

# West Kowloon Cultural District

Project Profile

October 2011

West Kowloon Cultural District Authority





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Figure 1 Project Area

Figure 2 Key Land Uses within the WKCD

# 1. Basic Information

## 1.1 Project Title

West Kowloon Cultural District

## 1.2 Purpose and Nature of the Project

The West Kowloon Cultural District (WKCD) is an important strategic project that will support Hong Kong's development as a creative economy and global metropolis, and is a major initiative to meet the long-term infrastructure needs of Hong Kong's arts and cultural development. The idea of developing the site of West Kowloon Reclamation into an arts and cultural district began in the late 1990s, with the objective "to enhance Hong Kong's position as Asia's premier centre of arts, culture and entertainment and create a new look for Victoria Harbour". A key component of this initiative is the parallel vision of achieving sustainability through provision of innovative designs and state of the art systems that minimise energy consumption and improve environmental performance. Following from recommendations by the Consultative Committee on the Core Arts and Cultural Facilities (CACF) of WKCD in 2006, a number of CACF were proposed, including performing arts venues, a cultural institution with museum functions (called "M+") and an exhibition centre. Plans to imbed sustainability into these core facilities and the WKCD area include adoption of green building designs, renewable energy technologies, water and energy conservation measures, and green transportation.

Throughout the development of the WKCD, public engagement has been one of the pivotal instruments in guiding the development direction of the WKCD. Extensive public consultations have been held since 2004. The WKCD Authority (WKCDA), empowered by the WKCD Authority Ordinance, was set up in 2008 to take forward the WKCD project. The WKCDA organised a three-stage public engagement exercise to collect views from the general public and stakeholders including those from the arts and cultural sector on the planning and design process of the WKCD. The Stage 1 public engagement exercise was held between 2009 and 2010 and involved collecting views from the public and stakeholders on the expectations of the WKCD as a whole, including views on user requirements for the proposed facilities and development programme. As part of the Stage 2 public engagement exercise held in late 2010, three Conceptual Plans (CPs) of the WKCD development were exhibited to the public to solicit public views on the CP options and to provide a reference for selection of the preferred option. The WKCDA selected in March 2011 one of the CPs as the basis for formulating a Development Plan for the WKCD. Information on the proposed Development Plan was unveiled to the public and stakeholders in the Stage 3 Public Engagement Exercise that commenced on 30 September 2011, prior to making a formal submission to the Town Planning Board around end 2011. Establishment of the Development Plan will involve various technical assessments to ensure the viability of the Plan including, amongst others, an environmental impact assessment (EIA) which is the subject EIA for this Project Profile.

## 1.3 Name of Project Proponent

West Kowloon Cultural District Authority (WKCDA)

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

The WKCD site is located on the West Kowloon Reclamation as shown in **Figure 1**. The site comprises approximately 40ha of previously undeveloped land bordering the Jordan/Tsim Sha Tsui area that was reclaimed from Victoria Harbour among the years 1924, 1991 – 1996 and 2001 – 2006. The site reserved for the WKCD development is currently occupied by local roads, temporary storage/parking facilities, a temporary promenade at the Waterfront and a number of existing infrastructure facilities such as ventilation buildings for the Western Harbour Crossing and the MTR railway line, a sea water pumping station, etc. Parts of the WKCD site are also currently occupied by the Tsim Sha Tsui Fire Station, and by the works site and temporary works areas for the Hong Kong Section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) project.

Based on the preferred CP selected by the WKCD, subsequent modifications to the CP, and the information available at the time of preparing this Project Profile, the key land uses within WKCD is illustrated in **Figure 2**, which will include not less than 23 ha of public open space. The overall maximum plot ratio for the WKCD is 1.81 of which, not more than 20% of the total plot ratio shall be for residential use. The proposed WKCD development will comprise the following major facilities.

