



**CIVIL ENGINEERING AND  
DEVELOPMENT DEPARTMENT  
THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION**

**Sediment Removal at Sha Tau Kok  
Fish Culture Zone, Boat Shelter  
and Approach Channel**

**Project Profile**

April 2008

## Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel

### Contents

<b>1. Introduction</b> .....	P.3
<b>2. Basic Information</b> .....	P.3
2.1 Project Title .....	P.3
2.2 Purpose and Nature of the Project .....	P.3
2.3 Name of Project Proponent.....	P.3
2.4 Location of Project, Scale of Project and History of Site.....	P.4
2.5 Number and Types of Designated Projects to be covered by the Project Profile .....	P.5
2.6 Name and Telephone Number(s) of Contact Person(s).....	P.5
<b>3. Planning and Implementation Programme</b> .....	P.5
3.1 Planning and Implementation .....	P.5
3.2 Project Programme .....	P.5
3.3 Interaction with broader programme requirements or other projects.....	P.5
<b>4. Baseline Conditions</b> .....	P.6
4.1 Sediment Condition.....	P.6
4.2 Air Quality.....	P.6
4.3 Noise .....	P.6
4.4 Water Quality .....	P.7
4.5 Ecology.....	P.7
4.6 Fisheries.....	P.8
<b>5. Sensitive Receivers</b> .....	P.9
<b>6. Possible Impacts on the Environment</b> .....	P.9
(A) Construction Impacts .....	P.9
6.1 Air Quality.....	P.9
6.2 Noise .....	P.10
6.3 Water Quality .....	P.10
6.4 Waste .....	P.11
6.5 Ecology.....	P.11
6.6 Fisheries.....	P.11
6.7 Visual.....	P.12
(B) Operation Impacts .....	P.12

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

<b>7. Environmental Protection Measures and Further Environmental Implications.....</b>	<b>P.12</b>
7.1 Measures to Minimize Environmental Impacts.....	P.12
7.2 Possible severity, distribution and duration of environmental effects .....	P.13
7.3 Further Environmental Implications .....	P.13
7.4 History of Similar Projects, Public Consultation, Public Interest and Political Sensitivity .....	P.14
<b>8. Use of Previously Approved EIA Reports .....</b>	<b>P.14</b>
<b>9. References .....</b>	<b>P.14</b>

### **Appendices**

Appendix A	Drawing No. PW-MS07-014 - Location of the proposed site
Appendix B	Drawing No. PW-SK07-051 - Location of sensitive receivers
Appendix C	General Requirements of Fisheries Impact Assessment

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **1. Introduction**

Following the request by the Federation of Hong Kong Aquaculture Associations (FHKAA) to dredge sediments at fish culture zones (FCZs) in the North East New Territories in order to improve the fish farming environment, a priority list for removing sediment at the 26 FCZs in Hong Kong was prepared by Agriculture, Fisheries and Conservation Department (AFCD). Consultation on this list with the mariculturists' representatives was made at a meeting amongst FHKAA, AFCD and this office in May 2007. The representatives supported government to carry out EIA study as well as dredging works at the top five priority FCZs at Sha Tau Kok, Yim Tin Tsai (East), Yim Tin Tsai, Yung Shue Au and Po Toi O.

Also due to silting up at the Sha Tau Kok boat shelter and approach channel, it is necessary to remove the seabed sediment inside the Sha Tau Kok boat shelter as well as to deepen the approach channel in order to allow vessels to berth within boat shelter at low tide and to enhance navigational safety.

As the Sha Tau Kok FCZ, boat shelter and approach channel are in close vicinity of each other, within Sha Tau Kok Hoi, and have similar site conditions and environmental implications, inclusion of the boat shelter and approach channel in the EIA study for the FCZs will only involve minimal additional effort and cost, and is therefore justified on cost and efficiency grounds. This project profile is thus prepared for the sediment removal works at Sha Tau Kok FCZ, boat shelter and approach channel. The sediment removal works at the other 4 FCZs is dealt with under other separate project profiles.

### **2. Basic Information**

#### **2.1 Project Title**

Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel.

#### **2.2 Purpose and Nature of the Project**

To remove the organic enriched sediment at the seabed of the STK FCZ so as to improve the fish farming environment and to carry out dredging for the boat shelter and approach channel so as to enhance navigational safety.

#### **2.3 Name of Project Proponent**

Food and Health Bureau is the policy bureau for the dredging at the FCZ and Transport and Housing Bureau is the policy bureau for the dredging at the boat shelter and

## Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel

approach channel. The project proponent for the submissions under EIAO is Civil Engineering and Development Department (CEDD).

