

PROJECT PROFILE

A COMMERCIAL SCALE WIND TURBINE PILOT DEMONSTRATION AT KAU SAI CHAU

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中華電力 
CLPower

*A COMMERCIAL SCALE WIND TURBINE PILOT DEMONSTRATION AT
KAU SAI CHAU*

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INTRODUCTION

Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL), recognises the Government of the Hong Kong Special Administrative Region (HKSARG)'s efforts in exploring alternative power sources, including renewable energy, and in promoting public awareness of these alternative power sources. To this end, CAPCO has launched a commercial scale wind turbine pilot demonstration (the Project) to investigate the economic, environmental and technical feasibility and practicality of wind energy application in Hong Kong, in support of HKSARG's renewable energy initiative. The Project will take a grid-connected commercial scale wind turbine through the full site selection and regulatory process so that the community can gain more knowledge and experience about wind energy application in Hong Kong.

This Project Profile presents an outline of the Project and key information on the environmental aspects of the Project for the application of an Environmental Impact Assessment (EIA) Study Brief under *Section 5.1(a)* of the *Environmental Impact Assessment Ordinance (Cap. 499)* (EIAO).

2 *BASIC INFORMATION*

2.1 *PROJECT TITLE*

A Commercial Scale Wind Turbine Pilot Demonstration at Kau Sai Chau

2.2 *NAME OF PROJECT PROPONENT*

Castle Peak Power Company Limited (CAPCO)

2.3 *NAME AND TELEPHONE NUMBER OF CONTACT PERSONS*

<i>Name, Position and Title</i>	<i>Telephone Number</i>
Mr Richard Morse <i>Head of Environmental Strategy and Development, CLP Power Hong Kong Limited</i>	2678 8380

2.4 *DESIGNATED PROJECT TO BE COVERED BY THE PROJECT PROFILE*

The grid-connected commercial scale wind turbine power generation system qualifies as a Designated Project under Category D (Energy Supply), Item D.1 (Public Utility Electricity Power Plant) of Schedule 2, Part I under the EIAO.

2.5 *PURPOSE AND NATURE OF THE PROJECT*

The Project is a pilot study and its main purposes are as follows:

- to evaluate the applicability of a grid-connected wind power generation system in Hong Kong;
- to collect engineering and environmental information (including the necessary statutory permitting requirements) required for the development of wind power generation in Hong Kong;
- to educate and raise the community's awareness of the issues, costs, constraints, benefits, etc of wind energy generation in Hong Kong.

2.6 *PROJECT DESCRIPTION*

This section presents the key information relating to the selection of the Project Site, the wind turbine proposed to be installed, and the activities associated with the construction and operation of the Project. It should be

noted that the Project is under design and that the details are subject to change.

2.6.1 Site Selection Process

A rigorous site selection process has been conducted to identify suitable areas for the development of the Project. A potential area must have the following essential characteristics to be considered in the selection process:

- the area must be on land;
- the area must have close access to CLP Power's transmission network.

Considerations given in the selection process can be broadly divided into three main categories, namely grid interface; environmental, physical and social constraints; and wind resource.

The main consideration in terms of grid interface in the selection process is the ability to connect the potential area with CLP Power's existing supply grid through a land cable. The environmental, physical and social constraints to the development of the Project include:

- Country Parks and any gazetted extensions;
- Special Areas;
- Ramsar Sites;
- firing ranges;
- Wild Animal Protection Areas;
- Sites of Special Scientific Interest (SSSI);
- sea turtle nesting grounds;
- gazetted bathing beaches;
- seawater intake points;
- areas with residential and commercial premises;
- development height restrictions in the vicinity of the Hong Kong Disneyland Resort;
- building height restrictions associated with the safe operation of the Hong Kong Airport;
- areas with population density greater than 30,000 per km²;
- constructability.

In parallel with the site screening exercise, preliminary wind resource modelling was conducted to identify areas with a reasonable wind resource for the development of the Project.

A composite constraints map that shows areas with all the abovementioned constraints (*Figure 2.6a*) was overlaid with a relative wind resource map of Hong Kong (*Figure 2.6b*) to establish a long-list of potential areas. Areas with reasonable wind resource potential and unconstrained by the abovementioned factors were listed for further consideration.