### Core Arts and Cultural Facilities (CACF)

The CACF will consist of:

- A Mega Performance Venue and Exhibition Centre Complex – This is Hong Kong's biggest indoor seated facility, with over 15,000 seats designed for local and overseas concerts and large-scale entertainment events. The Exhibition Centre is planned as a medium-sized convention facility sitting under the Mega Performance Venue and integrated with a hotel;
- Freespace (with Music Box) – Accommodates about 300 to 500 people and places no restrictions on the performances it hosts. It also contains an approximately 150-seat (or about 300 standing) Music Box for the alternative and independent music scenes;
- Outdoor Theatre – An approximately 500-seat (and about 2,000 standing) outdoor theatre adjacent to Freespace and integrated within the landscape design of the Great Park;
- Museum Plus (M+) – An international-calibre museum for visual culture – contemporary art, design, architecture, moving image and popular culture;
- Lyric Theatre – A versatile, approximately 1,200-seat facility with an orchestra pit for dance, ballet, opera, musicals and theatrical performances;
- Music Centre (Concert Hall, Recital Hall with Arts Education Facility) – A centre that comprises an approximately 1,800-seat signature Concert Hall, plus an approximately 300-seat Recital Hall that is well suited for chamber music and recitals;
- Centre for Contemporary Performance (3 Blackboxes with Arts Education Facility) – Comprising three flexible performing spaces with about 400, 250 and 150 seats respectively to suit different scales of performances – dance, theatrical and multimedia performances etc.;

- Musical Theatre – An approximately 2,000-seat receiving house for touring musicals, popular commercial productions and large-scale performances;
- Great Theatre – For large scale theatrical ‘high art’ and popular commercial productions;
- Xiqu Centre (Main Theatre, Teahouse with Arts Education Facility and Small Theatre) – An approximately 1,100-seat Main Theatre with a Teahouse and Small Theatre featuring traditional Chinese performances; and
- Medium Theatre I and II – Well equipped, approximately 600-seat, proscenium-arch style theatres for medium-scale theatrical and dance performances.

#### Other Arts and Cultural Facilities (OACF)

The planned OACF may possibly include arts and crafts studios, centre for arts and creative industries, knowledge centre, white box, performing art studios, post-production studios, broadcast centre, educational institutions for art and music, dance theatre, and children’s theatre.

#### Infrastructure and Support Facilities

The WKCD will also involve the following infrastructure and support facilities:

- Government, Institution or Community facilities including electricity substation, sea water pumping station, police post etc.;
- Various office; retail, dining and entertainment (RDE) facilities; hotel and residential developments;
- A district cooling system to provide chilled water for WKCD facilities for substantial energy saving, with possible extension to Government, Institution or Community facilities and hotel, office and residential developments subject to technical, financial and implementation mechanisms;
- On-site renewable energy systems e.g., wind turbines and photovoltaics for local electricity supply;
- A green transportation system in the form of travelators and eco-buses, coupled with substantial pedestrianisation within the WKCD;
- Local road networks comprising a main underpass of greater than 100m in length, a flyover bridge across the Western Harbour Crossing toll plaza, at-grade link roads, lay-bys, emergency vehicular access;
- Other accessibility features including external footbridge connections from WKCD to Kowloon Park, China Ferry Pier, the International Commerce Centre, Elements mall, and a pedestrian link to King George V Memorial Park via Austin Station (see **Figure 1**);
- One optional floating ‘art’ pontoon and two optional piers for water access subject to the Protection of the Harbour Ordinance, the marine impact assessment and technical feasibility study;

- Modification of seawalls for the construction of seawater discharges/outfalls and landing steps near south or south-west boundary of the WKCD site;
- Optional water reuse facilities – options to be considered include green building initiatives such as rainwater harvesting and/or reuse of condensate from air conditioning systems;
- Optional automatic refuse collection system, if technically feasible and financially viable;
- An optional sewage pumping station, subject to the sewage impact assessment;
- Possible relocation of the existing Tsim Sha Tsui Fire Station located at the south east boundary of the WKCD site in stages; and
- Associated utilities, drainage, sewerage, waterworks, engineering works, landscaping and environmental mitigation measures.

In addition, the option of a concrete batching plant with a total silo capacity of less than 10,000 tonnes may be used during construction phase for the WKCD site subject to further engineering studies.

## **1.5 Number and Types of Designated Projects to be Covered by the Project Profile**

The WKCD development is an urban development project with a site coverage of approximately 40ha. This development is a Designated Project under Schedule 3, Item 1 of the Environmental Impact Assessment Ordinance (EIAO), i.e.,

- Schedule 3, Item 1 – Engineering feasibility study of urban development projects with a study area covering more than 20ha or involving a total population of more than 100,000.

