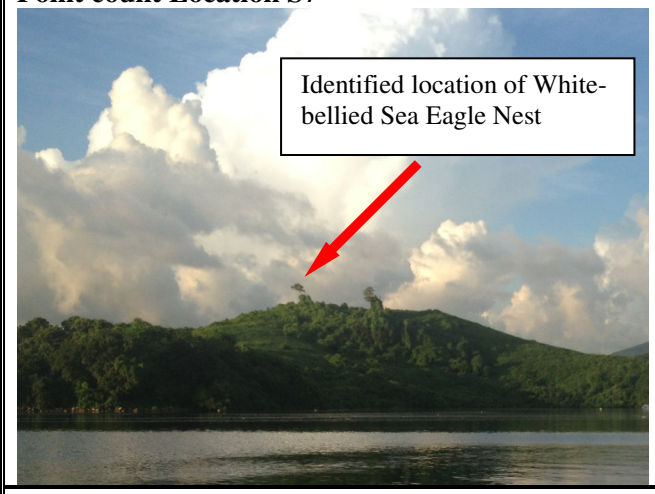
Point count Location S4

Point count Location S5

Point count Location S5

Point count Location S6

Point count Location S7



Point count Location S7

Point count Location S8

Point count Location S8

Point count Location S9

Point count Location S9

APPENDIX L
WASTE GENERATION IN THE REPORTING MONTH

Name of Department: ~~ArchSD~~/CEDD/~~DSD/EMSD/HyD/WSD~~ Contract No.: CV/2012/01

(Notes: The following Waste Flow Table should be used for contracts either not included under the Pay for Safety and Environment Scheme or exempted from the full requirement for environmental management)

Waste Flow Table

Quarter ending	Actual Quantities of Inert C&D Materials Generated Quarterly						Actual Quantities of C&D Wastes Generated Quarterly				
	Total Quantity Generated	Broken Concrete (see Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in'000 kg)	(in'000 kg)	(in'000 kg)	(in'000 kg)	(in'000m^3)
Oct-13	0	0	0	0	0	0	0	0	0	0	0
Nov-13	0	0	0	0	0	0	0	0	0	0	0
Dec-13	0	0	0	0	0	0	0	0	0	0	0
Jan-14	0	0	0	0	0	0	0	0	0	0	0
Feb-14	0	0	0	0	0	0	0	0	0	0	0
Mar-14	0	0	0	0	0	0	0	0	0	0	0
Apr-14	0	0	0	0	0	0	0	0	0	0	0
May-14	0	0	0	0	0	0	0	0	0	0	0
Jun-14	0	0	0	0	0	0	0	0	0	0	0
Jul-14	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(3) Broken concrete for recycling into aggregates.

Contract No.: CV/2012/01
Project Title: Sediment Removal at Yim Tin (East) Fish Culture Zone

Dumping Report Summary

Month/Year	Permit No.:	No. of Barge Load	Cumulative Barge Load	Dumping Quantity	Cumulative Dumping Quantity
02-09-2013 ~ 01-10-2013	EP/MD/14-032	0	0	0	0
09-12-2013 ~ 08-01-2014	EP/MD/14-081	4	4	2400	2400
09-01-2014 ~ 08-02-2014	EP/MD/14-115	50	54	30000	32400
09-02-2014 ~ 08-03-2014	EP/MD/14-132	32	86	19200	51600
09-03-2014 ~ 08-04-2014	EP/MD/14-145	65	151	39000	90600
09-04-2014 ~ 08-05-2014	EP/MD/14-159	71	222	42600	133200
09-05-2014 ~ 08-06-2014	EP/MD/15-014	74	296	44400	177600
09-06-2014 ~ 31-07-2014	N/A	0	296	0	177600

Contract No.: CV/2012/01

Project Title: Sediment Removal at Yim Tin (East) Fish Culture Zone

Dumping Report Summary

March_14	Quantity	April_14	Quantity	May_14	Quantity	June_14	Quantity	July_14	Quantity
1	1800	1	1800	1	1200	1	0	1	0
2	2400	2	0	2	1800	2	0	2	0
3	0	3	3000	3	0	3	0	3	0
4	1800	4	0	4	0	4	0	4	0
5	600	5	1800	5	3000	5	0	5	0
6	0	6	1200	6	0	6	0	6	0
7	0	7	0	7	0	7	0	7	0
8	0	8	1200	8	1800	8	0	8	0
9	2400	9	2400	9	600	9	0	9	0
10	0	10	1800	10	2400	10	0	10	0
11	0	11	2400	11	2400	11	0	11	0
12	1200	12	1200	12	1800	12	0	12	0
13	1800	13	3000	13	3600	13	0	13	0
14	1200	14	600	14	4200	14	0	14	0
15	1800	15	0	15	3600	15	0	15	0
16	1200	16	2400	16	3000	16	0	16	0
17	1800	17	1200	17	3000	17	0	17	0
18	1800	18	2400	18	3000	18	0	18	0
19	1200	19	1200	19	3000	19	0	19	0
20	0	20	1200	20	2400	20	0	20	0
21	0	21	600	21	3600	21	0	21	0
22	0	22	600	22	3600	22	0	22	0
23	0	23	1800	23	1200	23	0	23	0
24	1800	24	0	24	2400	24	0	24	0
25	1800	25	0	25	0	25	0	25	0
26	2400	26	1800	26	0	26	0	26	0
27	2400	27	2400	27	0	27	0	27	0
28	3000	28	1800	28	0	28	0	28	0
29	3000	29	3000	29	0	29	0	29	0
30	1200	30	3000	30	0	30	0	30	0
31	0			31	600				
Total	36600		43800		52200		0		0