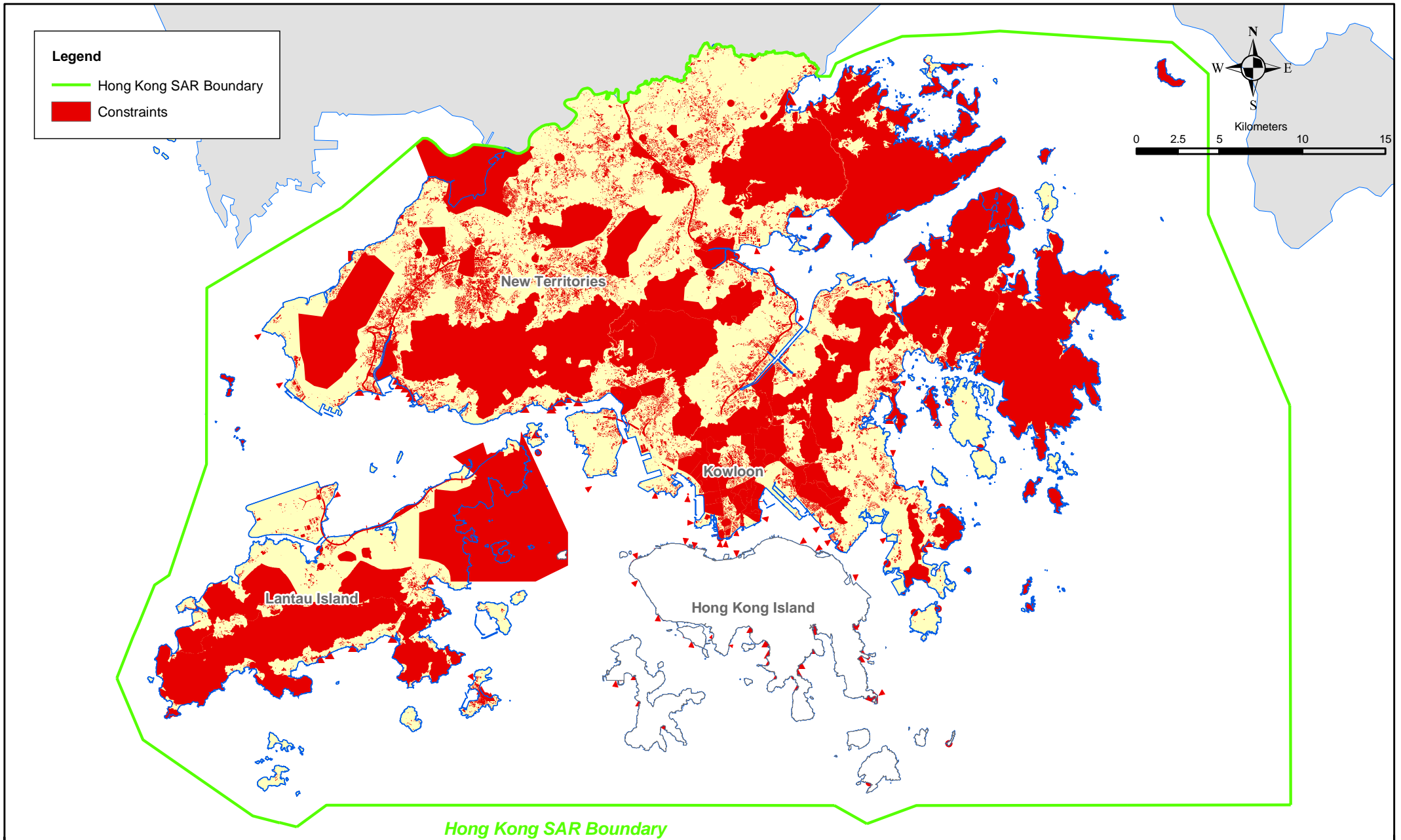


Figure 2.6a

Constraints to the Siting of a Commercial Scale
Wind Turbine within CLP Supply Area

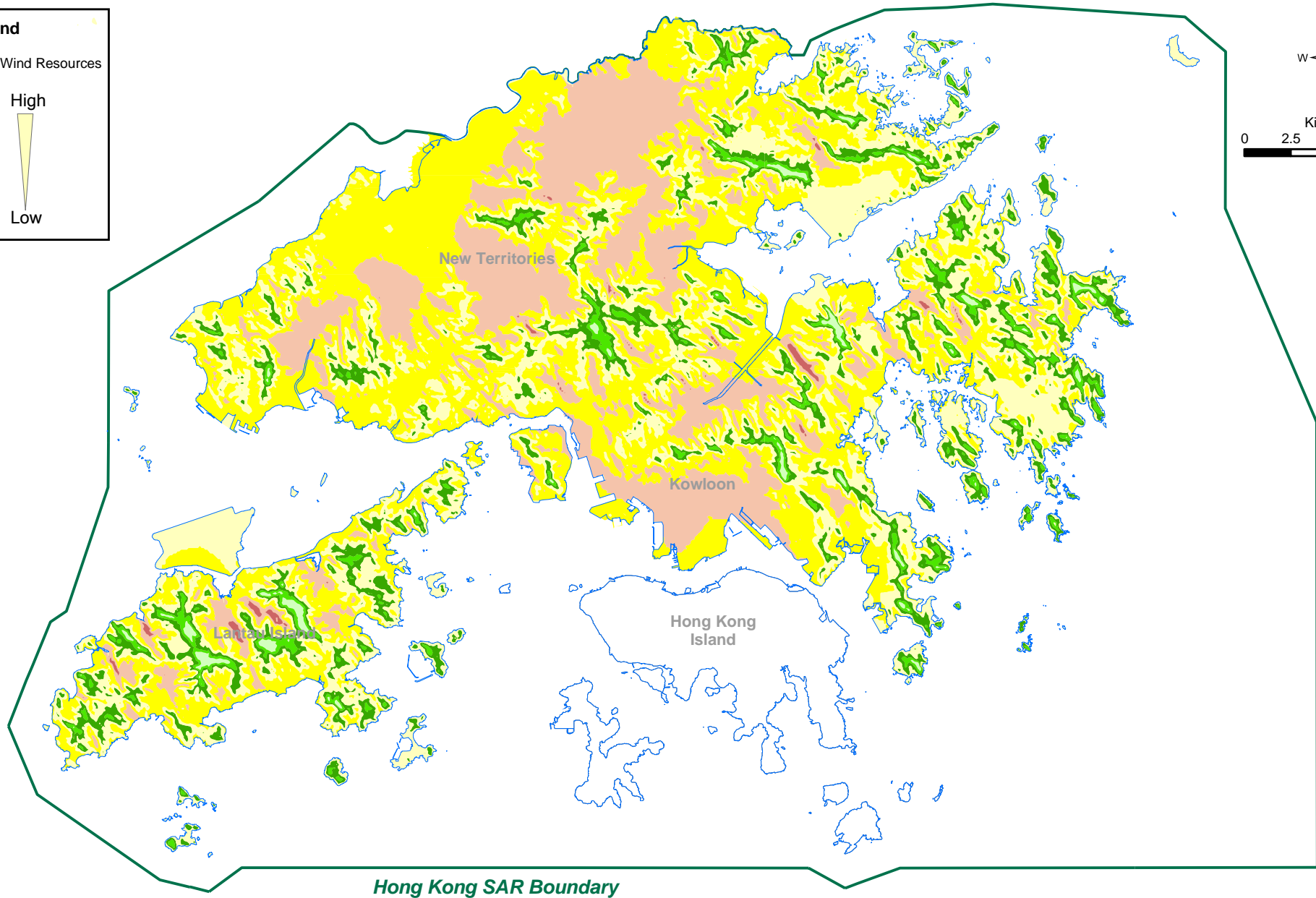
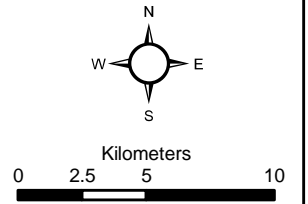
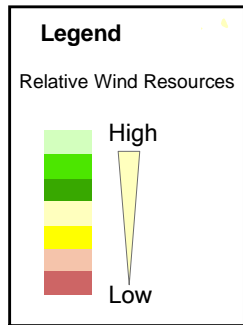


Figure 2.6b

Relative Wind Resources within CLP Supply Area

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A set of criteria covering planning, environmental and engineering considerations was applied to assess the potential areas. Site visits were conducted and observations from the visits and their implications on the development of the Project were noted. Based on the ranking results and consideration of the site observations, a short-list of potential areas was prepared.