In addition, the following component proposed in the preferred CP for the WKCD development is also a Designated Project under Schedule 2 of the EIAO:

- Main vehicular underpass greater than 100m in length under the built areas (Schedule 2, Part 1, A.9); and
- A flyover of greater than 100m in length between abutments over the Western Harbour Crossing toll plaza as shown in **Figure 1** (Schedule 2, Part 1, A.8).

Subject to the detailed Development Plan, the following components of the WKCD development may also be Designated Projects under Schedule 2 of the EIAO:

- Dredging works associated with construction of the optional piers / floating ‘art’ pontoon if this is required (Schedule 2, Part 1, C.12 if the dredging operation exceeds 500,000 m<sup>3</sup> or is less than 100 m from a seawater intake point);
- A sewage pumping station if this is required, subject to the sewage impact assessment (Schedule 2, Part 1 F.3 if its installed capacity is more than 2,000 m<sup>3</sup> per day and its boundary is less than 150 m from an existing or planned (i) residential areas; or (x) seawater intake point);

## **1.6 Name and Telephone Number of Contact Person(s)**

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## 2. Outline of Planning and Implementation Programme

### 2.1 Project Planning and Implementation

Following from completion of the Stage 2 Public Engagement Exercise in Nov 2010, which showcased the three prospective CPs for WKCD, the preferred CP is being developed into a detailed Development Plan which will be submitted to the Town Planning Board for consideration. The project proponent (WKCD) has engaged a Project Consultant for providing expert advice on all matters relating to the preparation of the Development Plan and for undertaking all the necessary detailed technical assessments, including this EIA study, to ensure the viability of the Plan.

With the commencement of the Stage 3 Public Engagement Exercise on 30 September 2011, the major elements of the development have been identified and proposed, including the siting of major facilities, the various green transportation connections, and different sustainability features, etc. Optional elements (such as the optional floating 'art' pontoon/piers, optional automatic refuse collection system, etc.) will be further evaluated after the Stage 3 Public Engagement Exercise to finalise the Development Plan, which will then form the basis for the Project Consultant to undertake the EIA study according to the Study Brief to be issued by the Director of Environmental Protection.

### 2.2 Project Timetable

The EIA study is planned for commencement upon issue of the Study Brief and is anticipated to be completed in the second quarter of 2012 subject to the overall programming of the WKCD. Construction of critical elements of the WKCD may begin as early as 2013 so as to commission the Phase 1 arts and cultural facilities in stages starting from 2014/2015.

The proposed implementation plan for WKCD is as follows:

Between 2014 and 2017:

- Between 2014 and 2015: Development of part of the Great Park; Arts Pavilion
- Between 2015 and 2017:
  - Xiqu Centre (Main Theatre, Tea House and education facility); Free Space (with Music Box); Outdoor Theatre; and
  - Centre for Contemporary Performance (with three Blackbox theatres and education facility) subject to construction programme of the Express Rail Link

Between 2017 and 2020:

- M+ Phase I
- Lyric Theatre
- Medium Theatre I
- Music Centre (with a Concert Hall, a Recital Hall and education facility)
- Mega Performance Venue + Exhibition Centre (subject to alternative funding options)

- Musical Theatre (subject to alternative funding options)

Beyond 2020:

- Great Theatre
- M+ Phase II
- Medium Theatre II
- Xiqu Small Theatre

The XRL temporary works areas are scheduled to be returned to WKCDA tentatively from 2012 to 2015.

### **2.3 Interactions with Broader Programme Requirements or Other Projects**

The following major projects under planning and/or construction are likely to interface with the WKCD project:

- Hong Kong Section of the Guangzhou – Shenzhen – Hong Kong Express Rail Link;
- Road Works at West Kowloon;
- Road Improvement Works in West Kowloon Reclamation Development – Phases I and II; and
- Central Kowloon Route.

