The Government of the Hong Kong Special Administrative Region

Civil Engineering and Development Department

Improvement Works to Tung Ping Chau Public Pier

Project Profile

July 2004

Contents

1. Basic Information

1.1 Project Title

Improvement Works to Tung Ping Chau Public Pier (TPC Pier)

1.2 Purpose and Nature of the Project

The main purpose of the project is to reconstruct the catwalk of the existing pier, which is in a poor structural condition, and to improve the facilities of the pier.

TPC Pier was constructed in 1960s. Recent inspections by the Civil Engineering and Development Department (CEDD) reveal that the structural condition of the catwalk is in poor and deteriorating conditions with severe spalling concrete and corrosion in the reinforcement. Therefore CEDD has to reconstruct the catwalk in order to ensure structural safety.

TPC is well known for its magnificent coastal landform and beautiful underwater hard (stony) coral communities and so attract many visitors every year. CEDD will also take this opportunity to widen the catwalk and existing embankment. A roof structure will be constructed to provide shelter for the public.

1.3 Name of Project Proponent

Economic Development and Labour Bureau is the policy bureau. The Port Works Division of CEDD 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 proposed site is located on the northeastern coast of TPC facing towards Ping Chau Hoi. It falls within the gazetted Tung Ping Chau Marine Park and encroaches slightly within the boundary of the Ping Chau Site of Special Scientific Interest.

The existing pier mainly serves for ferries and pleasure vessels. The existing pier is 95m long, comprised of 3 components: (1) a 48m long rubble causeway or embankment; (2) a 33m long reinforced concrete catwalk supported on 6 no. of concrete columns on pad footings; and (3) a 14m long by 5.5m wide solid blockwork pier head with two landings. A photo showing the existing pier is enclosed in Appendix C.

The proposed structural form of the new catwalk is reinforced concrete composite steel deck sitting on piles. The drawing No. PW-GS04-002 and PW-GS04-003 showing the location and general arrangement of the catwalk is attached at Appendix A respectively.

The quantities of the major items are as follows:-

(1) Setting up of a temporary site office at the proposed location shown on Drawing No. PW-GS04-002 at Appendix A
(2) Cutting of the 6 nos. of concrete columns to appropriate level above water and the existing catwalk into several segments before delivery to a designated site to be assigned by Agriculture, Fisheries and Conservation Department as artificial reefs (approximately $65m^3$);
(3) Construction of about 33m long and 5.5m wide catwalk;
(4) Boring of two groups (4 nos. each) of mini-piles for constructing the new catwalk;
(5) Widening of the existing rubble causeway from 3.0m to 5.5m; and
(6) Construction of a new roof.

No dredging and dumping within the site will be involved. The construction sequence is shown on Appendix B.

The operation of the existing pier head will be maintained at all time and no temporary pier is required. The pedestrian flow between the pier head and the embankment will be maintained by proper phasing of the works.

1.5 Number and Types of Designated Projects to be covered by the Project Profile

The project is a designated project under Section Q.1, Part 1 of Schedule 2, Environmental Impact Assessment (EIA) Ordinance, as the project site is within an existing marine park, namely the Tung Ping Chau Marine Park.

1.6 Name and Telephone Number of Contact Persons

Port Works Division
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1.7 Estimated Cost

$ 6.0 million (at September 2003 price level)

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 CEDD.

2.2 The tentative implementation programme is as follows:

Design and Tender Documents ..... 2/2004 to 2/2005
Construction ..... 2/2005 to 9/2005

2.3 There is no interaction with broader programme requirements or other projects which shall be considered.

3. Major Elements of the Surrounding Environment

(A) Existing and planned sensitive receivers potentially affected by the works

The existing and planned sensitive receivers are described below:-

3.1 Tung Ping Chau Marine Park (TPCMP)

3.1.1 The proposed site falls within the gazetted Tung Ping Chau Marine Park. CEDD recognizes the importance to conserve the ecologically invaluable coral communities there and commissioned the Marine Science Laboratory of the Chinese University of Hong Kong (CUHK) to undertake a quantitative coral mapping around the TPC Pier in September 2002 and January 2004. The Study aims to:-

a. map out the distribution of coral quantitatively;
b. identify the works areas for navigation routing and access of working barge approaching to the TPC Pier where direct impacts on the corals can be avoided; and
c. recommend mitigation measures to avoid impacts on the corals from the reconstruction works.

The Study covers an area of 120m x 120m which is much larger than the site. A total of 60 belt transects (each 120m long) parallel to the pier were surveyed. The field survey were conducted by coral specialist. The seabed profile, coral and all other benthic organism were recorded. The extent of the field survey is shown on Appendix D.

3.1.2 A total of about 21,356 coral colonies were mapped within the survey area. A total of 23 genera of hard corals were recorded. The majority of the coral colonies were concentrated outside the works boundary. The dominant coral genera included *Platygyra, Porities, Favia, Lepatastrea, Goniopora* and *Favities.* High density of corals were found in the

shallow area, with more coral corals found in the northeast than the northwestern side of the pier. To further identify the location and species of corals around the pier, a detailed coral survey was carried out in January 2004. The distribution of corals around the site is shown in Appendix D.

3.1.3 The overall diversity of benthic organisms around the pier area is very low. The most important benthic organism found around the pier area surveyed, other than corals, is the sea urchin Salmacis sp. This is a very common sea urchin in Hong Kong. Some algae were also found but no uncommon species was recorded.

3.1.4 For the sensitive receivers on land, the proposed works area is covered with grass. There is no particular species or habitats living within or in the vicinity of the proposed site. Since most of the works will be carried out at the sea area or in very close vicinity of the shore, no particular species and habitats living on land are expected to be affected by the project.

3.2 Ping Chau Site of Special Scientific Interest (SSSI)

According to the information from Agriculture, Fisheries and Conservation Department, part of the proposed site lies within the boundary of Ping Chau Site of Special Scientific Interest (SSSI) as shown on Drawing No. PW-GS04-002 at Appendix A. The site is famous for the sedimentary rocks with excellent exposures along the coast.

(B) Other Features

3.3 Recreational Facilities

There will be no existing or proposed recreational facilities to be affected by the works.

3.4 Village Hut

There is a village hut (Lei Uk) at about 400m from the site boundary.

3.5 Cultural Heritage

Having examined the preliminary borelog of the site, no abnormality on the seabed and underlying sediments is found in the vicinity. Therefore, no marine archaeological investigation is necessary.

3.6 Place of High Visual Value

Soft landscape features, such as trees, shrubs and vegetation, do not exist within the proposed site. Therefore, the visual value of the site and its vicinity is low. Moreover, the works will be carried out at the sea area and therefore no particular landscape works are expected to be affected by the project.