The potential areas were finally subject to a preliminary review to evaluate the feasibility and acceptability of the potential areas for the development of the Project in terms of engineering feasibility and wind energy potential. With the initial confirmation on the engineering feasibility and wind energy potential, an area on the island of Kau Sai Chau was selected as one of the two potential Project sites. A separate Project Profile will be submitted for the alternative site.

2.6.2 *The Project Site*

Kau Sai Chau is a large outlying island east of Sai Kung, with an approximate total area of 6.7 km² (670 ha). The northern half of the island is occupied by the Jockey Club Kau Sai Chau Public Golf Course (the Public Golf Course). Construction of an extension of the Public Golf Course has recently commenced. A small fishing village, Kau Sai Village, with a population of fewer than 100, is located on the southern coast of the island. The only vehicular road on the island connects the pier of the Public Golf Course on the western coast with the Public Golf Course Administration Building. A water main installed by the Water Supplies Department (WSD) traverses the island from north to south. Pressure release structures and thrust blocks associated with the operation of the water main have also been constructed along the alignment of the main. A concrete-paved footpath follows the alignment of the WSD water main, presumably for maintenance purpose. A dedicated scheduled ferry service serves the Public Golf Course from Sai Kung Town. The island can also be accessed by boat from the various sets of landing steps serving Kau Sai Village.

The Project Site is on high ground at an elevation of about +150mPD in the southern part of the Kau Sai Chau (*Figure 2.6c*) close to the water main maintenance track. The area is about 700 to 800m from Kau Sai Village and it will not encroach upon the existing Public Golf Course or its extension. The dimensions of the Project Site, including the construction lay down areas for the various components of the wind turbine system, are approximately 60m x 65m (*Figure 2.6d*). Part of the Project Site is a clearing with little vegetation cover and was possibly created during the construction of the water main. The remainder of the Project Site is covered with natural vegetation.

2.6.3 *The Wind Turbine*

Wind turbine technology is evolving rapidly and it is not possible at this stage to be specific as to the exact type of wind turbine that will be installed. It is