### 2.4 Location of Project, Scale of Project and History of Site

Sha Tau Kok is a rural area located at the border with Mainland. There is no polluting industry in the area. The community in the area is generally a residential area with a few restaurants. The Sha Tau Kok FCZ was gazetted on 29 January 1988. The boat shelter was constructed in 1988 and according to records, no dredging had been carried out to the boat shelter and approach channel. The recently completed relocated Sha Tau Kok Public Pier was open to public use in October 2006.

The location of STK FCZ, boat shelter and approach channel is as shown in Appendix A, which also shows the gazetted boundary of Sha Tau Kok FCZ.

The proposed dredging area for FCZ is beneath the gazetted zone area of the Sha Tau Kok FCZ. The boundaries of the area to be dredged will extend out beyond the boundary of the fish culture zone depending on consideration of slope stability as well as the extent the organic pollutants (excessive trash fish feed) that may deposit beyond the zone area. Depths of sediment to be dredged will be determined at the EIA stage based on the sediment testing to be carried out. For the purpose of the EIA study, the dredging area is taken to extend beyond the gazetted boundary of the FCZ as shown in Appendix A for a distance of 10m.

The areas for the proposed dredging to be carried out for the boat shelter and approach channel are also shown in Appendix A. To maintain sufficient navigation depth, dredging at the boat shelter and approach channel will be carried out to level of -1m CD.

The dredging area and the preliminarily estimated dredging volume for the three areas are as follows:

Item	Dredging Area (m <sup>2</sup> )	Sediment Volume (m <sup>3</sup> )
FCZ*	191,000	212,000
Boat Shelter	7,360	4,000
Approach channel	90,000	50,000
	Total volume	266,000

\* The gazetted zone area of Sha Tau Kok FCZ is 180,000 m<sup>2</sup>.

Note: The sediment volume at FCZ is estimated assuming the dredging depth is 1.1m and the gradient of dredging profile to be 1 on 3. The sediment volume at the boat shelter and approach channel is estimated assuming dredging will be carried out to level of -1m CD.



## **4. Baseline Conditions**

### **4.1 Sediment Condition**

Wu et al (1994)<sup>1</sup> showed that mariculture activities in four FCZs in Hong Kong (Ma Wan, Sok Kwu Wan, Yung Shue Au & Tap Mun) using trash fish for feeding generated a very high organic and nutrient loading and caused severe but localised organic pollution to the marine environment. High organic enrichment of the bottom sediment was indicated by the relative high value of sediment oxygen demand, hydrogen sulphide concentration, total organic matter and total organic nitrogen compared with the control areas. The diversity of benthic animal areas which serves as a good indicator for organic pollution is also reduced in the study.

A review of previous work at STK has indicated that sediment testing had been carried out at STK FCZ and STK boat shelter in March 2002 and July 2005 respectively but not at the approach channel to the boat shelter. However the parameters tested and documented are considered by EPD not adequate for determining the level of contamination of the sediment.

A sediment sampling and quality study will be carried out during the EIA stage to classify the sediment grade for disposal purpose and to determine the appropriate water quality parameters to be monitored in the environmental monitoring and audit (EM&A) programme to be prepared as well as to determine the depth of organic enriched sediment to be removed. The data assessment, the sampling and testing procedures, the biological test criteria, and the submission requirements to EPD shall be in accordance with DEVB TCW 34/2002.

### **4.2 Air Quality**

The sites at STK Hoi are situated in a rural area with no polluting industry in the vicinity. Air pollution is mainly attributable to emissions from the kaito service using the STK Public Pier and the small P4 vessels in use by the fishermen and the impact is considered to be minimal.

### **4.3 Noise**

Similarly with air quality, the main source of noise comes from kaito and small P4 vessels. As the area is a Frontier Closed Area, entry permits to the area are required. As such, noise generated from vehicles is expected to be minimal.

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<sup>1</sup> Wu, R.S.S., K.S. Lam, D. W. MacKay, T.C. Lau, V. Yam (1994) Impact of Marine Fish Farming on Water Quality and Bottom Sediment: A Case Study in the Sub-tropical Environment. *Marine Environmental Research* 38:115-145

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **4.4 Water Quality**

The seabed sediments at the STK Hoi are potentially rich in biological pollutants, such as cysts of red-tide organisms and fish parasites, as well as other chemicals used in fish culture activities. Results of the EPD water quality monitoring within STK Hoi indicated high concentration of chlorophyll-a during spring/early summer seasons. Disturbance of the seabed will release nutrients and red-tide cysts, either at the dredging sites or disposal site, and could trigger or worsen the spreading of red tides. According to AFCD, nine red tide incidents were recorded at STK Hoi from 2001 to 2005, including four incidents in 2001, one incident in 2003, three incidents in 2004 and one incident in 2005.