## 3. Major Elements of the Surrounding Environment

### 3.1 Air Quality

The existing WKCD site is largely surrounded by the developed areas to the north and east of the site, and is adjacent to the tunnel portal of Western Harbour Crossing. In addition, the existing ventilation building for the Western Harbour Crossing is located inside the WKCD site. Therefore, the main air quality issues are traffic emissions from the surrounding road network, and the Western Harbour Crossing ventilation building and tunnel portal. Construction activities at the XRL temporary works area within the WKCD site would also generate potential dust emissions. Existing air sensitive receivers (ASRs) surrounding the WKCD site includes mainly residential buildings, educational institutions, and fresh air intakes of commercial buildings/shopping malls. The proposed facilities within the WKCD also include planned ASRs such as residences, offices, hotels, retail shops, educational institutions and performing arts centres/outdoor arenas.

The WKCD site is also located adjacent to the south boundary of the New Yau Ma Tei Typhoon Shelter, which may have potential odour issues.

### 3.2 Noise

There are traffic noise from the surrounding road networks and the Western Harbour Crossing tunnel portal adjacent to the WKCD site as well as potential construction noise from the XRL temporary works area within the WKCD site. Existing noise sensitive receivers (NSRs) in the vicinity of the site include the residential developments above the MTR Kowloon Station and developments that border the WKCD site near Jordan and Tsim Sha Tsui areas, which are comprised of mainly residential buildings and some educational institutions. The proposed facilities within the WKCD also include planned NSRs such as residences, performing arts centres/outdoor arenas and other institutional/community facilities. The planned development at the WKCD would also take into consideration the noise from the ventilation shafts as well as ground borne noise that may be generated from MTRC's rail traffic.

### 3.3 Water Quality

The water resources surrounding the WKCD include urban drainage systems and the marine water body that forms part of Victoria Harbour. A number of Environmental Protection Department's (EPD) marine water quality monitoring stations are located in the vicinity of WKCD (the Victoria Harbour Central, Victoria Harbour West and Stonecutters Island monitoring stations). The latest water quality monitoring results published in EPD's Annual Marine Water Quality Report for 2010 showed that the water quality at Victoria Harbour has generally been improving since the commissioning of the Harbour Area Treatment Scheme Stage 1 in late 2001.

The main water sensitive receivers (WSRs) surrounding the WKCD are the New Yau Ma Tei Typhoon Shelter and a number of seawater intakes at the waterfront of Victoria Harbour. Planned WSRs at the WKCD include the seawater intake for the district cooling system and the flushing water intake for the sea water pumping station of Water Supplies Department.

### **3.4 Sewerage**

The WKCD is located within the West Kowloon sewerage catchment, with current sewage generated from existing developments near WKCD being collected at the Cheung Sha Wan pumping station for treatment at the Stonecutters Island Sewage Treatment Works. There is an existing terminal foul sewer manhole located at the northern side of the WKCD that drains into the foul sewer running along Austin Road West.

### **3.5 Landscape and Visual**

The current landscape setting at the WKCD site is mainly comprised of open spaces with some roadside amenity planting. Land use at the site is currently dominated by open space for recreational use, storage and car parks, and the XRL temporary works area. Trees are sparsely located within the site, mainly at the western side. The surrounding landscape resources consist of mainly developed areas and a water body (Victoria Harbour). The visually sensitive receivers (VSRs) include high-rise and other developments surrounding, or with a clear view of, the WKCD site.

### **3.6 Ecology**

The study area consists of mainly urbanised and developed environments with very limited ecological significance. Habitats include developed area, open fields and plantation. There are no sites of ecological importance and the marine environment is also highly developed with low ecological value. In the existing WKCD site, the sparse vegetation is made up of trees and plants of common, urban species. The overall ecological value of the site is currently low.

### **3.7 Hazard to Life**

No designated Potentially Hazardous Installations (PHIs) were found within or close to the WKCD site. Several electro-chlorination facilities are present within the current WKCD site as part of existing facilities such as MTRC's Kowloon Station ventilation building (for sterilisation of seawater for cooling purposes) and Water Supplies Department's salt water pumping station. A small quantity of hydrogen gas is produced and vented by these facilities.