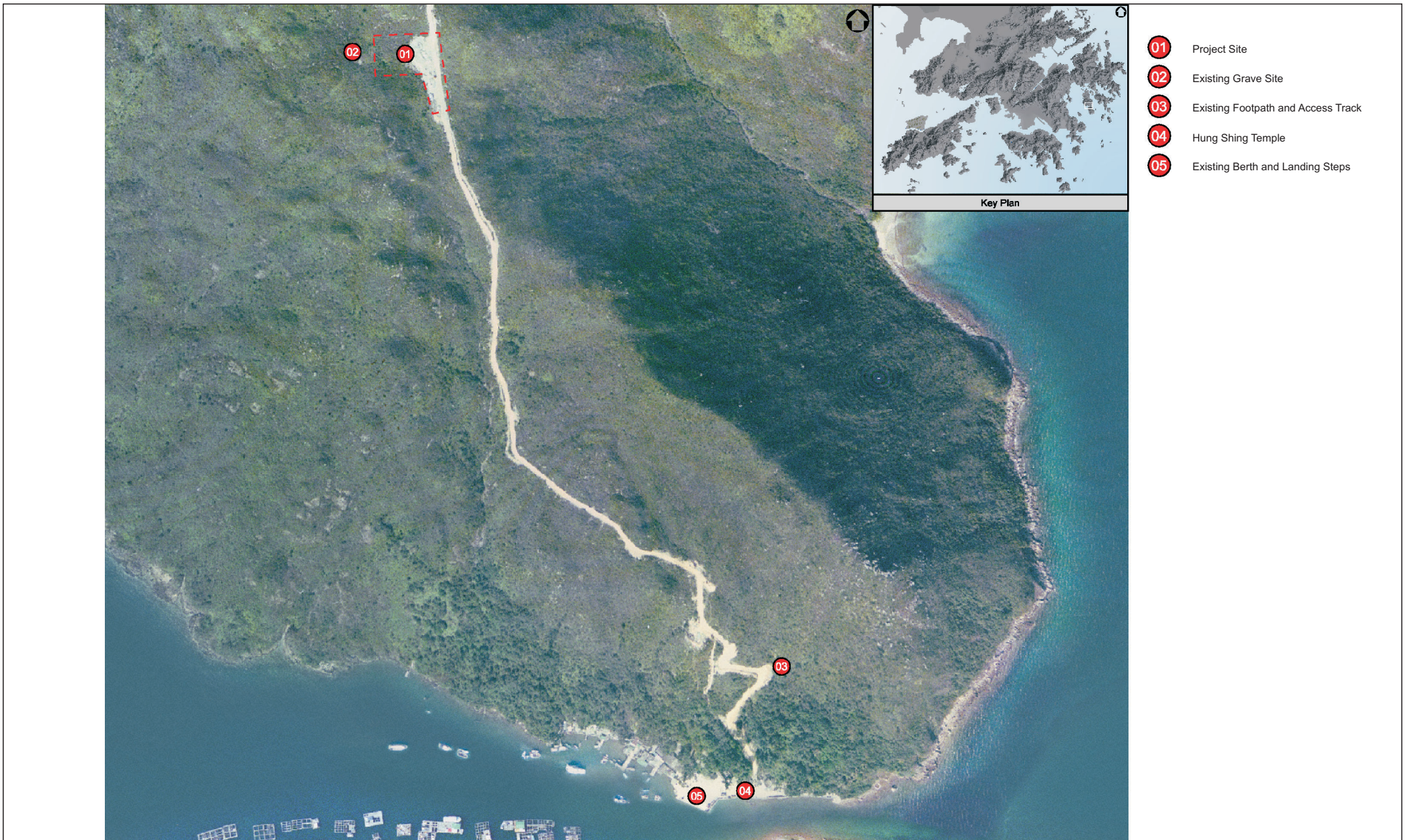


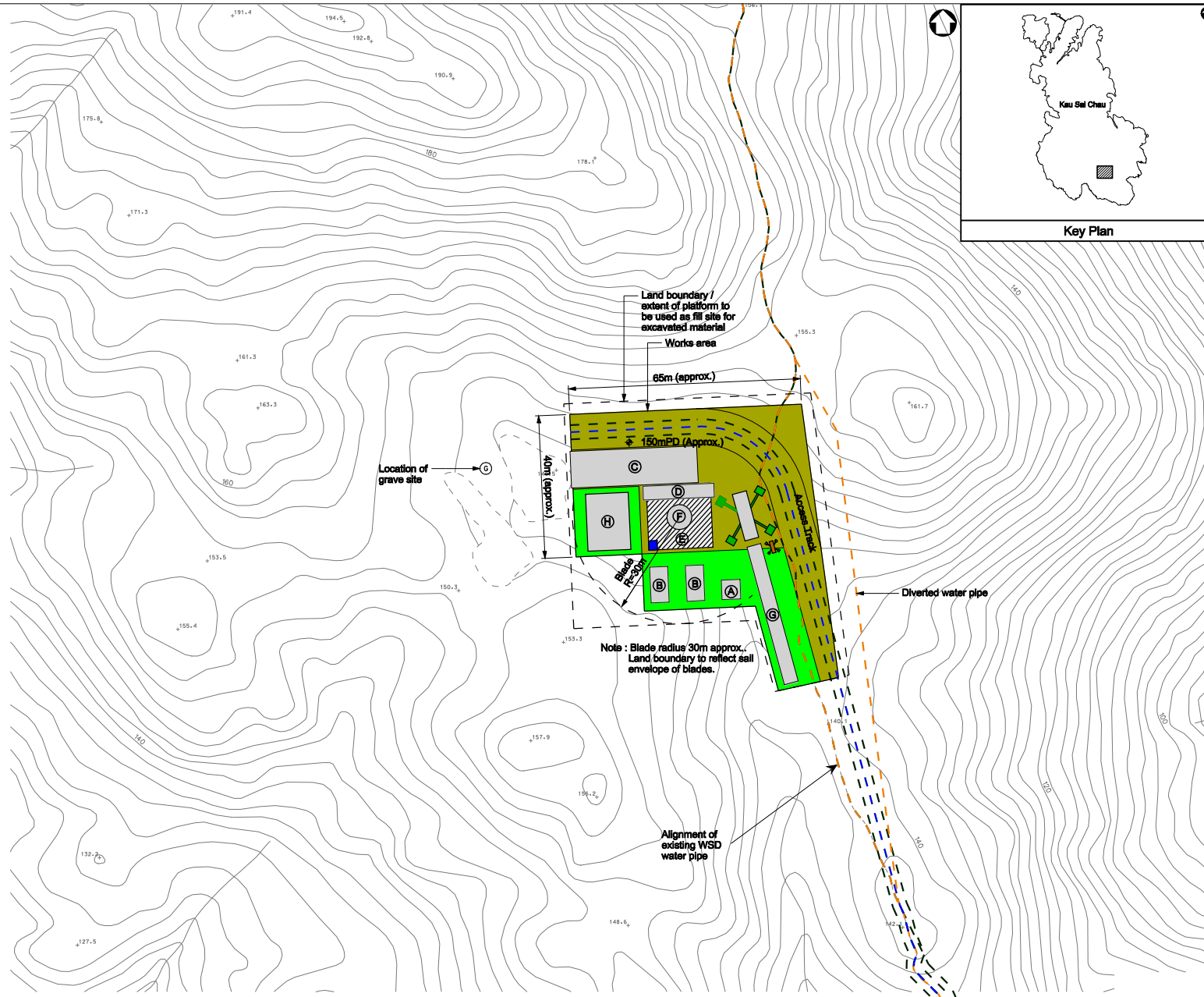
Figure 2.6c

CLP/ CAPCO Commercial Wind Turbine Pilot Demonstration
 Kau Sai Chau Project Site and its Surrounding Environment

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Legend:

- (A) Substation 5mx6m
- (B) Temporary Cabins 5mx10m
- (C) Turbine Lay Down Area A 10mx35m
- (D) Turbine Lay Down Area B 4mx20m
- (E) Set Up Transformer 2.4mx2.6m
- (F) Turbine Foundations 18mx18m
- (G) Jib Assembly Area 4mx40m
- (H) Materials Lay Down Area
- Concrete Hardstand Area
- Compacted Fill / Lay Down Area
- Tower Foundation

Note:
All dimensions indicated are preliminary and are subject to detailed design

FIGURE 2.6d

**CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Preliminary Site Arrangement for Kau Sai Chau Project Site**

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currently envisaged that a wind turbine with a rated capacity of about 800 kW to 1.3MW will be installed. The proposed wind turbine will be a three-bladed horizontal axis machine. In a typical wind turbine, the main electrical and mechanical parts, including the gearbox, the generator and the yaw mechanism, are housed in the nacelle, which sits on top of a tower. The tower will be a tubular structure, which is commonly fabricated from steel but can also be constructed of other materials such as concrete. The tower will stand upon a shallow concrete spread foundation with approximate dimensions of 18 m x 18 m or a 9 m x 9 m pre-bored H-pile foundation subject to detailed site investigation.

The rotor blades capture the wind and transfer its power to the rotor hub, which is connected to the electrical generator via the gearbox. The electrical power generated is transmitted via a step-up transformer to a substation, from where the power is fed into the nearest existing 11 kV power grid through overhead or underground transmission cables. A summary of the general wind turbine specification is presented in *Table 2.1*.

Table 2.1 *A Summary of the General Wind Turbine Specification*

Parameter	General Specification
Type	3-bladed horizontal axis machine
Rated Capacity	About 800kW – 1.3 MW, 50 Hz, 690 V
Grid Connection	11 kV
Power Regulation	Stall or pitch control
Design Lifetime	20 years
Size of Rotor Blade	Up to 30 m length, 5 t weight (assembled 3-bladed rotor weighs up to 21.5 t)
Size of Nacelle	Up to 10 m (l) x 3.75 m (h) x 3.0 m (w), 58.5 t weight
Size of Tower	Up to 60 m height
Overall Size of Wind Turbine	Up to 90 m tip height

2.6.4 *Construction of the Project*

Access to the Project Site for the delivery of wind turbine components and construction materials is expected to be a key element for the construction of the Project. Existing access is limited to the concrete-paved footpath adjacent to the WSD main and upgrading of the access for construction vehicles will be required.

