



The Government of the Hong Kong Special Administrative Region

Civil Engineering Department

**Reconstruction of Wong Shek Public Pier,
Sai Kung North, Tai Po**

Project Profile

May 2003

**Reconstruction of Wong Shek Public Pier, Sai Kung North, Tai Po
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Reconstruction of Wong Shek Public Pier, Sai Kung North, Tai Po Project Profile

1. Basic Information

1.1 Project Title

Reconstruction of Wong Shek Public Pier, Sai Kung North, Tai Po

1.2 Purpose and Nature of the Project

The main purpose of the project is to reconstruct the existing Wong Shek Public Pier at Sai Kung North of Tai Po. Recent inspection by the Civil Engineering Department (CED) reveals that the pier, which was constructed using prestressed concrete members, is in a deteriorating condition with severe corrosion in the prestressed tendons. As a result, some tendons have broken. Reinstating them to acceptable conditions is very difficult and costly. Even with such costly repair, the long term durability of the structure will still be limited. The pier users will be at risk if the pier is not to be replaced. It is therefore proposed to reconstruct the pier as well as take the opportunity to enhance the appearance of the pier and to provide an attractive focal point at its location.

1.3 Name of Project Proponent

Economic Development and Labour Bureau is the policy bureau. CED is the client department. The Technical Services Division of CED is the works agent for the planning, detailed design and works supervision for the project.

1.4 Location of Project, Scale of Project and History of Site

The existing pier was built in 1960s. It is a public pier for kaitos and pleasure vessels operating in Sai Kung North area.

The proposed new pier is located adjacent to the existing pier. The proposed structural form of the new pier should be open type suspended deck sitting on piles. Drawing Nos. TS 2185A and TS 2186A showing the location and general arrangement of the new pier are attached at Appendix A and B respectively. The scale of the works is small and the major work items are as follows:-

- (1) Provision of temporary berthing and mooring facilities until commissioning of the new pier;
- (2) Drilling of about 46 numbers of pre-bored H-piles;
- (3) Construction of about 600 m² reinforced concrete deck, with 3 sets of landing steps, fenders, one navigation light and public lighting;

2. Outline of Planning and Implementation Programme

2.1 The detailed design and site supervision of construction works of the project will be carried out by CED.

2.2 The tentative implementation programme is as follows:

Design and Tender Documents2/2003 to 7/2004
Construction8/2004 to 7/2006

2.3 Adjacent to the site, CED is planning to carry out improvement works at the Jockey Club Wong Shek Water Sports Centre in June 2003 for completion in June 2004. Since the two projects will not interfere with each other in the realm of works boundary and in the construction programme, there is no interface problem.

3. Major Elements of the Surrounding Environment

(A) Existing and planned sensitive receivers

The existing and planned sensitive receivers are marked on Drawing No. TS 2183A at Appendix C which are described below:-

3.1 Sai Kung East Country Park

3.1.1 The proposed site falls within the Sai Kung East Country Park. In order to identify any sensitive receivers in the site, particularly the underwater and coastal species and habitats, CED carried out a diving inspection in June 2002. The following living organisms near the pier are found during the inspection:

- (a) a few mussels are scattered in the vicinity of the existing pier;
- (b) isolated algae live on seabed;
- (c) group of urchins live between boulders; and
- (d) a piece of hard coral, belonging to the *Favia sp.* with a diameter of about 30cm, is located at about 10m away from the existing pier but no more live coral is found within the site.

Most of these living organisms are located outside the Country Park. Drawing No. TS 2182A showing the findings from the inspection is enclosed at Appendix D.

The *Favia sp.* is common in Hong Kong waters. It is inferred that no rare underwater and coastal species or habitats are found near the shore within the inspection area as shown.

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3.1.2 For the sensitive receivers on land, there is so far no record from the Agriculture, Fisheries and Conservation Department (AFCD) that any particular species or habitats live within or in the vicinity of the proposed site. According to the site inspection by CED, there exists a road (Pak Tam Road) at the exit of the pier. The road has disturbed the natural feature in the vicinity of the proposed site, which minimizes the possibility of living of particular species or habitats there.

3.2 Barbecue Areas

There are two barbecue areas adjacent to the proposed site. One is located just beside the proposed site along the waterfront. Another is located 20m away from the proposed site on the hillside near Pak Tam Road. The two barbecue areas, managed by AFCD, are popular with visitors at weekends and on holidays, and are likely to be noise-sensitive. [See Section 5.1.3 for relevant noise mitigation measures.]