According to the findings of the Mirs Bay Water Quality Regional Control Strategy Joint Study Final Report, pollutant assimilation and dispersion within STK Hoi were low. The stratification of water column due to the formation of halocline and thermocline has been observed in the water of STK Hoi during spring/early summer seasons. Associated with this water column stratification is the formation of a bottom hypoxia (or sometimes anoxia) water layer. Dredging of organic enriched sediment during such time will increase oxygen demand of the water column and thus intensify the oxygen depletion situation in the embayed water body. The relocated raft could be another source of nutrient enrichment if trash fish feeding (instead of pellet feed) is continued during the relocation stage.

There are some seawall outfalls discharging surface run-off directly to the sea. The discharges may carry dirt and rubbish which are considered as a source of pollution. There is also an existing submarine outfall at STK Hoi for discharging treated effluent from the STK Sewage Treatment Works located in the vicinity.

There is an existing nullah to the east of the STK Public Pier. This nullah carries wastewater discharged from shops and restaurants in Chung Ying Street directly to the sea.

Assessment of potential water pollution during construction stage taking into account the above considerations should be conducted in order to address the cumulative water quality impact and propose mitigation measures.

### **4.5 Ecology**

According to previous studies, high valued corals were found in the coastline of Kat O, horseshoe crab at the coastline of STK Hoi and coral communities at the mouth of STK Hoi. Most of the coastline along Wu Shek Kok, to Pok Tau Ha and to Kai Kuk Shue Ha is Coastal Protection Area and Conservation Area noted for its mangrove community and mud flats. The impacts of dredging on these nearby sensitive receivers including coastal areas, mud flats, mangrove strands and intertidal mud flats



## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

particularly in close vicinity of the proposed dredging works need to be assessed. The dredging may affect the other fish culture zones at the North East New Territories (e.g. Ap Chau, Kat O, O Pui Tong, etc) and these should also be considered as sensitive receivers.

Based on the Biodiversity Study conducted by the University of Hong Kong, the mudflat areas in the areas are important habitats frequented by egrets and migratory birds as well as main feeding grounds of Great Egret and Little Egret nesting on A Chau and Yim Tso Ha Egretty SSSIs, which are located at a distance of about 1.5km from the nearest dredging site at STK Fish Culture Zone. The proposed dredging works can impose change to seabed bathymetry; and the subsequent natural siltation process could impose sediment transportation from the nearby mud flats to the basin formed by dredging.

Subject to detailed ecological impact assessment, the key areas of ecological concern may include the SSSIs and Coastal Protection Area and Conservation Area mentioned above. Other habitats which may be of potential ecological concern include intertidal and subtidal marine habitats including coral and marine benthic communities shall be subject to further field investigation and survey.

### **4.6 Fisheries**

The proposed dredging site is in the vicinity of identified nursery areas and spawning ground of commercial fisheries resources, including high value fish fry, e.g. *Chrysophrys major*, *Acanthopagrus spp.* and *Lutjanus spp.*<sup>2</sup> Larval and juvenile fish are very sensitive to suspended solids and free ammonia in water. Increase in suspended solids level above the ambient levels could also be harmful to sessile invertebrates.

The dredging will also cause a temporary loss of fishing ground and the baseline condition in relation to capture fisheries importance around the project area (e.g. fisheries production) should be assessed according to the latest information (e.g. AFCD's Port Survey 2006).

The fish rafts at the FCZ will be relocated to the temporary relocation site at STK Hoi as shown in Appendix A. The relocated raft could be another source of nutrient enrichment if trash fish feeding (instead of pellet feed) is continued during the relocation stage. The effect of the dredging activities on the relocated rafts will need to be assessed.

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<sup>2</sup> Environmental Resources Management (1998). Fisheries Resources and Fishing Operations in Hong Kong Waters. Report to the Agriculture and Fisheries

## **5. Sensitive Receivers**

Sensitive receivers with potential ecological impacts include intertidal and subtidal marine habitats within the assessment area, A Chau and Yim Tso Ha Egrettry SSSI as well as the Coastal Protection Area and Conservation Area noted for their mangrove communities, mud flats found along most of the coastline of STK Hoi from Wu Shek Kok to Pok Tau Ha and to Kai Kuk Shue Ha.

The dredging may affect the other fish culture zones at the North East New Territories (e.g. Ap Chau, Kat O, O Pui Tong, etc) and these should be considered as sensitive receivers, which should also include the nursery areas, spawning grounds and relocated rafts mentioned in section 4.6. Locations of the sensitive receivers are shown in Appendix B.

The volume of dredged sediment is estimated to be 266,000 m<sup>3</sup>. Given the STK Hoi is a semi-enclosed waterbody with relatively low water flow velocity, it is expected that impacts on far field sensitive receivers is not significant. However, a detailed water quality impact assessment including sediment plume modelling and hydrodynamic assessment should be conducted during the EIA stage to verify the anticipated localised impact.

The area around the dredging works are generally residential with residents sensitive to noise and air quality impacts from the barges and dredging plants, which will need to be assessed during the EIA stage.