It is currently expected that derrick lighters can berth along the existing vertical seawall at Kau Sai Village for the delivery of construction equipment and materials. The draught at high tide is reportedly more than 2.5m and should be adequate for the operation of a derrick lighter. The delivery of materials to the existing berth may however involve night-time operations to

take advantage of the high tide and to ensure sufficient draught for the delivery vessels.

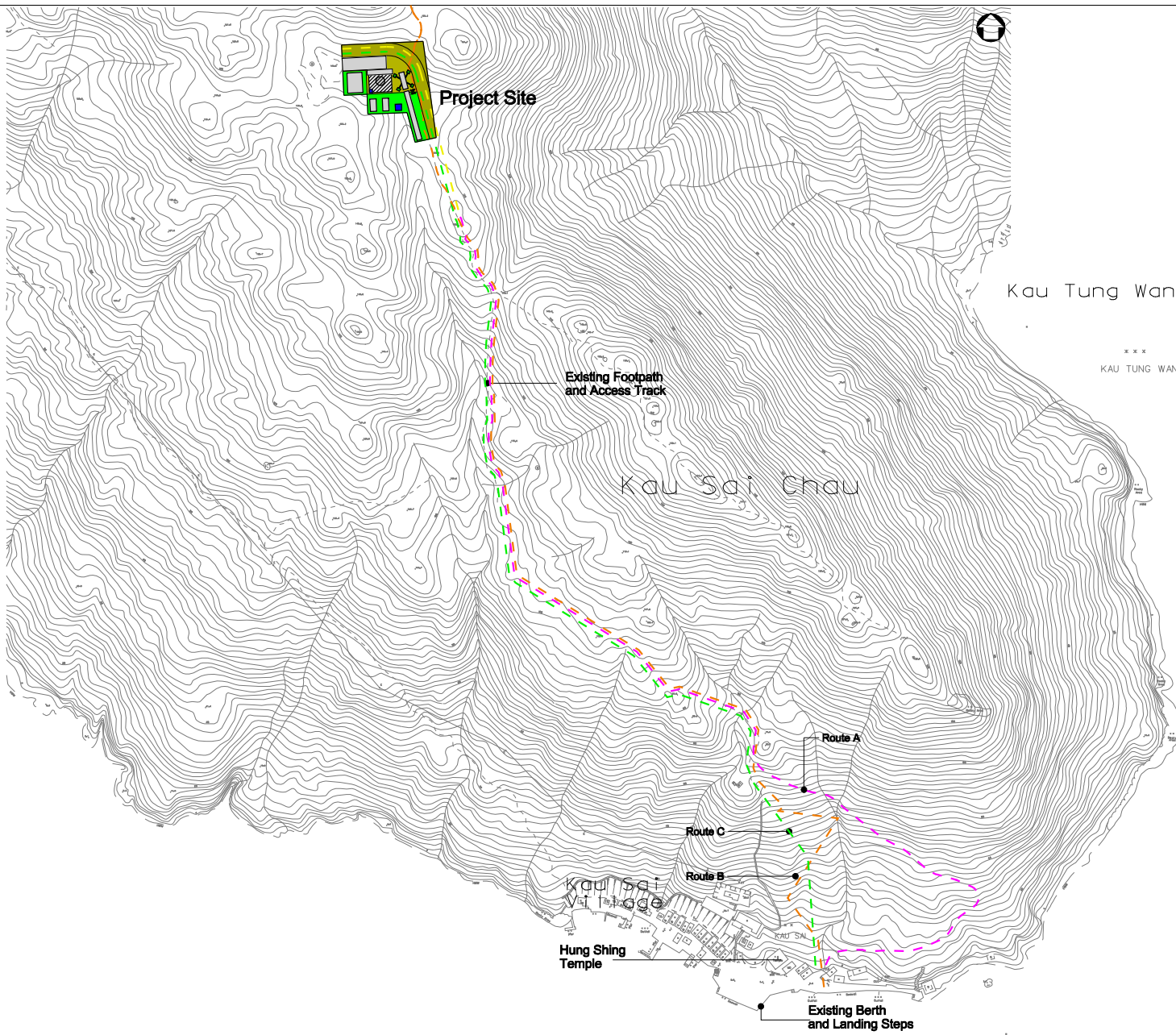
The ascent from the seafront to the elevation of about +100mPD is a steep one and the exact route for this section is still being explored. Preliminary options include a new road on the hill slope, the abandoned access route for the WSD water main and a winch route are being considered (*Figure 2.6e*). The access may go through private lots and adjacent to buildings. The formation of the access may require certain temporary structures be demolished. It may also cross existing streams and may require the modification of an existing culvert.

From +100mPD to the Project Site, the steep access will join the existing concrete footpath. Construction of a haul route along the alignment of the footpath will be required for the passage of the bulky components of the wind turbine. Temporary and/or permanent diversion of the WSD water main may also be required at certain locations to allow the passage of construction vehicles.

The Project Site will need to be cleared of vegetation and formed to provide a level area with approximate dimensions of 60m x 65m. Permanent diversion of approximately 300m of WSD water main is also expected to be required. Preliminary information indicates that the ground conditions on the Project Site consist of a layer of fill overlying rock. A spread foundation measuring 18m by 18m and 3m in depth, or a pre-bored H-pile foundation 9 m x 9 m x 2 m deep, will be constructed for supporting the wind turbine structure subject to the detailed site investigation and cost comparison.

The main construction activities at the Project Site are:

- site clearance and formation;
- excavation for spread foundation or installation of pre-bored H-pile subject to detailed design;
- erection of wind turbine tower by assembling pre-fabricated steel tower sections or stitching of pre-cast concrete ring segments;
- installation of nacelle and rotor blades;
- backfilling of the foundation area to ground level;
- installation of step up transformer and substation;
- installation of transmission cables between the substation and the 11 kV supply grid;
- testing and commissioning of the wind turbine system.