3.7 Marine Traffic

Ferry vessels provide ferry service between Tung Ping Chau and Ma Liu Shui on weekends and public holidays. Marine Police Launches use the pier for loading and unloading of commodity and goods to the police station at the island, which is considered as an important security checking facility in view of the close proximity to Guangdong Province. Some other Government Departments Launches, such as Marine Department and Agriculture, Fisheries and Conservation Department (AFCD), also use the pier from time to time. Some local villagers or fishermen use the existing pier as loading and unloading of commodities. There are also launches conveying tourist groups to Tung Ping Chau and pleasure vessels attracted by the Tung Ping Chau Marine Park.

3.8 Town Planning

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

3.9 Others

There is no site of residential development (except Lei Uk), temporary housing area, educational institution, health care facilities, place of worship, agricultural area, gazetted beach, fish culture zone or wild animal protection area within 500m from the site boundary. The village hut – Lei Uk is about 400m from the site.

In conclusion, the sensitive receivers potentially affected by the project in the surrounding environment include mainly the following:

(1) Tung Ping Chau Marine Park; and
(2) Ping Chau Site of Special Scientific Interest.

4. Possible Impacts on the Environment

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

(A) Short Term Impact During Construction

4.1 Ecology

4.1.1 Impacts to the corals

The proposed site falls within the Tung Ping Chau Marine Park and the site is covered with corals. The corals may be affected in the following aspects:

(1) Piling Works

No corals will be directly hit by the piles. However, the corals may be affected by the muddy water and waste water generated during piling works.

(2) Demolition of Existing Catwalk

The existing concrete catwalk slab and the respective column will be cut into several segments and then removed off the site by lifting method under operation of a barge. The concrete footings of column will be remained on seabed and abandoned so as to avoid dredging and thus impacts on coral found on the footings. For the column, there is no coral attached on its surface.

The cutting operation may still induce vibration which may affect the corals nearby.

4.1.2 Impact on other benthic organisms

As advised by CUHK, the diversity of other benthic organisms other that corals was very low and no uncommon species were found.

4.2 Water Quality

The water quality may be affected by the muddy water and waste water generated during piling works. The waste water generated from the works area may also affect the water quality if it is not properly handled.

4.3 Noise

Mini-piles that are not percussive will be used. According to our experience on the reconstruction of Hei Ling Chau, Kadoorie Pier, Kat O Chau, Peng Chau and Cheung Chau Public Piers, the noise emitted during piling is low. Noise will also be generated from the cutting of the column of the catwalk. However, the noise emitted by handheld pneumatic breaker is also low. As the nearest noise sensitive receiver (Lei Uk) is far away from the site (about 400m from the site boundary), the noise impact is minimal.

4.4 Air Quality

4.4.1 Dust problem is expected to be minimal since no dredging and dumping will be involved. During demolition of the existing catwalk 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 (usually only one working barge but shall not exceed three at all time).

4.5 Traffic Impacts

Most of the works will be carried out at the sea area. Impact to the marine traffic is considered insignificant because the number of plant involved (usually only one working barge but shall not exceed three at all time) will be relatively small for project of this scale.

4.6 Visual Appearance

The construction works will not cause severe visual impacts. The architectural design of the roof of the pier has been endorsed by the Country and Marine Parks Board on 21.5.2004. To further minimize disturbance to the pier users during holidays, the works will not be carried out on Sundays and General Holidays.

4.7 Cultural Heritage

As no cultural heritage anomaly is found on the affected seabed, no archaeological antiquities are expected within the site. Should any antiquities be discovered in the course of construction work, the Antiquities and Monuments Office of the Leisure and Cultural Services Department should be informed immediately.

4.8 Solid Waste

As the existing catwalk is planned to be used as artificial reefs, they will be delivered to appropriate deployment site(s) as directed by DAFC. A little solid waste (less than 20 cubic metres) will be generated from piling works and the works area. These waste are mainly excavated marine sand, rock fines and rubbish which cannot be re-used and shall be disposed at landfill. Therefore, there will not be significant impact due to solid waste.

4.9 Odour

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

4.10 Dangerous Goods

No dangerous goods are involved.

(B) Long Term Impact During Operation

There is no long term impact since the new catwalk is a replacement of the existing catwalk, with similar size and type. The proposed works will not cause any permanent effects on the exposed rock, such as drilling, blasting and reclamation, etc at Ping Chau Site of Special Scientific Interest. Therefore, the net loss of natural coastal area is insignificant

Landscape architect has been consulted on the landscape design, colour scheme, finishes and texture of materials used to ensure that the reconstructed catwalk will be compatible with the natural landscape setting and will become a focal point at the local area. The Country and Marine Parks Board has endorsed the architectural design of the roof on 21 May 2004. Moreover, local villagers have been fully consulted so as to ensure that the architectural design of the roof is acceptable to them.

5. Environmental Protection Measures to be Incorporated in the Design and Residual Impacts

General Principle

In accordance with the current policy for mitigating impacts, the works are planned in following ways to avoid the sensitive receivers especially corals in the vicinity.

Avoidance

Location:
As the vicinity of the site is covered with corals, there is no alternative site to construct a new pier to replace the existing one.

Construction Scheme:
The structural integrity of the whole pier was checked and the reconstruction works were limited to the catwalk only while the pier head will not be reconstructed.

The structural form of the catwalk was carefully chosen with a view to minimize the

number of piles and to keep the piles away from the areas with corals. In so doing, no coral is directly hit by the piling works and the indirect impact can be minimized.

Minimizing

With the above measures together with other mitigation means such as installation of silt curtain, the impact on the surrounding environment including ecology and water quality is expected to be minimal. The details of the minimization measures are given below:-

5.1 Measures to Minimise Environmental Impacts:-

5.1.1 Ecology

Based on the findings and recommendations of the CUHK's Study (the Study), the following measures shall be carried out in different stages of construction:-

(1) Piling Works

a. Silt curtain shall be provided around the piles to prevent the release of muddy water to the adjacent sensitive receivers as a result of drilling operation. The location of the silt curtain is shown in Appendix D. Water contaminated with slurry rock fragment shall be stored in a barge and recycled for use again in the piling work.

b. Wastewater coming from the grouting of piles shall be treated in sedimentation tank placed in a barge before discharging offsite with a valid discharge license under the Water Pollution Control Ordinance.

c. To ensure no corals would be hit or only the least number of corals would be enclosed/affected, divers with knowledge about corals should be present underwater when the silt curtain is being installed.

(2) Demolition of the Existing Catwalk

a. Handheld pneumatic breaker which will generate the least amount of vibration shall be used to cut the columns under the catwalk. The cutting sequence shall start from the column closest to shore where no coral grows on the berm stones. The second column to be cut shall be the column closest to the pier head. As advised by the consultant – CUHK, on-site monitoring shall be carried out by qualified coral specialist to evaluate whether the degree of vibration generated will affect the living of corals in the basements of columns. In case of any abnormal condition or deteriorating healthiness of corals observed, e.g. excessive mucus production, cutting shall be stopped, pending the review of the cutting procedure. The cutting speed shall be reduced if considered necessary by the coral specialist.

b. Each column shall be cut only once, rather than in several pieces so as to minimize

the cutting time and vibration caused.

c. A temporary working platform shall be erected under the catwalk as a basin to collect the demolition debris. Canvass curtain shall be erected around the platform where cutting work is being carried out, and the erection of curtain shall not affect the adequacy of sunlight for the corals underneath the catwalk.