3.3 Jockey Club Wong Shek Water Sports Centre

The Jockey Club Wong Shek Water Sports Centre, located at a distance of at least 70m from the nearest boundary of the proposed site, is likely to be sensitive to water quality and noise. The centre is proposed to be upgraded in size and facilities. [See Sections 5.1.2 and 5.1.3 for relevant water quality and noise mitigation measures.]

3.4 Civil Aid Service Tai Tan Camp

The Civil Aid Service Tai Tan Camp, located at a distance of about 400m from the nearest boundary of the proposed site, is likely to be noise-sensitive. [See Section 5.1.3 for relevant noise mitigation measures.]

3.5 Cultural Heritage

Having examined the preliminary borelogs of the site, no abnormality on the seabed and underlying sediments is found in the vicinity of the proposed site. Therefore, no marine archaeological investigation is requested by the Director of Leisure and Cultural Services (DLCS).

3.6 Place of High Visual Value

Soft landscape features such as trees, shrubs and vegetation do not exist within the proposed site. Moreover, the site is located very close to the Pak Tam Road. Therefore, the visual value of the existing site and its vicinity is low.

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3.7 Marine Traffic

- 3.7.1 The kaito ferry service provider, Tsui Wah Ferry (H.K.) Ltd., is operating the "Ma Liu Shui - Tap Mun" route via Wong Shek, the "Wong Shek - Tap Mun" route and the "Wong Shek – Wan Tsai/Chek Keng" route. All the routes involve the Wong Shek Public Pier for embarking and disembarking of passengers.
- 3.7.2 Some local villagers or fishermen use the existing pier as loading and unloading of fishery products.
- 3.7.3 The water sports activities and the marine traffic of kaitos in the adjacent waters are relatively busy during holidays.

3.8 Town Planning

The proposed site is at present not covered by any statutory town plan.

3.9 Others

There is no residential development, temporary housing area, educational institution, health care facilities, place of worship, agricultural area, site of special scientific interests, marine park/reserve, gazetted beach, fish culture zone or wild animal protection area in the vicinity of the proposed site.

In conclusion, the sensitive receivers in the surrounding environment as located on the Drawing No. TS 2183A include the followings:

- (1) Sai Kung East Country Park
- (2) Barbecue Areas
- (3) Jockey Club Wong Shek Water Sports Centre
- (4) Civil Aid Service Tai Tan Camp

(B) Major elements of the surrounding environment which may affect the area

There is a bus terminal and a public road (Pak Tam Road) at the exit of the existing pier which may affect the environment of the area.

4. Possible Impacts on the Environment

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

(A) Short Term Impact During Construction

4.1 Ecology

4.1.1 CED has carried out the diving inspection on the underwater and coastal species and habitats. The report indicates that there is only one piece of hard coral, belonging to the *Favia sp.* with a diameter of about 30cm, located at about 10m south of the existing pier. Although the *Favia sp.* is common in Hong Kong waters, the environmental protection measures as indicated in Section 5.1.1 will be implemented to ensure that the coral will not be disturbed during the whole construction period. Therefore, the environmental impact on that coral will be minimal. In addition, very small amount and number of common species of other living organisms are found on site. According to the report and as advised by DAFC, the reconstruction works should have no adverse impacts on the marine ecology, including the small hard coral.

4.1.2 As the new pier is a replacement to the existing one, the net loss of natural coastal area is insignificant. Moreover, the impact on the benthic ecology is considered minimal since pile foundation is adopted, and no dredging and spoil dumping is involved.

4.1.3 As most of the works will be carried out at sea area, the environmental impact on the ecology on land will be minimal. The site area has already been disturbed long time ago by the construction of the adjacent Pak Tam Road. Therefore, no particular species or habitats on land will be affected by the project.

4.2 Water Quality

4.2.1 No dredging and spoil dumping will be involved. Only piles will be drilled into the seabed. In view of the small size of the piles, the disturbance to the seabed will be minimal and water turbidity will not be increased significantly.

4.2.2 As a pile-type foundation will be adopted, water circulation under the pier will not be impeded.

4.3 Noise

4.3.1 The new pier is designed to be supported by piles. Pre-bored H-piles that are not percussive will be used. According to our experience on the reconstruction of Hei Ling

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Chau and Kadoorie Piers, the noise emitted during piling is very low and therefore the noise impact on the surrounding sensitive receivers is minimal.