- Legend:**
- Route A (New Road)
 - Route B (WSD Abandoned Access)
 - Route C (Winch Route)

FIGURE 2.6e

**CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Existing Access and Proposed Construction Access Routes for
Kau Sai Chau Project Site**

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2.6.5 *Operation of the Project*

The operation of the wind turbine, including start-up and shut-down, will be automatic. The wind turbine will be unmanned and attendance of operational personnel will only be required during emergencies or routine maintenance.

2.7 *PLANNING AND IMPLEMENTATION PROGRAMME*

The Project will be planned and implemented by CAPCO together with consultants and contractors. There are no known interactions with other projects. The front-end engineering design for the Project has commenced. The key stages of the Project, according to the currently envisaged Project Programme, are presented in *Table 2.2*.

Table 2.2 *Proposed Project Programme*

Key Stage of the Project	Indicative Date
Commencement of front-end engineering design	Q4, 2005
Land application	2006 to 2007
Commencement of construction	Early 2007
Operation of the wind turbine	Late 2007

MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

The Project Site is located in the southern part of Kau Sai Chau. The area is currently not covered by any Outline Zoning Plan (OZP). Part of the Project Site was cleared of vegetation, possibly during the construction of the north-south water main. Other than the water main and the associated maintenance footpath, the areas immediately surrounding the Project Site are undeveloped.

The Project Site is bounded to the north by a steep natural hill slope, which rises to an elevation of about +195mPD. Small knolls with elevations of about +158 to +163mPD are found to the east, south and west of the Project Site. Apart from the clearing in its eastern portion, the vegetation in this area is predominantly shrubs. A grave is found to the west of the Project Site.

In addition to the areas in the vicinity of the Project Site where the wind turbine will be installed, the environment along the construction access will also need to be considered. It is anticipated that the Project Site will be accessed from the south of the island. Some seasonal streams are found in the area where the construction access will be formed. There is a small patch of medium aged woodland that consists of native woody species intermingled with village plantation species at the back of Kau Sai Village.

Two Declared Monuments, the Kau Sai Chau Rock Carving and the Hung Shing Temple, are identified (*Figure 3.1a*). The Rock Carving is located about 2.5 km from the Project Site on the coast of a headland in the north-western part of the island. The Hung Shing Temple and an associated earth shrine are located immediately east of Kau Sai Village. The temple is dedicated to "Hung Shing", a deity commonly worshipped by the floating population in Guangdong Province. The restoration of the temple won one of the UNESCO Asia-Pacific Heritage 2000 Awards as an "Outstanding Project". The Kau Sai Chau Archaeological Site, where archaeological finds were found during field surveys undertaken for the development of the Public Golf Course and its extension, is located in the middle portion of the island at a distance of approximately 700m to the north of the Project Site.

The nearest Air Sensitive Receivers (ASRs) and Noise Sensitive Receivers (NSRs) will be Kau Sai Village, which is approximately 700 to 800 m south of the Project Site.

Kau Sai Chau is located within the Port Shelter Water Control Zone (WCZ). According to the EPD's data, the water quality of the Port Shelter WCZ is among the best in HKSAR with high dissolved oxygen (DO) levels, low turbidity, nutrients and *E. coli*. Kau Sai Fish Culture Zone (KSFCZ) is located south of Kau Sai Village.