(3) Recommended working area for barges

All barge activities shall be confined within the area indicated on Drawing No. PW-GS04-002 attached at Appendix A. To avoid impact on the corals, marker buoys shall be set up in suitable locations to prevent working barges encroaching upon the shallow water area. The locations of the marker buoys are shown on the above drawing.

(4) Other mitigation measures

a. Further survey of the corals shall be conducted prior to the construction works to ensure that no coral will be affected by the works.

b. Coral monitoring shall be carried out on site before, during and after construction with an aim at evaluating and rectifying impacts on the living habitats of coral colonies if any. AFCD shall be consulted about the methodology, location and frequency of the coral monitoring.

5.1.2 Water Quality

a. Prior to the piling works, silt curtain shall be installed around the piles.

b. No sewerage water shall be discharged on the site and the works area. Any sewerage water generated shall be delivered to treatment works operated by Drainage Services Department for disposal.

c. The water used for piling works shall be stored in a barge and recycled for use again in the piling works. Upon completion of the piling works, the recycled water shall be discharged offsite with a valid discharge license under the Water Pollution Control Ordinance.

d. In addition, baseline water quality monitoring before commencement of the marine works shall be carried out in the nearby waters to obtain baseline information for subsequent monitoring. Regular and frequent water quality monitoring shall be carried out throughout the whole construction period to ensure that the potential water quality impacts arising from piling and demolition works will be within the established environmental guidelines and standards. Parameters to be monitored shall include turbidity, dissolved oxygen and suspended solids level. The details of the water quality monitoring scheme will be submitted separately. Personnel carrying out the water

quality monitoring work shall be experienced in that speciality. Details of the environmental monitoring and audit (EM&A) programme will be submitted to DEP for approval before application for an environmental permit

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5.1.3 Noise

The non-percussive piling operation and the demolition works for the existing catwalk will cause only slight amount of noise nuisance. To further reduce the noise level, mitigation measures such as the use of quieter machinery, proper maintenance of plant and good working practices shall be adopted. Since all construction works will stop on Sundays and Public Holidays, the impacts on the visitors during this peak period will be minimized.

By adopting the noise mitigation measures for non-percussive piling works and demolition works, exceedance of noise level in accordance with Technical Memorandum on EIA Process under the EIA Ordinance unlikely occurs. Even though the anticipated noise level is low, the non-percussive piling operation shall be controlled by the licensing conditions of Construction Noise Permit, if works during restricted hours are necessary.

5.1.4 Air Quality

Since no dredging and earthwork 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 catwalk, the Air Pollution Control (Construction Dust) Regulation shall be followed in order not to cause adverse impacts on the air quality.

5.2 Residual Impact

As the proposed mitigation measures are very effective to mitigate the impact arising from the project, no residual impact is expected.

5.3 Possible Severity, Distribution and Duration of Environmental Effects

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

	Potential impact	Recommended measures	Residual impacts	Distribution	Duration
Ecology	Direct impact to corals	To avoid - By locating the piles away from the corals	Nil	Local – near the pier	About 3 months
	Indirect impact arising from disturbance to seabed from piling operation and vibration dusing demolition of the catwalk	To minimize - by use of silt curtain and coral monitoring during construction			
		To compensate – nil since no coral will be affected			
Water Quality	Disturbance to seabed from piling operation	To avoid Using less number of piles	Nil	Local – near the pier	About 3 months
		To minimize Use of silt curtain			
Noise	Noise nuisance from non-percussive piling and demolition works	To minimize Using non-percussive pile type and use of silencers	Nil	Local – near the pier	About 5 months
Air Quality	Dust emission from construction activities	To minimize By standard dust suppression measures	Nil	Local – near the pier	About 18 months
Solid Waste	Handling and disposal of about 65m^3 of artificial reefs and minimal amount of construction waste	To minimize – Only the catwalk will be demolished while the pier head will not be reconstructed.	Nil	Local – near the pier	About 2 months

5.4 Public Consultation

5.4.1 To ensure that public opinion could be reflected in the planning at an early stage, the Sai Kung North Rural Committee was consulted through the Tai Po District Office in November 2002 at the planning stage. The project was also presented at the Tai Po District Council on 11.9.2003. In these two consultations, the public raised no objection to the project.

5.4.2 As the proposed site falls within the Tung Ping Chau Marine Park, the project was presented to the Country and Marine Parks Board on 16.1.2004 and the Board approved the project.

5.4.3 Concerning the design of the roof, two consultation workshops were conducted in January 2004 with a view to seeking comment from all relevant stakeholders and government departments. Their opinions and concerns will be taken into account in the design of the roof.

5.4.4 As the project falls within the Tung Ping Chau Marine Park, the public may be concerned about the possible impact on the nearby corals. Minimal political sensitivity are expected.

5.5 History of Similar Projects

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 no complaint on environment issue.

Under CED Contract No. CV/2000/04 – "Reconstruction of Tai Lam Chung Pier, Hei Ling Chau Pier and Kadoorie Pier", CED Contract No. CV/2001/07 – "Reconstruction of Peng Chau and Kat O Chau Public Piers" and CED Contract No. CV/2001/12 – Reconstruction of Cheung Chau and Wu Kai Sha Public Piers", the suspended deck piers constructed have structural forms similar to that proposed for the catwalk of this project. Water quality monitoring and EM&A measures, similar to those proposed in Section 5.1.2, were implemented. There was no adverse impact on water quality and no complaints concerning water quality were lodged throughout the whole construction period.

The reconstruction of pier at Pak A, Sai Kung (Project ID Code: SK-078) is also a Designated Project. A baseline marine benthic survey was conducted in February 1998. Its associated report confirmed the presence of corals there. Since the new pier footprint would result in permanent loss of the coral habitat, coral transplantation was adopted. Coral monitoring, similar to those proposed in paragraph 5.1.1 above, was implemented to monitor coral health. Direct application for an Environmental Permit was approved by DEP in 1999. This project has demonstrated that the methodology of conducting coral

survey, recommending mitigation measures and implementing monitoring works by expertise is adequate to successfully control the environmental impact of a designated pier reconstruction project.

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, solid waste and cultural heritage impacts arising from the project are minimal.

(2) The following mitigation measures will be incorporated into the project:

(a) standard mitigation measures;
(b) installation of silt curtain;
(c) coral survey and monitoring; and
(d) water quality monitoring and audit;.

(3) As the environmental impact arising from the project will not be adverse, direct application of environmental permit under EIAO will be followed.