There are some seawall outfalls discharging surface run-off directly to the sea. There is an existing submarine outfall at STK Hoi for discharging treated effluent from the STK Sewage Treatment Works located in the vicinity. There is also an existing nullah to the east of the STK Public Pier. However the discharges from these installations will not be sensitive to the dredging works at the proposed sites.

## **6. Possible Impacts on the Environment**

Possible impacts on the environment at both the construction and operation stages are outlined in the following sections.

### **(A) Construction Impacts**

#### **6.1 Air Quality**

Air quality impact include emissions from barges and dredging plant as well as the odour smell arising from loading of the grabbed sediment onto the barges. The magnitude of the impacts shall be determined at the EIA stage.

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **6.2 Noise**

Noise impact during the construction phase will be predominated by construction noise generated from the dredging plant and the loading operation of the grabbed sediment onto the barges. The noise generated by the engine of the plant is also a concern. In order to alleviate the potential noise impact, noise mitigation measures such as use of quiet plant and construction method, site hoarding and good site practice are recommended. It is expected that the plant noise will not be significant if appropriate mitigation measures are implemented.

### **6.3 Water Quality**

During the dredging process, the main environmental impacts will be the increase in turbidity and the resuspension of the organic enriched sediment and heavy metals if any in water column, and the decrease of dissolved oxygen in water. Given the STK Hoi is a semi-enclosed waterbody with relatively low water flow velocity and dispersive ability, it is envisaged that the water quality impact caused by dredging would likely be localised and would not have the potential to adversely affect the nearby sensitive receivers. Good site practices by installing site curtain around the dredging grab to prevent dispersion of the disturbed sediments resulting from dredging should be undertaken. Silt curtain should also be installed near sensitive receivers where considered necessary in order to protect these sensitive receivers from the adverse impact arising from the dredging activities. It is recommended that sediment plume modelling and hydrodynamic assessment should be performed during the EIA stage to ascertain the degree of adverse impact on sensitive receivers including far field coral sites e.g. high valued corals at Kat O coastline arising from the proposed dredging activities.

The disturbance of high organic and nutrient enriched sediment may coincide with the peak of red tide formation if the work is not properly scheduled, and trigger or worsen the spreading of red tides. The proposed dredging should be carried out at less sensitive time of the year.

No works shall be carried out within Mainland waters. Mitigation measures shall be implemented in Hong Kong waters where necessary to ensure that there is no adverse impact to Mainland waters. In this regard communication and liaison with Mainland authority such as the Hong Kong and Macau Affairs Office of the State Council through proper channels on mitigation measures to be provided shall be carried out during the EIA stage.

To shorten the period of disturbance to the sensitive receivers and the environment during dredging, it is important that the dredging operation should be carried out within shortest possible time. However the maximum number of grab dredgers that can be employed at any one time, the dredging sequence and the average dredging

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

rate each day will need to be determined at the EIA stage such that the cumulative adverse impact to the environment from the dredging activities will be reduced to an acceptable level.

### **6.4 Waste**

As the project mainly involves dredging, oil spillage into the sea from the dredging plant and engine is a possible source of pollution. To prevent such an occurrence, the workers are required to carry out regular checks of the working condition of the engine and to carry out the clean-up work regularly to prevent oil spill. Throughout the construction period, general refuse such as food scraps, paper and empty containers, will also be generated from the workforce. It is necessary to educate the workers not to throw such rubbish into the sea after consumption. However, the impact arising from these wastes is expected to be minimal.

The procedure for seeking approval to dredge/excavate sediment in particular the rationale for dredging and the management framework for marine disposal of such sediment shall be in accordance with DEVB TCW No. 34/2002. The locations of disposal sites for uncontaminated mud and contaminated sediments will be determined by Marine Fill Committee accordingly.

### **6.5 Ecology**

Dredging operation will increase the turbidity and concentration of suspended solids and will release contaminated heavy metals if any into water. The dissolved oxygen will also decrease. The change in water quality parameters as a result of dredging will have potential impacts on the marine ecology in STK Hoi. Noise generated from the construction activities may disturb the animals, particularly the birds and egrets in the nearby areas. In order to assess the degree of these potential impacts arising from the proposed dredging works, a detailed ecological impact assessment should be carried out during the EIA stage so as to assess the impacts on wildlife, coral sites and nearby natural habitats including intertidal and subtidal marine habitats, and formulate appropriate mitigation measures to avoid or minimise any adverse impacts identified.

### **6.6 Fisheries**

The dredging may increase the level of suspended solids, release nutrient to the sea, precipitate the on-set of red tides with consequential effects on the fish nursery and spawning grounds in the area as well as capture and culture fisheries. In order to assess the degree of these potential impacts arising from the proposed dredging works, a detailed fisheries impact assessment should be carried out during the EIA stage so as to assess the impacts on capture and culture fisheries, and formulate appropriate mitigation measures to avoid or minimise any adverse impacts identified.