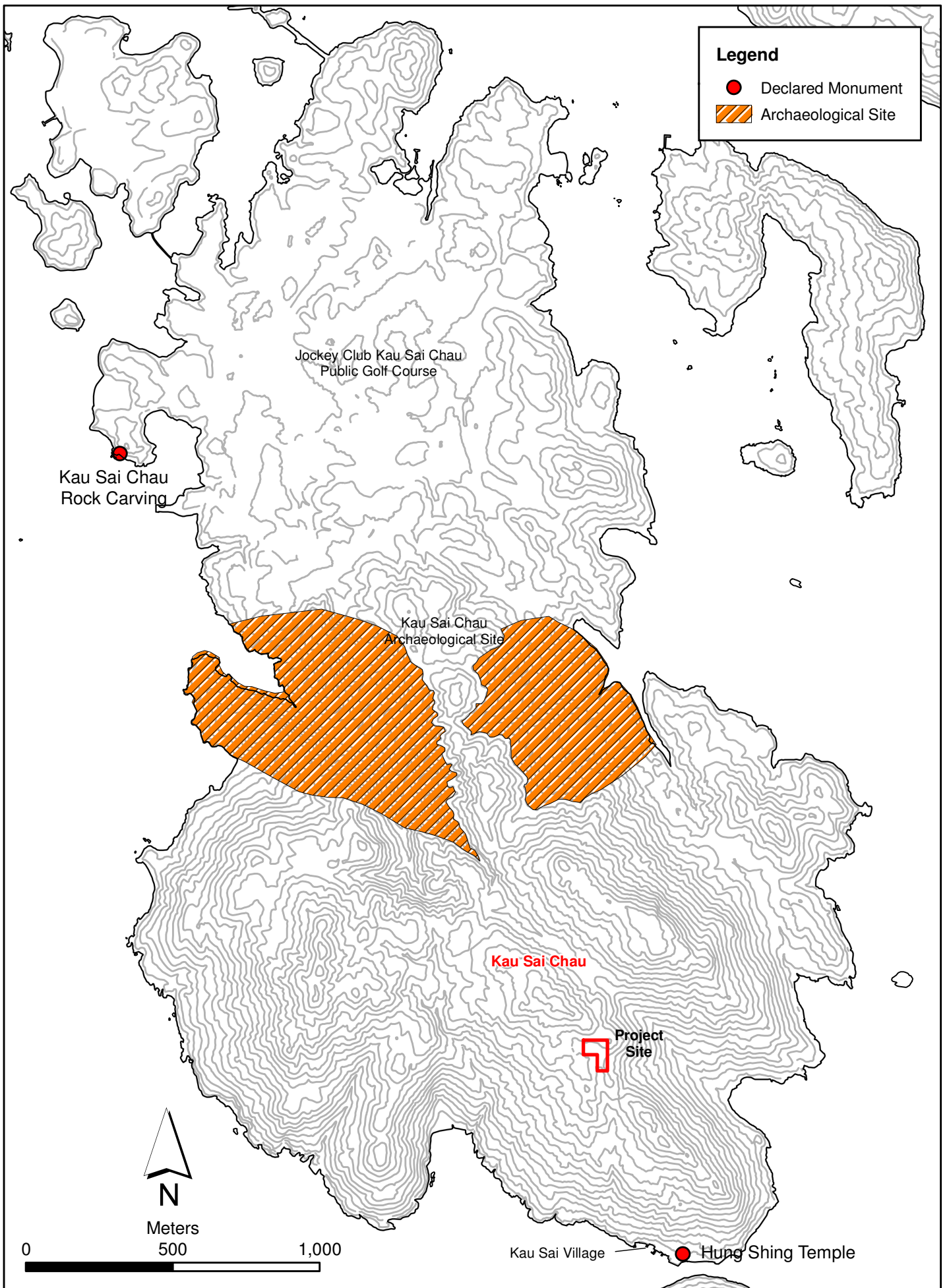


FIGURE 3.1a CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Archaeological Site and Declared Monuments
at Kau Sai Chau

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The construction and operation of the Project may give rise to potential environmental impacts. These potential impacts are identified in *Table 4.1* and are addressed in the sections that follow.

Table 4.1 Potential Environmental Impacts Arising from the Project

Potential Impact	Construction	Operation
• Gaseous Emission	✓	–
• Dust	✓	–
• Odour	–	–
• Noise	✓	✓
• Night-Time Operations	✓ (only for delivery of materials and equipment)	✓
• Traffic (Land & Marine)	✓	–
• Liquid Effluents, Discharge or Contaminated Runoff	✓	–
• Generation of Waste or By-products	✓	–
• Manufacturing, Storage, Use, Handling, Transport, or Disposal of Dangerous Goods	–	–
• Hazard to Life	–	–
• Landfill Gas Hazard	–	–
• Disposal of Spoil Material	✓	–
• Disruption of Water Movement or Bottom Sediment	–	–
• Unsightly Visual Appearance	✓	✓
• Cultural & Heritage	✓	–
• Terrestrial Ecology	✓	✓
• Marine Ecology	–	–
• Cumulative Impacts	–	–

Legend:
 '✓' = Possible '–' = Not Expected

4.1 CONSTRUCTION PHASE

4.1.1 Air Quality

Given the limited number of construction vehicles and plant required for the construction of a wind turbine, the potential impact from gaseous emissions from these vehicles and plant will be negligible. Dust nuisance is the only potential air quality impact during the construction of the Project. Formation of the construction access, wind turbine foundation construction and slope stabilisation works will be the main potential sources of construction dust. With the small Project Site area and a relatively short construction period, adverse impacts associated with construction dust are not expected.

4.1.2 *Noise Impact*

The amount of construction equipment to be used during construction is small given the relatively small scale of the Project and the nature of construction. Only a small number of Powered Mechanical Equipment (PME) such as generator, excavator, concrete mixer lorry, heavy duty tracked crane and mobile crane will be used at the Project Site, and therefore the potential construction noise impacts from the activities at this location will be minimal. Potential construction noise impacts to Kau Sai Village during the formation of the construction access will however require careful consideration.

The delivery of construction materials and equipment to the island may involve night-time operations to take advantage of the tide and to ensure sufficient draught for the delivery vessels. Given the relative small scale and short duration of the construction works, the requirement for night-time delivery should be low and the associated noise impacts are expected to be minimal.

4.1.3 *Traffic Generation*

With the relatively small scale and short duration of construction activities, the amount of marine and road traffic generated will be small. It is expected that the construction workforce required for the works will be small. The construction workers are expected to travel to the island on hired passenger boats. No adverse impacts on traffic are anticipated.

4.1.4 *Waste Management*

The construction activities associated with the Project may generate the following broad categories of waste:

- construction and demolition (C&D) materials, mainly inert materials arising from foundation and piling works;
- small quantities of chemical waste, such as batteries and lubricating oils from the maintenance of construction vehicles and equipment;
- small quantities of general refuse, including food waste from the on-site work force and the packaging from the construction materials.

It is expected that inert materials generated from the construction works will be properly segregated and will be reused for backfilling on-site. The amount of construction waste requiring off-site disposal and the associated potential impacts will be negligible.

The construction activities would involve a limited number of construction vehicles and equipment. The quantities of chemical waste to be generated from regular maintenance of these vehicles and equipment should be minimal and no impact is expected in this respect. With proper housekeeping

measures and refuse collection in place, minimal or no impact is expected to result from refuse generated during the construction phase of the Project.

4.1.5 *Water Quality*

Formation of the construction access to the Project Site will require crossing of some seasonal streams and slope cutting, and therefore may result in water quality impacts.

Construction of the wind turbine foundation will involve excavation works and on-site concrete casting and site surface runoff may arise during the wet season. Adverse water quality impacts from concreting works and site runoff are not expected if proper site management practices are fully implemented.

No marine works are currently envisaged, and therefore no adverse marine water quality impacts are expected.

4.1.6 *Visual Impact*

Construction activities, including construction access formation, site formation, construction activities for wind turbine foundation, lifting of turbine components by crane and erection of temporary hoardings may pose some visual impacts on the surrounding Visual Sensitive Receivers (VSRs). For construction activities other than access formation, no adverse impacts are envisaged owing to their transient nature. The degree and extent of visual impacts associated with the construction access will depend on the exact route and method to be adopted. The impacted areas will be landscaped immediately after the completion of the construction work.

4.1.7 *Cultural Heritage*

The first section of construction access will be formed on the slopes close to the Hung Shing Temple and its associated earth shrine but it will not encroach on the Temple. No adverse impact on the Hung Shing Temple is therefore expected.

No adverse impact on the Kau Sai Chau Archaeological Site and the Kau Sai Chau Rock Carving is expected because of the large separation distance between these features and the Project Site.

4.1.8 *Ecology*

The natural habitat in the environs of the Project Site is dominated by shrubland. Site clearance will be required for the formation of the Project Site. However, most of the plant species in the vicinity of the Project Site are common in Hong Kong and the potential adverse ecological impacts associated with construction activities at the Project Site are low.