Appendix A

- Drawing No. PW-GS04-002 General Layout
- Drawing No. PW-GS04-003 General Arrangement

862 600E
862 700E
862 800E
845 100N
845 000N

位置浮標
MARKER BOUY

工地範圍
SITE BOUNDARY

工作躉船的活動範圍
RECOMMENDED WORKING LIMITED
FOR BARGES

位置浮標
MARKER BOUY

現有碼頭將被
保留並加建上蓋
EXISTING PIER HEAD
TO BE PRESERVED WITH
PROVISION OF NEW ROOF

擬議的新步橋
(現有步橋將被拆卸)
PROPOSED NEW CATWALK
(EXISTING CATWALK TO
BE DEMOLISHED)

現有堤道將被擴闊
EXISTING RUBBLE CAUSEWAY
TO BE WIDENED

工作躉船的活動範圍
RECOMMENDED WORKING LIMITED
FOR BARGES

位置浮標
MARKER BOUY

具特別科學價值的地點
BOUNDARY OF SITE OF SPECIAL
SCIENTIFIC INTEREST (SSSI) 15
PING CHAU 237/182/82

擬議施工用地
PROPOSED WORKS AREA

10m
5m

H W M

Flat Rock
平岩

王爺角
WONG YE KOK

0 10 20 30 40 50 m
比例 1 : 1 000 SCALE BAR

862 000E
864 000E
846 000N
844 000N

東平洲
公眾碼頭
TUNG PING CHAU
PUBLIC PIER

李屋
LEI UK

PING CHAU

東平洲海岸
公園範圍
TUNG PING CHAU
MARINE PARK
BOUNDARY

索引圖 KEY PLAN
比例 SCALE 1:50 000

注釋
NOTES

1. ALL DIMENSIONS ARE IN METRES.
所有尺寸均以米標示.
2. ALL CO-ORDINATES REFER TO HONG KONG GEODETIC DATUM 1980 AND ARE IN METRES.
所有坐標均根據香港1980大地基準以米標示.

編號 no.	日期 date	說明 description	核對 checked	核准 approved

修訂 REVISION

	姓名 name	簡簽 initial	日期date
設計 designed	Y K AU		15.7.04
繪畫 drawn	K L CHAN		15.7.04
摹描 traced	K L CHAN		15.7.04
核對 checked	W C LEUNG		15.7.04

核准 approved

(N P TONG)
總工程師 Chief Engineer
日期 date : 15.7.04

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

IMPROVEMENT WORKS TO
TUNG PING CHAU PUBLIC PIER -
GENERAL LAYOUT
東平洲公眾碼頭改善工程 -
總平面圖

圖則編號 drawing no.
PW-GS04-002

比例 scale
1 : 1000
OR
AS SHOWN

office 辦事處
PORT WORKS DIVISION 海港工程部
CIVIL ENGINEERING OFFICE 土木工程處

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HONG KONG
香港土木工程拓展署

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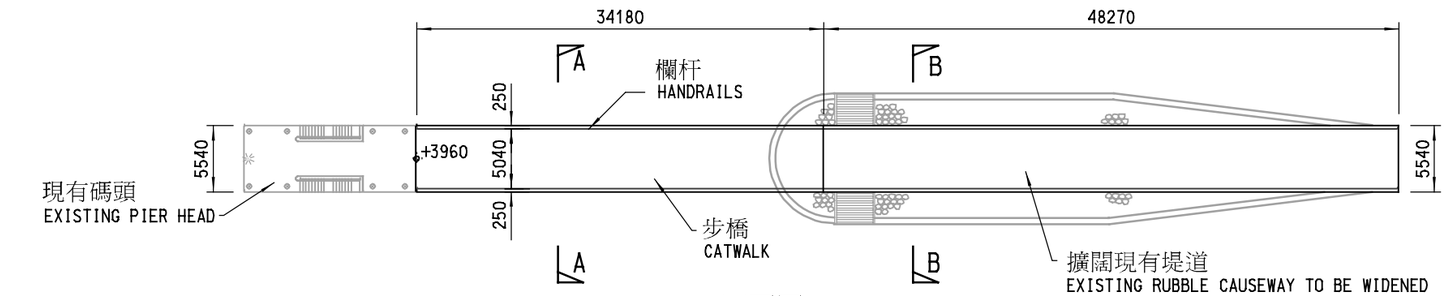
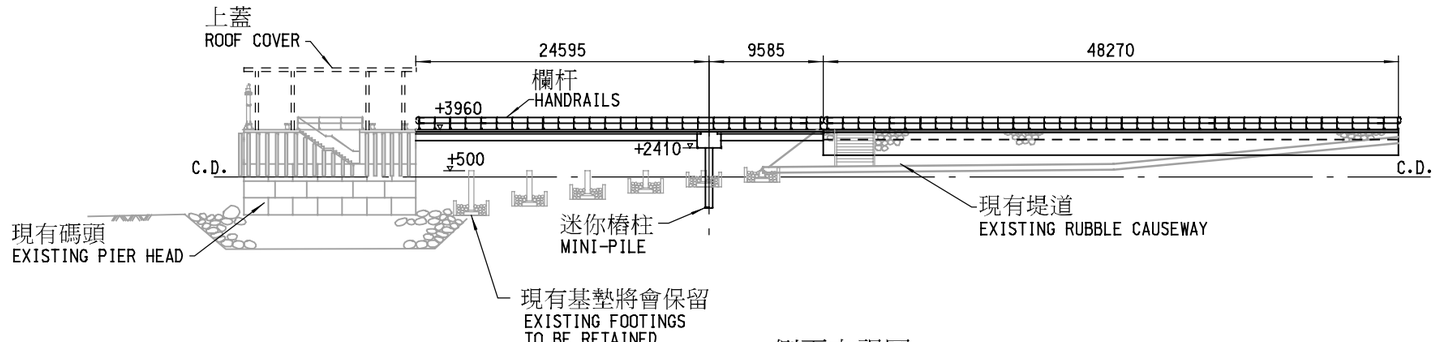
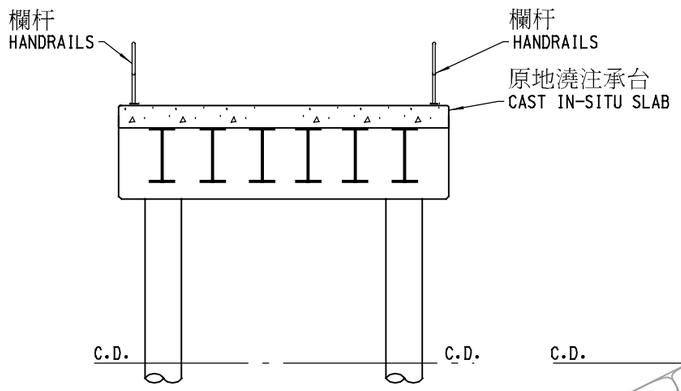
A3 420 x 297