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **6.7 Visual**

Since the proposed dredging works are to be carried out at sea, no possible visual impact is envisaged.

### **(B) Operation Impacts**

The proposed dredging works involves only the deepening of the seabed, as such no operation impacts are envisaged.

## **7. Environmental Protection Measures and Further Environmental Implications**

### **7.1 Measures to Minimize Environmental Impacts**

The various measures necessary to mitigate the impacts identified in Section 6 will be formulated during the EIA stage after detailed assessment of these impacts. In addition the following standard measures and good site practices will also be implemented during the works:

- Use of quiet plant and construction method, site hoarding and good site practices will be adopted to alleviate potential noise nuisance;
- Construction wastes should be sorted, stored, transported and disposed of separately;
- Mechanical grabs shall be designed and maintained to avoid spillage and to seal tightly while being lifted;
- All vessels shall be sized that adequate clearance is maintained between vessels and the seabed at all tides to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
- Good site practices during marine works to ensure no visible foam, oil, grease, scum, litter, or other objectionable matter be present in the waters within the Site or dumping grounds;
- Barges and grab dredgers shall be fitted with tight-fitting seals to their bottom openings to prevent leakage of material;
- Excess materials shall be cleaned from the decks and exposed fittings of barges and grab dredgers before the vessel departs;
- Loading of barges and grabs shall be controlled to prevent spillage of dredged materials into surrounding waters, and barges or grabs shall not be filled to a level that will cause overflowing of materials or polluted water during loading or transportation;
- Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action;
- Silt curtains are to be installed where necessary to protect sensitive receivers identified at the dredging sites;

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **7.2 Possible severity, distribution and duration of environmental effects**

The environmental impacts caused by the project should be short-termed and localized. No severe and long-term effect to the nearby sensitive receivers is envisaged. By removal of the bottom sediment, water quality will be improved with beneficial effects to benthic habitats. Suitable mitigation measures shall be implemented in Hong Kong waters where necessary to ensure no adverse transboundary effects to Mainland waters.

### **7.3 Further Environmental Implications**

From Sections 4 and 6, the following studies will be carried out to further evaluate the environmental implications of the project and to recommend mitigation measures:

- Sediment plume modelling and hydrodynamic assessment shall be performed to ensure that the the nearby sensitive receivers including mangroves, mudflats, A Chau and Yim Tso Ha Egrettry SSSI, Coastal Protection Area and Conservation Area, corals at Kat O and other sensitive ecological habitats/species identified in the course of the study will not be adversely affected;
- Existing information regarding the study area shall be reviewed. Based on the review results, data gap shall be identified and the need for any field surveys shall be determined. If field surveys are considered necessary, recommendations shall be made on methodology, duration and timing for the surveys;
- Field investigation/survey and ecological impact assessment on intertidal and subtidal marine habitats such as coral and marine benthic communities should be carried out;
- Field investigation/survey and fisheries impact assessment on the area. The requirements of fisheries impact assessment are given in Appendix C.
- Assess the ecological importance of the STK Hoi including areas in the vicinity of the mouth of the bay, particularly coral communities, fish spawning and nursery grounds;
- Demonstrate the dredging works will not precipitate the seeding of red tide or cause significant deoxygenation of bottom layers by a robust quantitative assessment including simulation of suspended solids dispersion, change in daily sedimentation rate, dissolved oxygen depletion and nutrient enrichment, assessment of dispersion of trace pollutants in case the sediments are contaminated;
- Assess the environmental acceptability of the relocation site and the relocation activities;
- Give consideration to carry out the dredging works at less sensitive time of the year;
- A robust EM&A programme including water sampling for evidence of nutrient release, chlorophyll build up and bottom layer oxygen depletion in the vicinity of the proposed sites; ecological monitoring to be included depending on the findings of the ecological impact assessment;

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

- The procedure for seeking approval to dredge sediment and management framework for marine disposal of such sediment shall follow the requirements of DEVB TC(W) No. 34/2002 including carrying out sediment sampling and testing.

### **7.4 History of Similar Projects, Public Consultation, Public Interest and Political Sensitivity**

It is noted that a similar sediment removal exercise for two FCZs at Cheung Sha Wan and Sham Wan was conducted in 1998.

A priority list for removing sediments at the 26 fish culture zones (FCZs) in Hong Kong has been prepared by the Agriculture, Fisheries and Conservation Department (AFCD). AFCD and Civil Engineering and Development Department (CEDD) consulted mariculturists' representatives on this list in May 2007. The representatives supported government to carry out dredging works at the top five priority FCZs at Sha Tau Kok, Yim Tin Tsai (East), Yim Tin Tsai, Yung Shue Au and Po Toi O after conducting an environmental impact assessment (EIA) study.