## 4. Possible Impact on the Environment

### 4.1 General

From the outset, the WKCD will be designed to minimise possible environmental impacts resulting from its construction and operation via early consideration and adoption of layouts, designs and systems that provide optimal environmental compatibility. Sustainability will form the basis of all the planned developments within the WKCD. This includes adoption of green building design principles such as responsive building orientation, facade and green roofs; provision of green areas such as parks and landscaped open spaces; implementation of highly efficient systems such as a district cooling system; adoption of on-site renewable energy systems such as solar photovoltaics and wind turbines; adoption of water reuse facilities (options to be considered include rainwater harvesting and/or reuse of condensate from air conditioning systems); and use of green transportation system including travelator and eco-buses.

The implementation of these sustainability initiatives will bring about associated environmental benefits including reduced natural resource use and wastage, improved energy efficiency and energy recovery, the creation of new and improved green spaces, and reduced air pollution and noise emissions leading to better environmental performance of the project.

### 4.2 Air Quality

During construction phase, the main air quality impact that may arise is fugitive dust emissions resulting from construction activities such as excavation, stockpiles, the movement of vehicles, the possible operation of the concrete batching plant (if required) and the activities of other plant during loading and unloading operations.

During operation phase, the major potential air pollution sources will include traffic emissions from the surrounding road network; the Western Harbour Crossing portal and ventilation buildings; the proposed roads and car parks (and associated ventilation buildings) within the WKCD. There will also be potential odour emission from the adjacent New Yau Ma Tei Typhoon Shelter; the optional automatic refuse collection facility, if technically feasible and financially viable; and the optional sewage pumping station.

### 4.3 Noise

During construction phase, the main potential source of noise impact is from the use of powered mechanical equipment (PME) and operation of concrete batching plant (if required) at the construction site. Major construction activities that will involve the use of PME include site clearance and formation, basement construction, removal of spoil, backfilling and superstructure construction.

During operation phase, noise and/or vibration may be generated by traffic from the nearby road systems, and operation of the green transportation system within the WKCD. Noise impacts may also be generated by fixed plants such as ventilation buildings, pumping stations, electrical substations and other plant associated with the various proposed facilities at WKCD. Activities to be held in the proposed outdoor performance areas of the WKCD may also generate noise impacts to nearby NSRs.

#### **4.4 Water Quality**

During construction phase, potential sources of water pollution includes construction site runoff; pumped groundwater discharge; drainage diversion; sewage effluent from the construction workforce; and accidental spillage of chemicals/wastes. Wastewater discharging from the construction site may contain high levels of suspended solids and chemicals such as oils, solvents and cement-derived materials which could pollute the surrounding water bodies, if not properly handled or treated.

During operation phase, the main potential water quality impacts could be due to the following sources:

- (i) Stormwater drainage into Victoria Harbour;
- (ii) Sea water discharge from the proposed district cooling system, which could affect the thermal conditions of the immediate area surrounding the discharge point, and may also contain residual chlorine; and
- (iii) Sewage generated from the WKCD development, which will be discharged via connection to the existing gravity sewer along Austin Road West.

The potential water quality impacts will be minimized as far as practicable through implementation of the feasible water reuse facilities (options to be considered include rainwater harvesting and/or reuse of condensate from air-conditioning systems).

#### **4.5 Sewerage and Sewage Treatment Implications**

The sewage generated by the WKCD development is proposed to discharge to the existing gravity sewer along Austin Road West for subsequent treatment at the Stonecutters Island Sewage Treatment Works. Preliminary assessments have indicated that the existing West Kowloon sewerage catchment has adequate capacity to convey the additional sewage loads from WKCD, hence no potential impact is anticipated from sewerage and sewage treatment, which will be reviewed in the sewage impact assessment. Subject to the findings of the sewage impact assessment, a sewage pumping station may be required.

#### **4.6 Waste Management Implications**

During construction phase, the main types of waste that will be generated includes construction and demolition (C&D) materials, C&D waste, excavated materials, chemical waste and general refuse. C&D materials that will be generated include sand, rock, wood, concrete and other building materials. C&D waste comprises the materials generated from site clearance works, earthworks and any demolition of existing structures.

During operation phase, the WKCD development will generate mainly general solid waste and some chemical wastes associated with different facilities within the WKCD. Subject to the technical feasibility and financial viability, solid waste may be handled by the proposed automatic refuse collection system, and recyclable waste materials will be segregated for off-site recycling in order to minimize the amount of waste requiring landfill disposal. Chemical waste would include used cleaning materials, lubricants, paints,

batteries, coolants etc. which, if not properly handled and disposed of, could cause environmental, health and safety issues.