平面圖
PLAN



側面立視圖
SIDE ELEVATION



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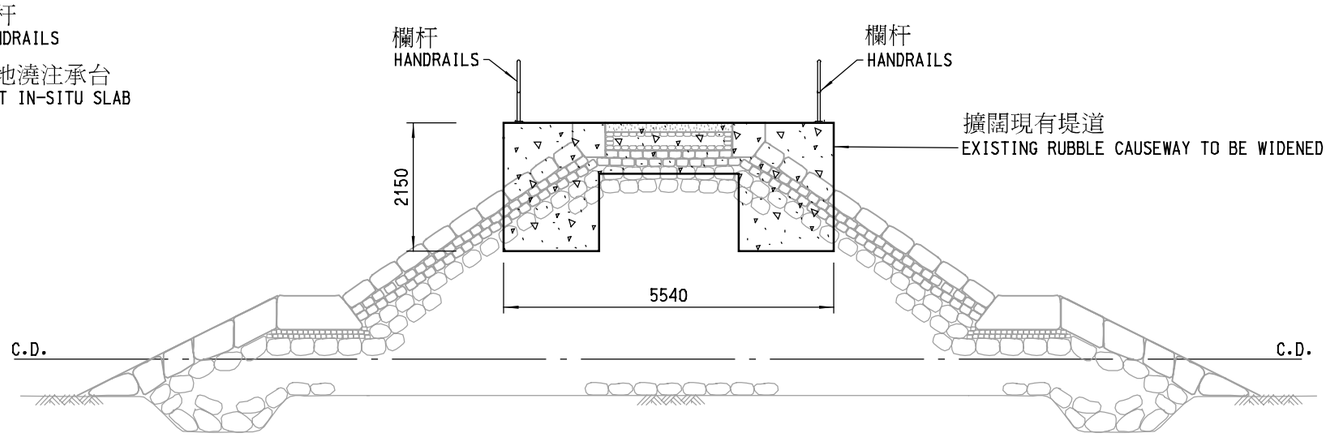
SECTION A
比例 SCALE 1:100



切面B
SECTION B
比例 SCALE 1:100

注 釋
NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
   所有尺寸均以毫米標示.
2. ALL LEVELS REFER TO CHART DATUM (C.D.) AND ARE IN MILLIMETRES.
   所有高程均根據海圖基準面(C.D.),以毫米標示.

圖例
LEGEND:

- BOLLARD 繫船柱
- NAVIGATION LIGHT 導航燈
- STRUCTURAL FLOOR LEVEL 結構面水平

編號 no.	日期 date	說明 description	核對 checked	核准 approved

修訂 REVISION

	姓名 name	簡簽 initial	日期 date
設計 designed	Y K AU		15.7.04
繪畫 drawn	K L CHAN		15.7.04
摹描 traced	K L CHAN		15.7.04
核對 checked	W C LEUNG		15.7.04

核准 approved

(N P TONG)
總工程師 Chief Engineer
日期 date : 15.7.04

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

IMPROVEMENT WORKS TO TUNG PING CHAU PUBLIC PIER - GENERAL ARRANGEMENT
東平洲公眾碼頭改善工程 - 概略設計圖