Consultation on the proposed dredging works with North District Council and the STK District Rural Committee will be made during the EIA stage.

Consultation with the green groups will be made during the EIA stage.

This is a Designated Project under the EIAO as confirmed by DEP. We undertake to comply with the EIAO requirements and to obtain an environmental permit for the project. Through the EIA process, public opinions and comments will be taken into consideration in the overall planning, design and construction of the project.

Public interest and political sensitivity, especially from green groups, are expected.

## **8. Use of Previously Approved EIA Reports**

As there has been no designated project undertaken in the vicinity, no previously approved EIA report can be used.

## **9. References**

Project profile for direct Environmental Permit Application No. DIR 003/1998 – “Removal of Sediment in Lo Tik Wan, Sok Kwu Wan and Cheung Sha Wan Fish Culture Zones”, August 1998.

Project profile for direct Environmental Permit Application No. DIR 013/1998 – “Removal of Sediment in Sham Wan and Kau Sai Fish Culture Zones”, December 1998.

## **Sediment removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel**

### **Appendix C** **General Requirements of Fisheries Impact Assessment**

1.1 The Applicant shall follow the criteria and guidelines for evaluating and assessing fisheries impact as stated in Annexes 9 and 17 of the Technical Memorandum on EIA Process.

1.2 The assessment area for fisheries impacts shall in general be the same as that for the water quality impact assessment, and include any areas likely to be affected by the project.

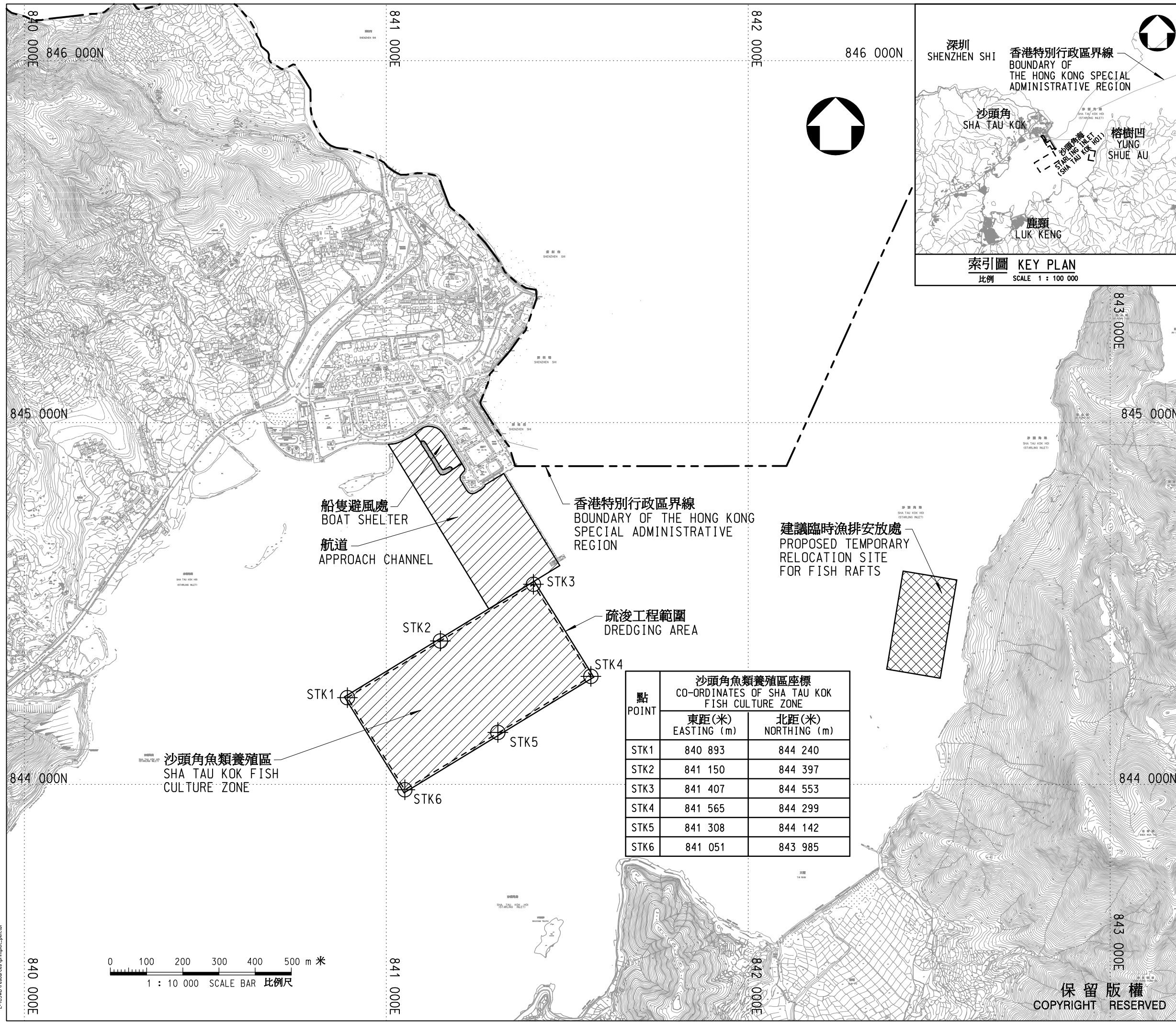
1.3 The assessment shall cover any potential impacts on both capture and culture fisheries from the Project.