- 4.3.2 The existing pier and the respective columns will be cut into several segments and then delivered to designated site(s) for deployment as artificial reefs. In view of the small scale of cutting works, the process will not generate significant noise problems.

4.4 Air Quality

- 4.4.1 Dust problem is expected to be minimal since no dredging and spoil dumping will be involved. During demolition of the existing pier by cutting, small amount of dust generation is expected. As a majority of the demolished structure will be deployed as artificial reef, the small amount of dust so generated will be minimal and controllable.

- 4.4.2 The emitted gas from construction plant is also expected to be minimal in view of the small number of construction plant on site.

4.5 Traffic Impacts

4.5.1 Marine Traffic

The impact is considered insignificant because the number of plant involved (about 2 working barges) will be relatively small for project of this scale.

4.5.2 Land Traffic

The impact is considered insignificant because most of the works will be carried out at the sea area. Land traffic impact on the adjacent Pak Tam Road includes only few lorries for occasionally transporting construction materials such as concrete, reinforcement, etc.

4.6 Visual Appearance

The works will not cause severe visual impacts. To minimize disturbances to the pier users during holidays, the works will not be carried out on Sundays and General Holidays.

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4.7 Cultural Heritage

As advised by DLCS, no archaeological antiquities are expected within the site.

4.8 Solid Waste

As the existing pier is planned to be used as artificial reefs, they will be delivered to appropriate deployment site(s) as directed by DAFC. Other unwanted debris will be removed off site promptly. Therefore, there will not be significant impact due to solid waste.

4.9 Spoil Water

Any spoil water generated is required to be filtered before discharge. No direct discharge of spoil water into the sea will be made.

4.10 Odour

As no dredging is involved, no odour problem is expected.

4.11 Dangerous Goods

No dangerous goods are involved.

(B) Long Term Impact During Operation

There is no long term impact since the new pier is a replacement of the existing pier, with similar size and type. However, a new roof will be provided over the pier for shelter and shade purpose. Consultation with a landscape architect will be made to give advice on the landscape design, colour scheme, finishes and texture of materials used so as to ensure that, the reconstructed pier will be compatible with the natural landscape setting and will become a focal point in that area.

5. Environmental Protection Measures to be Incorporated in the Design and Any Further Environmental Implications

5.1 Measures to Minimize Environmental Impacts

From Section 4, it is concluded that the water quality, noise, air quality, traffic and visual impacts arising from the project are minimal. In view of the limited impacts, standard environmental mitigation measures in accordance with the latest version of "Recommended Pollution Control Clauses for Construction Contracts" will be adopted. In particular, the following measures will be carried out in addition to the standard measures:-

5.1.1 Ecology

There is only one piece of hard coral, belonging to the *Favia sp.* with a diameter of about 30cm, at about 10m south of the existing pier. Although the *Favia sp.* is common in Hong Kong waters, that coral will not be disturbed during the whole construction period. Piles will not be drilled at that coral. A silt curtain will be installed prior to carrying out the marine works. Measures will be taken to ensure that no coral will be enclosed by the silt curtain.

5.1.2 Water Quality

It is expected that there is no noticeable impact on water quality during construction. A silt curtain will be installed prior to carrying out the marine works, including piling and demolition of the existing pier within the site. The respective areas of the marine works will be completely enclosed by the silt curtain.

In addition, background water quality monitoring before commencement of the marine works will be carried out in the nearby waters to obtain baseline information for subsequent monitoring. Regular and frequent water quality monitoring will be carried out throughout the whole construction period to ensure that the potential water quality impacts arising from piling works would be within the established environmental guidelines and standards. The details of the water quality monitoring scheme will be submitted separately. Personnel carrying out the water quality monitoring work will be experienced in that speciality and will be agreed with the Director of Environmental Protection (DEP) prior to the commencement of the baseline monitoring.

In the unlikely event that adverse impacts do occur, an event contingency plan will be implemented.

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Details of the environmental monitoring and audit (EM&A) programme will be submitted to DEP for approval before application for an environmental permit.

5.1.3 Noise

The non-percussive piling operation and the cutting works for demolition of the existing pier will cause slight amount of noise nuisance. Although the Jockey Club Wong Shek Water Sports Centre and the Civil Aid Service Tai Tan Camp are likely to be noise sensitive, they are located far away from the works site and therefore minimal noise impact is expected. In order to further reduce the noise level, especially at the nearby barbecue areas, mitigation measures such as the use of quieter machinery, proper maintenance of plant and good working practices will be adopted. Since all construction works will stop on Sundays and General Holidays, there will not be any impacts on the recreational activities held during this peak period.