圖則編號 drawing no.
PW-GS04-003

比例 scale
1 : 500 OR AS SHOWN

office 辦事處
PORT WORKS DIVISION 海港工程部
CIVIL ENGINEERING OFFICE 土木工程處

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT HONG KONG
香港土木工程拓展署

A3 420 x 297

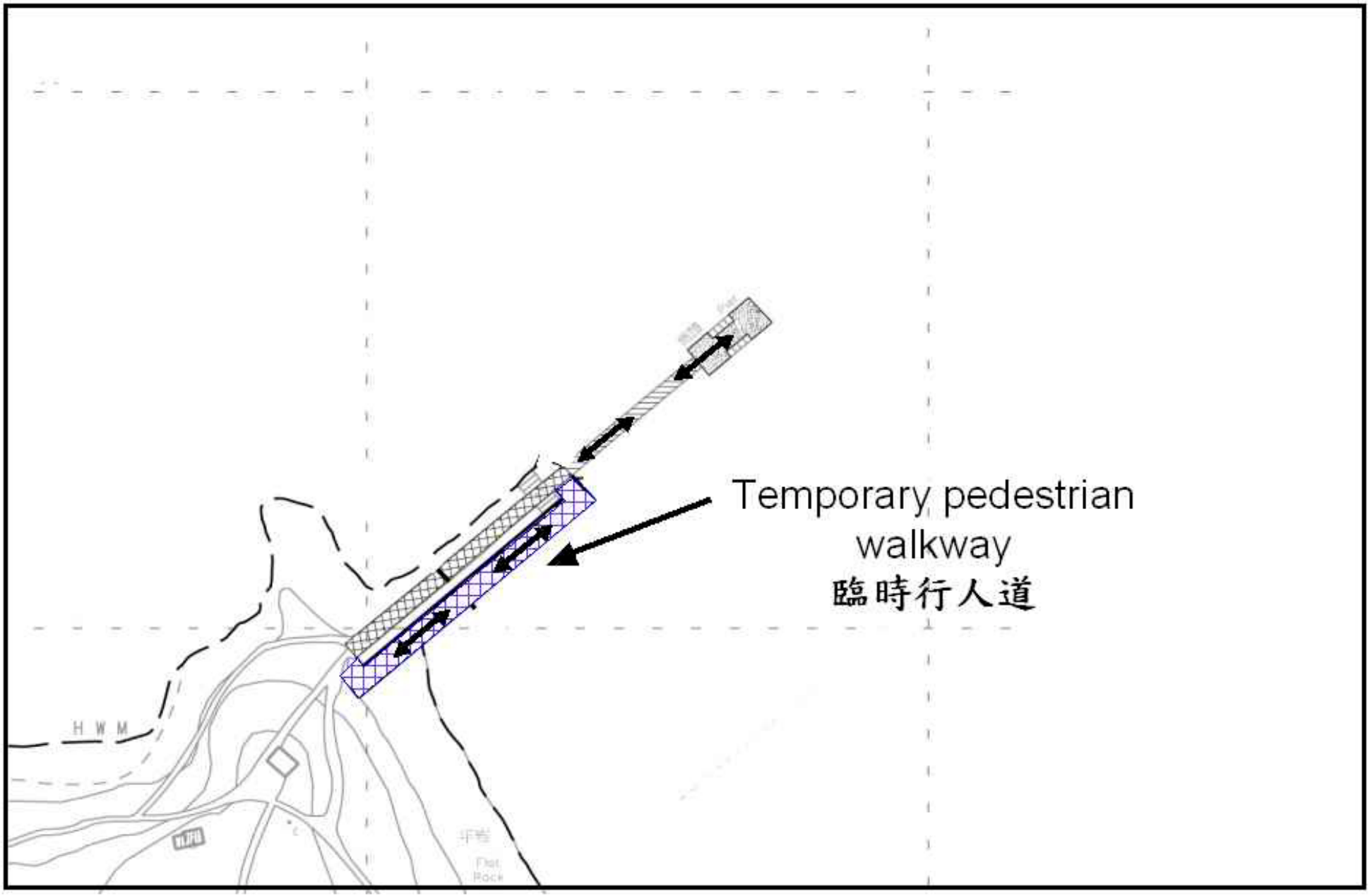
n:\Piers\TungPingChau\PW-GS04-003.dgn

e:\users\resources\comp_plot.pen

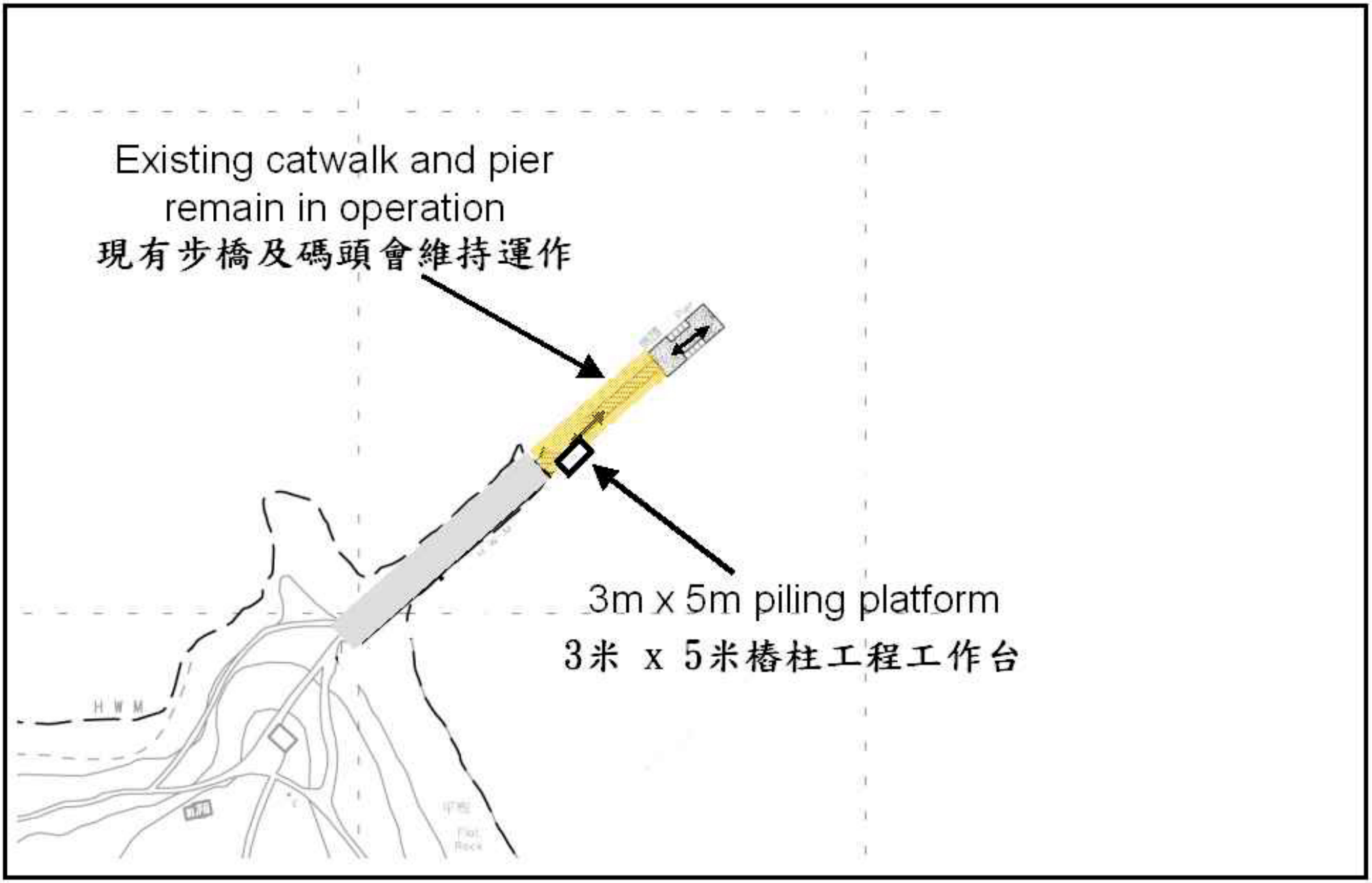
Appendix B

- Construction Sequence

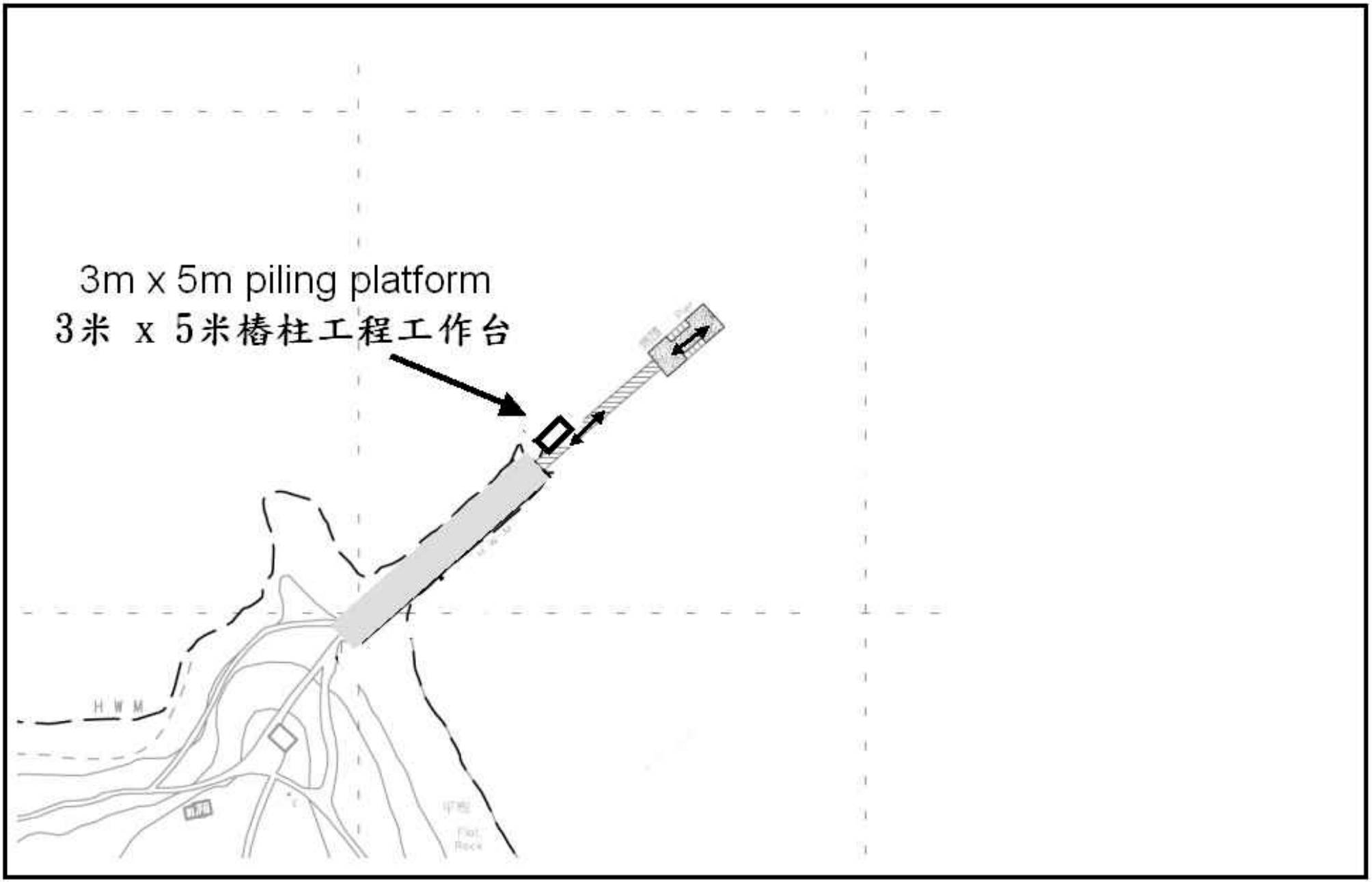
Phase I – Widening of existing embankment (last for 2 months)
第一期工程 – 擴闊現有堤道