1.4 Existing information regarding the study area shall be reviewed. Based on the review results, data gap shall be identified and the need for any field surveys shall be determined. If field surveys are considered necessary, recommendations shall be made on methodology, duration and timing for the surveys.

1.5 The fisheries impact assessment shall include the following tasks:

- (i) describe the physical environmental background;
- (ii) describe and quantify the existing capture and culture fisheries activities;
- (iii) describe and quantify the existing fisheries resources (e.g. major fisheries products and stocks);
- (iv) identify parameters (e.g. water quality parameters) and areas of fisheries importance that will be affected by the project;
- (v) identify and quantify as far as practicable any direct and indirect, onsite and offsite impacts on fisheries (e.g. loss of fishing ground and water quality deterioration in fish culture zones at the North East New Territories);
- (vi) evaluate the impacts, and make recommendations for environmental mitigation measures with details on justification, feasibility, scope and programme, as well as staff and financial implications including those related to subsequent management and maintenance requirements of such recommendations; and
- (vii) review the need for monitoring and, if necessary, recommend a monitoring and auditing programme.





**注釋 NOTES**  
所有尺寸均以米為單位。  
1. ALL DIMENSIONS ARE IN METRES.  
所有座標均指1980年香港大地基準並以米為單位。  
2. ALL CO-ORDINATES REFER TO HONG KONG GEODETIC DATUM 1980 AND ARE IN METRES.

**圖例: LEGEND:**

- 憲報公布的魚類養殖區  
GAZETTED FISH CULTURE ZONE
- 香港特別行政區界線  
BOUNDARY OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
- 建議進行的疏浚工程範圍  
PROPOSED DREDGING AREAS
- 建議臨時漁排安放處  
PROPOSED TEMPORARY RELOCATION SITE FOR FISH RAFTS

編號 no.	日期 date	說明 description	核對 checked	核准 approved
<b>修訂 REVISION</b>				
		姓名 name	簡簽 initial	日期 date
設計 designed		P L FUNG	SIGNED	1.4.08
繪畫 drawn		S P LEUNG	SIGNED	1.4.08
摹描 traced		S P LEUNG	SIGNED	1.4.08
核對 checked		S K TONG	SIGNED	1.4.08
核准 approved				
		SIGNED (W L LAU) 總工程師 Chief Engineer 日期 date : 1.4.08		

合約編號 contract no.

檔案編號 file no.

工程編號 project no.

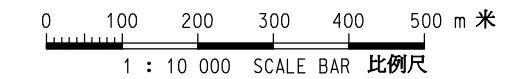
合約 contract

名稱 drawing title  
清除沙頭角魚類養殖區、  
船隻避風處及航道沉積物工程  
SEDIMENT REMOVAL AT SHA TAU KOK FISH CULTURE ZONE, BOAT SHELTER AND APPROACH CHANNEL