By adopting the noise mitigation measures for non-percussive piling works, exceedance of noise level stated in the Technical Memorandum on EIA Process under the EIA Ordinance will unlikely occur. Even though the anticipated noise level is low, the non-percussive piling operation will be controlled by the licensing conditions of Construction Noise Permit, if the contractor chooses to apply for one to carry out works during restricted hours.

5.1.4 Air Quality

Since no dredging and spoil dumping will be involved, dust pollution will not be a major cause of concern. For the small amount of dust arising from the cutting of the existing pier, the Air Pollution Control (Construction Dust) Regulation will be followed in order not to cause adverse impacts on the air quality.

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5.2 Possible Severity, Distribution and Duration of Environmental Effects

The possible severity, distribution and duration of environmental effects and further implications are summarised below:-

	Effects	Severity	Distribution	Duration
Ecology	Minimal disturbance to seabed from piling operation	Minimal	Local – near the pier	About 8 months
Water Quality	Minimal disturbance to seabed from piling operation	Minimal	Local – near the pier	About 8 months
Noise	Noise nuisance from non-percussive piling and demolition works	Minimal	Local – near the pier	About 11 months
Air Quality	Dust emission from construction activities	Minimal	Local – near the pier	About 18 months
Solid Waste	Handling and disposal of about 350m ³ of artificial reefs and minimal amount of construction waste	Minimal	Local – near the pier	About 3 months
Visual Appearance	Enhance attractiveness of the local area	Beneficial	Focal point near the pier	Long term (pier operation)

5.3 Public Consultation

5.3.1 To ensure that public opinion could be reflected in the planning at an early stage, the local village representatives were consulted through Tai Po District Office in early 2002. The Sai Kung North Rural Committee was also consulted on 13 May 2003. In these two consultations, the public raised no objection to the project.

5.3.2 Through gazetting of the proposed project under the Foreshore and Sea-bed (Reclamations) Ordinance, the public likely to be affected by the project can express their views which may be subsequently taken into consideration during the detailed design.

5.3.3 As the proposed site falls within the Sai Kung East Country Park, the prior consent of the Country and Marine Parks Authority to the project will be sought in due course.

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5.3.4 Minimal public interest and political sensitivity are expected.

5.4 History of Similar Project

For the reconstruction of Pak Sha Wan Public Pier, Sai Kung (PWP Item No. 037TF and CED Contract No. CV/99/13), direct application for an environmental permit was approved by DEP in 1999. The project was also a designated project because of the presence of a conservation area on land within 500 metres of the site. This project, which involved dredging in addition to piling works, implemented environmental protection measures similar to those proposed in Section 5.1 above. The project has been completed successfully with minimal environmental impacts.

Under CED Contract No. CV/2000/04 – “Reconstruction of Tai Lam Chung Pier, Hei Ling Chau Pier and Kadoorie Pier”, the piers at Hei Ling Chau and Kadoorie, being suspended deck piers sitting on piles, have structural forms similar to that proposed for this project. Water quality monitoring and EM&A measures, similar to those proposed in Section 5.1.2, were implemented. There were no adverse impacts on water quality and no complaints concerning water quality were lodged throughout the whole construction period.

6. Use of Previously Approved EIA Reports

As there is no adjacent designated project, no previously approved EIA report can be used.

7. Conclusion

- (1) Ecological, water quality, noise, dust, traffic, visual, cultural heritage and solid waste impacts arising from the project are minimal.
- (2) The following mitigation measures will be incorporated into the project:-
 - (a) implementation of standard mitigation measures;
 - (b) installation of a silt curtain around the site;
 - (c) monitoring of water quality around the site; and
 - (d) implementation of environmental monitoring and audit.
- (3) As the environmental impact arising from the project will not be adverse, direct application for an environmental permit under EIA Ordinance will be adopted.

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Appendix A

Drawing No. TS 2185A

- General Layout

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Appendix B

Drawing No. TS 2186A

- General Arrangement of New Pier

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Appendix C

Drawing No. TS 2183A

- Location of Sensitive Receivers

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Appendix D

Drawing No. TS 2182A

- Diving Inspection Report