#### **4.7 Landscape and Visual**

The main landscape impact that will arise from the Project is the potential loss of trees that have become established at the WKCD site since the formation of the reclamation area.

Visual impacts are likely to arise during construction phase due to the large size of the site, the scale and duration of the construction works and the considerable number of VSRs which have clear views of the site. During operation phase, it is anticipated that the Project (once fully completed) will substantially enhance the visual context of the West Kowloon Reclamation area by providing a new park with landscaped recreational space and developments that fit with the visual context of the adjacent areas. Where necessary, any potential initial impacts due to the creation of new building masses on previously open spaces will be mitigated by appropriate landscaping measures.

#### **4.8 Ecology**

As the WKCD site is currently dominated by urbanised land uses and open fields, no substantial adverse ecological impacts are anticipated during both construction and operation phases. Although some plantation habitats will be affected, the significance of ecological impact is minimal due to the limited ecological value of this artificial habitat type. The majority of the plant species are either exotic ornamentals used for urban landscaping or self seeded trees of poor condition that are not considered as sensitive ecological resources.

Given the WKCD site currently involves highly disturbed urbanised land uses, animal species (birds) found in the area are generally tolerant to human disturbance. The disturbance impact to wildlife is thus anticipated to be minimal.

#### **4.9 Cultural Heritage**

The WKCD site is formed on reclaimed land which does not have any archaeological potential. Similarly, the adjacent land to the WKCD site is a highly urbanised setting that has undergone extensive underground disturbance, hence it is unlikely to have significant archaeological potential. The potential for marine archaeology is also limited, as the surrounding seabed would have already been highly disturbed during the formation of the West Kowloon Reclamation area.

As there are no cultural heritage features within the WKCD site, no direct impacts on cultural heritage features are anticipated. Several built heritage features exist within the surrounding area of the WKCD, including existing and proposed 'Graded' historical buildings. Identified built heritage include the Former Whitfield Barracks (Blocks S61, S62, S4 and 58; Kowloon West II Battery; and Historical Retaining Wall); Former War Department Boundary Stone Marker; St. Andrew's Church Compound; Former Kowloon British School; No.190 Nathan Road; Fuk Tak Koo Temple; No. 538 – 540 Canton Road; and No. 554 Canton Road. The potential indirect impacts to these off-site cultural heritage features (e.g. due to vibration from the construction work) is unlikely because the built heritage features are all located at considerable distances (over 100m) away from the WKCD site boundary.

#### **4.10 Land Contamination**

The WKCD site is a reclaimed land, which has been used as a waterfront promenade, temporary open storage and parking facilities. While there are underground oil storage tanks at the existing Tsim Sha Tsui Fire Station within the WKCD site, no records of previous spillage or leakage have been identified. According to the approved EIA for Kowloon Southern Link, the Tsim Sha Tsui Fire Station was identified as a potential contaminated site, but no significant contamination was found from the soil samples collected at the drill holes in the vicinity of that site. Therefore, no significant land contamination issue would be anticipated at the WKCD site.

#### **4.11 Hazard to Life**

The electro-chlorination facilities and associated small amounts of hydrogen gas produced by the existing ventilation buildings and Water Supplies Department's salt water pumping station at WKCD are unlikely to cause significant hazards to life concern.

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

### 5.1 General

Various sustainability initiatives are to be integrated into the detailed Development Plan with a view to achieving environmental excellence for the project. Such initiatives will include the green transportation system, district cooling system, on-site renewable energy systems and water reuse facilities. Nevertheless, where unavoidable environmental impacts would be present, mitigation measures will be in place to alleviate the potential environmental impacts during construction and operation phases of the project.

### 5.2 Air Quality

During construction phase, good site practices and relevant control measures as stipulated in the Air Pollution Control (Construction Dust) Regulation and the Guidance Note on Best Practicable Means for Cement Works (Concrete Batching Plant) issued by EPD (if an on-site concrete batching plant is used) will be implemented to mitigate the potential air quality impacts. With mitigation measures in place, it is anticipated that construction phase air quality impacts can be reduced to acceptable levels.