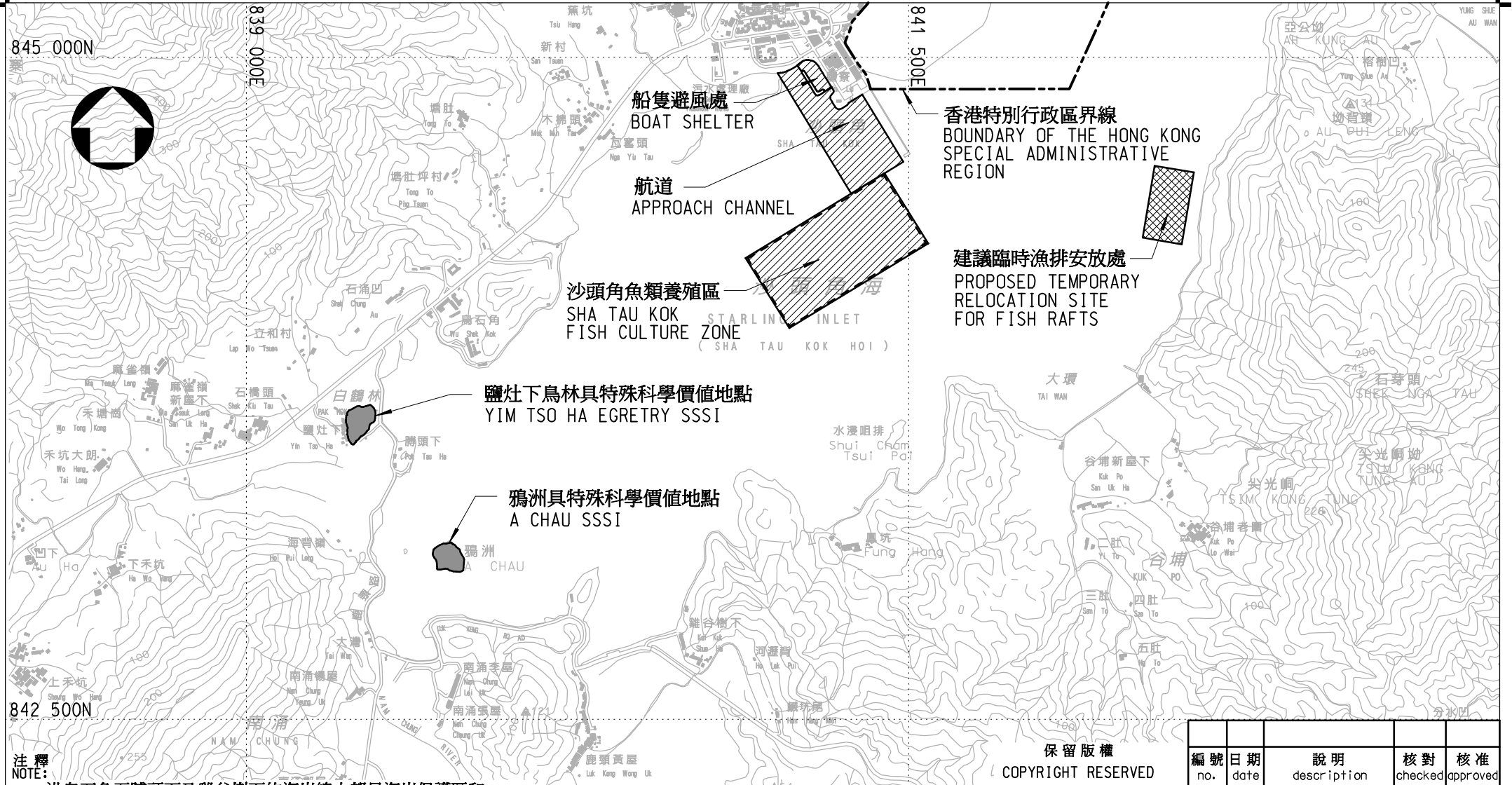
圖則編號 drawing no. 比例 scale  
PW-MS08-008 1 : 10 000  
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CIVIL ENGINEERING OFFICE 土木工程處

**CEDD** CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT  
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香港特別行政區界線  
BOUNDARY OF THE HONG KONG  
SPECIAL ADMINISTRATIVE  
REGION

建議臨時漁排安放處  
PROPOSED TEMPORARY  
RELOCATION SITE  
FOR FISH RAFTS

船隻避風處  
BOAT SHELTER

航道  
APPROACH CHANNEL

沙頭角魚類養殖區  
SHA TAU KOK  
FISH CULTURE ZONE  
(SHA TAU KOK HOI)

鹽灶下鳥林具特殊科學價值地點  
YIM TSO HA EGRETRY SSSI

鴉洲具特殊科學價值地點  
A CHAU SSSI

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注釋

沿烏石角至膊頭下及雞谷樹下的海岸線大都是海岸保護區和自然保育區，以其紅樹林及泥灘著稱

1. THE COASTLINE OF STK HOI FROM WU SHEK KOK TO POK TAU HA AND TO KAI KUK SHUE HA IS COASTAL PROTECTION AREA AND CONSERVATION AREA NOTED FOR ITS MANGROVE AND MUDFLATS.

沙頭角海沿岸地區及泥灘是棲息於鴉洲和鹽灶下鷺鳥林具特殊科學價值地點的大白鷺和小白鷺攝食場地。

2. THE COASTAL AND MUDFLAT AREAS AT STK HOI ARE MAIN FEEDING GROUNDS OF GREAT EGRET AND LITTLE EGRET NESTING ON A CHAU EGRETRY AND YIM TSO HA EGRETRY SSSI.

title 名稱  
沙頭角魚類養殖區, 船隻避風處及航道 – 敏感受體的位置  
SHA TAU KOK FISH CULTURE ZONE, BOAT SHELTER AND APPROACH CHANNEL – LOCATION OF SENSITIVE RECEIVERS

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編號 no.	日期 date	說明 description	核對 checked	核准 approved
drawing no. 圖則編號		PW-MS08-009		
				比例 scale 1:20000
		CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT 土木工程拓展署		

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