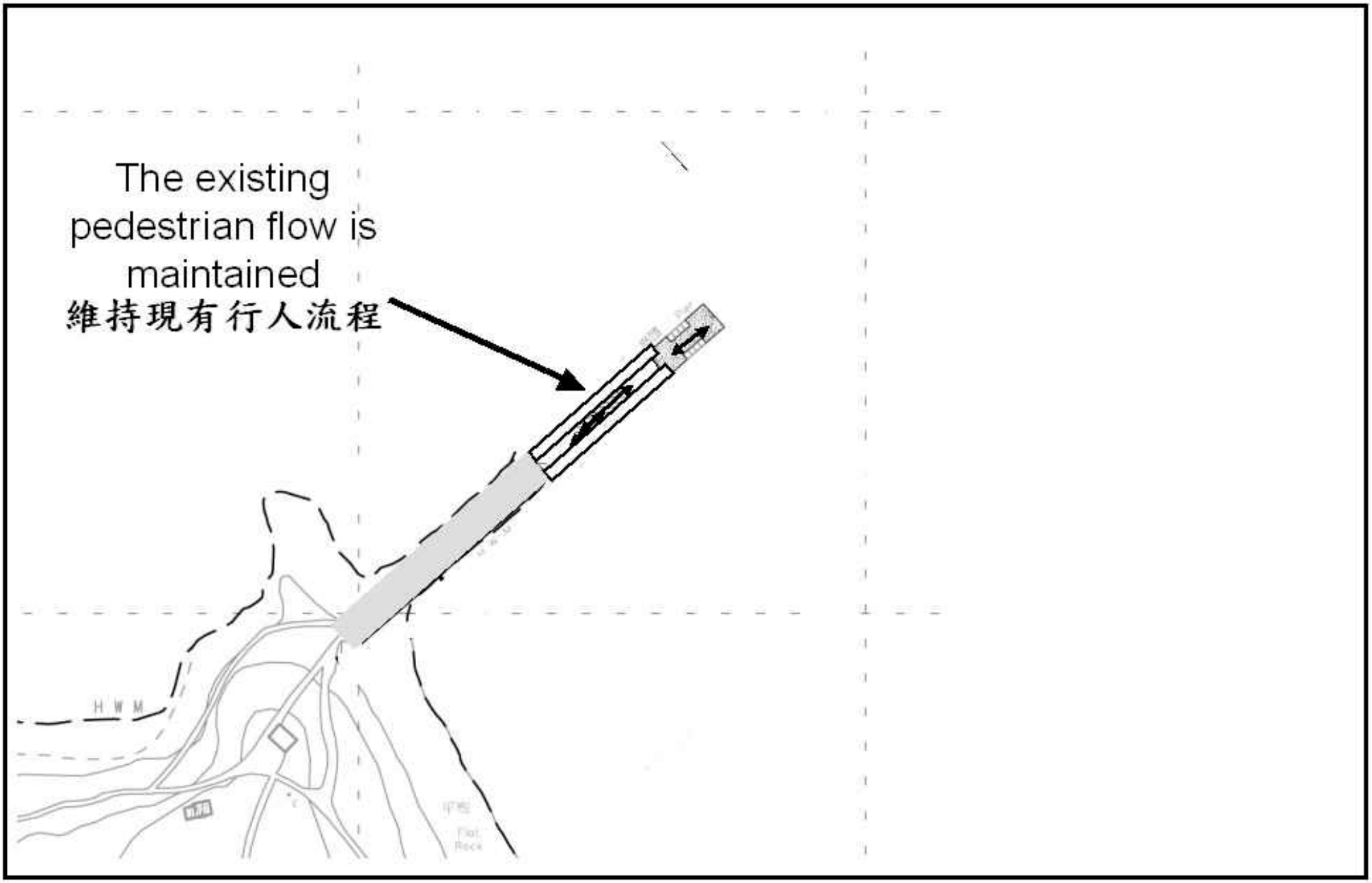
Phase II - Piling works for catwalk (stage 1) – (last for 1 month)
第二期工程 – 步橋樁柱鑽挖工程(第一階段)