The formation of the construction access may involve creating a new route or reopening the abandoned water main construction access. The woodland found behind the Hung Shing Temple and Kau Sai Village comprises native woody species intermingled with village plantation. No rare or protected species have been found in the woodland. The potential ecological impacts will depend on which approach is adopted for the construction access.

4.2 OPERATIONAL PHASE

4.2.1 Noise Impact

The main sources of noise from the operating wind turbine will include aerodynamic noise around the rotor blades and the rotation of mechanical parts. Modern wind turbines have incorporated low-noise designs as standard features. Sound insulation materials are used in the nacelle to totally enclose the generator, shaft and gearbox so as to minimise medium and high frequency noise. Airfoil blades are purposely designed to reduce aerodynamic noise generated during wind turbine operation. Operational noise impacts at the closest NSR, Kau Sai Village at a distance of approximately 700 to 800m, are expected to be negligible as a result of the built-in standard low-noise features of the wind turbine and the large horizontal separation distance with topographical screening.

4.2.2 Visual Impact

Potential visual impacts during the operational phase are associated with the wind turbine structure and the rotating blades. The wind turbine will have a rotor tip height of up to 90m and a swept area of about 2,800 m². The wind turbine will unlikely be visible from Kau Sai Village or the Public Golf Course and its extension owing to topographical reasons. However, it will likely be visible from the surrounding areas, such as Sai Kung, Tseung Kwan O and Clear Water Bay. Whether the visual impact is beneficial or adverse would however very much depend on the viewers' acceptance of the use of this kind of renewable energy generation.

Consultation with the Civil Aviation Department (CAD) is also expected to be necessary to determine if certain conspicuous markings and hazard warning lighting on the wind turbine will be required for aviation safety reasons, and to ensure that aviation safety requirements are met while the potential visual impacts produced by such markings and lighting are minimised.

Some visual disturbances may also arise as a result of the periodic reflection and sunlight interruption produced by the rotating blades. Careful considerations on the surface finish of rotor blades should minimise such disturbances. A suitable overall colour scheme for the wind turbine may also be considered to further reduce the visual intrusion of the Project.

4.2.3

Ecology

Bird collision is the main concern for any wind turbine development in terms of ecological impacts during operation. The Project Site is not situated within any important bird habitat or on the flight path of migratory birds. These factors, combined with the fact that a single wind turbine will be installed, would present relatively low risks of bird collision.

The noise produced by the operating wind turbine will be a low, constant sound of a predictable level. As the Project Site is not within any important bird habitat, the significance of potential noise impacts on birds is expected to be low.

5 ***DESCRIPTIONS OF MITIGATION MEASURES***

5.1 ***CONSTRUCTION PHASE***

5.1.1 ***Air Quality***

With the limited dust impacts associated with the construction of the Project implementation of standard construction site management practices for dust control, including erection of site hoardings and watering of any exposed soil surfaces, will be sufficient to further minimise any residual dust impacts.

5.1.2 ***Noise***

Implementation of standard construction site management measures for noise control, such as the use of well-maintained construction plant and planning of the construction plant team, will be sufficient to ensure compliance with the construction noise limits.

The delivery of construction materials and equipment will be carefully planned to minimise the requirement for night-time operations and the associated noise impacts.

5.1.3 ***Water Quality***

Site run-off and drainage impacts will be minimised with reference to the control measures stipulated in the EPD's *Professional Persons Environmental Consultative Committee Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94)*. The implementation of good housekeeping and best management practices for stormwater will ensure that *Water Pollution Control Ordinance (WPCO)* standards are met.

5.1.4 ***Waste Management***

Only limited quantities of construction waste are expected to arise from the construction of the Project, of which only a small portion would require disposal at landfills. To further minimise waste arisings and to keep environmental impacts within acceptable levels, good site management practices will be adopted to minimise waste generated and waste on-site will be properly segregated to increase the feasibility of recycling certain components of the waste streams, such as steel.

In the event that chemical waste is generated during the construction of the Project, it will be properly stored in accordance with the EPD's *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste* before collection for disposal by a licensed Chemical Waste Collector. General refuse generated on-site will be stored in enclosed bins and transported to Sai Kung for off-site disposal.

5.1.5 *Visual Impact*

The formation of the first section of construction access on the hill slope from Kau Sai Village may give rise to different degree of visual impacts, depending on the approach to be adopted for the access. The hill slope traversed by the access should be reinstated as soon as the construction works are completed to minimise any impacts that may have been caused.

5.1.6 *Cultural Heritage*

Protective measures should be adopted during the construction period to minimise the potential impacts on the Hung Shing Temple, such as keeping an appropriate buffer distance between the construction access and the Temple. The Hung Shing Festival is celebrated every year in the second month of the Lunar Calendar. Indigenous villagers and other worshippers come to Kau Sai Chau to pay tribute to “Hung Shing”. Chinese operas are staged in the forecourt of the Hung Shing Temple, which is also the main landing point of Kau Sai Village. The delivery of construction materials and equipment should also be programmed to avoid the annual celebration of Hung Shing Festival. Close liaison with the villagers should be maintained to ensure that the construction activities will have no conflict with the arrangements for the festival celebrations.

5.2 *OPERATIONAL PHASE*

5.2.1 *Noise*

With the use of a wind turbine with a built-in low-noise design and the large separation with topographical screening between the Project Site and the nearest NSR, operational noise impacts are expected to be negligible. No additional mitigation measure is considered necessary.

5.2.2 *Visual Impact*

With careful consideration given to the surface finish of rotor blades to minimise the periodic reflection and sunlight interruption and the use of a colour scheme to reduce visual intrusion, no further visual mitigation measure is considered necessary during the operational phase.

5.2.3 *Ecology*

The risks of bird collision with the wind turbine have been minimised through the careful selection of the Project Site location and the avoidance of important bird habitats. No additional mitigation measure is considered necessary.

USE OF PREVIOUSLY APPROVED EIA REPORTS

In the preparation of this Project Profile, reference has been made to the EIA Report submitted by The Hongkong Electric Co Ltd and approved on 27 October 2004, for a similar project entitled *Renewable Energy by a Wind Turbine System on Lamma Island* (EIAO Register No: AEIAR- 080/2004). The nature and purpose, scale and operations of the wind turbine system assessed in the aforementioned approved EIA Report are similar to those of the wind turbine pilot demonstration presented in this Project Profile.