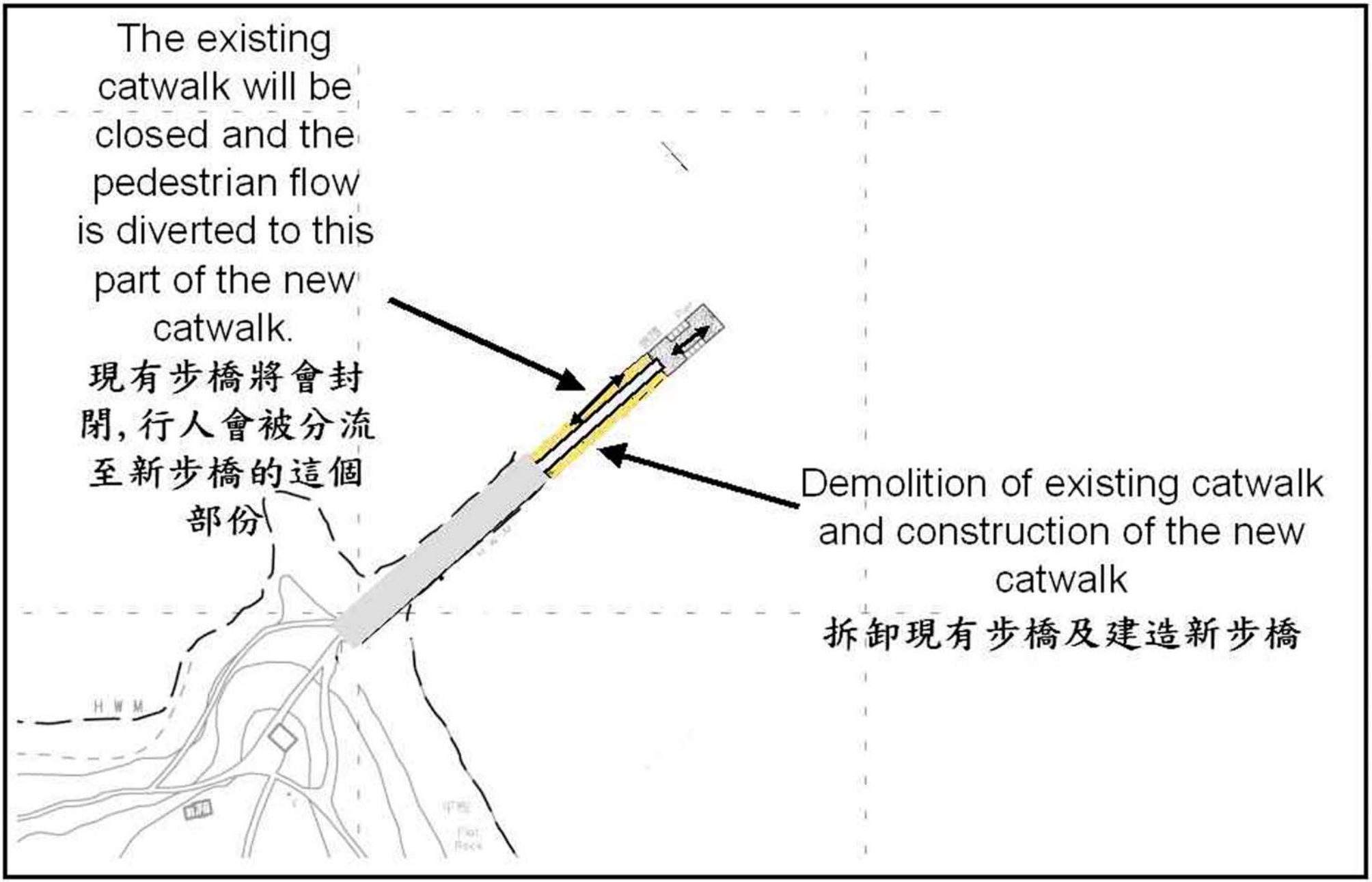
Phase II - Piling works for catwalk (Stage 2) – (last for 1 month)
第二期工程 – 步橋樁柱鑽挖工程(第二階段)



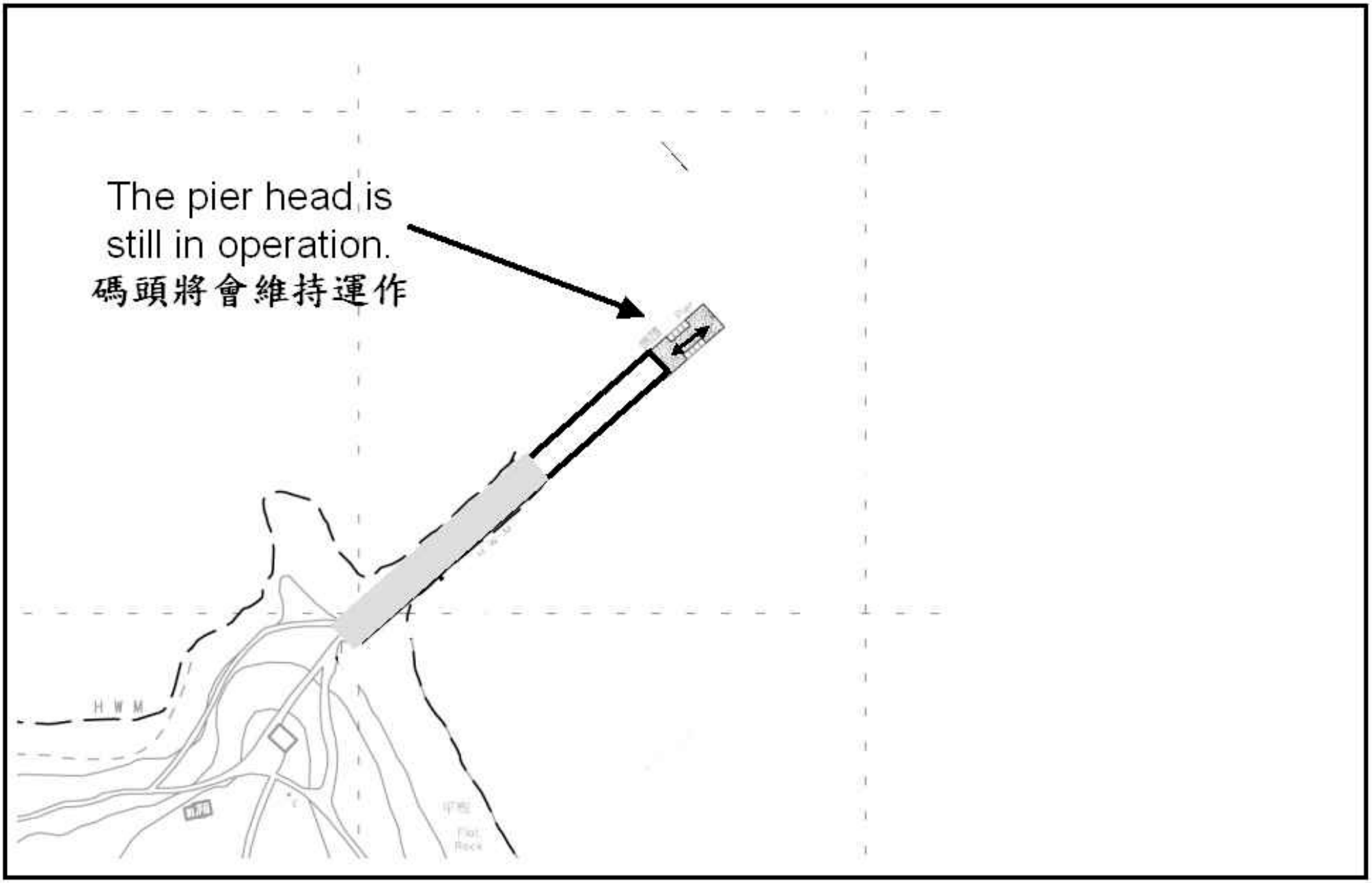
Phase III – Construction of the catwalk (Stage 1) (last for one month)
第三期工程 – 建造步橋(第一階段)



Phase III – Construction of the catwalk (Stage 2) (last for one month)
第三期工程 – 建造步橋(第二階段)



Phase IV – Construction of a roof over the pier head (1 month)
第四期工程 – 建造碼頭上蓋



Appendix C

Photos showing the existing pier

Appendix D

Distribution of Corals

Appendix D Distribution of Corals – No coral will be affected
附錄D 珊瑚分佈圖 – 珊瑚將不受影響