For potential air quality impacts during operation phase, the Project will seek to avoid or minimise such impacts as far as practicable during the process of establishing the Development Plan for WKCD, first by substantial pedestrianisation at grade, and then by adopting green transportation systems within the WKCD as well as through carefully planning the layout and design of those facilities with sensitive uses (e.g., CACF). By the same token, facilities with potential air pollution issues (e.g., optional automatic refuse collection facility) will be appropriately located and designed. Specific mitigation requirements will be subject to the findings of the EIA.

### 5.3 Noise

Various noise mitigation measures may be applied to reduce noise levels during construction phase. Mitigation measures such as use of quiet plant, locating noisy PME away from NSRs, scheduling of noisy work activities outside of sensitive hours, use of noise barriers, etc., will be implemented as required to ensure construction noise is reduced to acceptable levels.

During operation phase, potential noise impact from road traffic, ground-borne sources, fixed plant, and outdoor activities will be avoided or minimised as far as practicable via appropriate design and layout of the relevant facilities. Specific mitigation requirements will be subject to the findings of the EIA.

### 5.4 Water Quality

During construction phase, mitigation measures for water quality impacts will be implemented in accordance with the Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94). With mitigation measures in place, it is anticipated that construction phase water quality impacts can be reduced to acceptable levels.

During operation phase, potential impacts due to the drainage system and cooling water discharge from the district cooling system will be minimised as part of the design for such systems during the planning stage of WKCD. Different options for water reuse will be explored, including the use of rainwater harvesting or reuse of condensate from air-conditioning systems. Specific mitigation requirements, if necessary, will be subject to the findings of the EIA.

## **5.5 Sewerage and Sewage Treatment Implications**

Sewage generated from the WKCD during operation phase will be discharged to the existing sewerage system, which would have sufficient capacity to collect and treat the extra sewage. Therefore, it is anticipated that no sewage treatment plant will be required at the WKCD site, which will be reviewed in the sewage impact assessment. A sewage pumping station may be required subject to the sewage impact assessment findings.

## **5.6 Waste Management Implications**

During construction phase, measures that may be implemented to manage the waste generated from the WKCD site includes preparation of a Waste Management Plan, on-site sorting and reuse of C&D materials, implementation of a trip-ticket system and appropriate handling, storage and disposal of chemical waste in accordance with the Waste Disposal (Chemical Waste) (General) Regulations.

During operation phase, proper refuse collection and handling will be implemented and provisions will be made for recyclable materials to be segregated from the general refuse as far as practicable. The remaining non-recyclable solid waste and chemical waste will be separately collected and disposed of by licensed waste collectors on a regular basis.

## **5.7 Landscape and Visual**

During construction phase, appropriate mitigation measures will be adopted to minimise the landscape and visual impacts such as use of decorative hoardings and early introduction of landscape treatments. The early formation of the park will buffer the landscape and visual impacts from other parts of the site undergoing construction. During operation phase, after full establishment of the WKCD, it is anticipated that the landscape amenity and visual context of the site will be substantially enhanced.

## **5.8 Ecology**

Due to the low ecological value of the WKCD site and its surrounding area, it is anticipated that no specific ecological mitigation measures would be considered necessary.

## **5.9 Cultural Heritage**

Indirect impacts to built heritage features in the vicinity of the WKCD site are not anticipated due to the large separation distance, hence no mitigation measures would be considered necessary. No archaeological impacts are anticipated, therefore archaeological mitigation measures are unlikely to be required.

## **5.10 Land Contamination**

Significant land contamination issues are not anticipated within the WKCD site. However, the potential for land contamination issues at the Tsim Sha Tsui Fire Station will be confirmed prior to construction. Where necessary, mitigation measures for minimising potential exposure to contaminated materials or remediation measures will be identified.

## **5.11 Hazard to Life**

As the existing electro-chlorination facilities at WKCD are already adequately controlled by standard fire safety measures, it is anticipated that no specific additional mitigation measures will be necessary.

## 6. Use of Previously Approved EIA Reports

Previously approved EIA reports which contain information that is applicable to this Project include the following:

- Hong Kong Section of the Guangzhou – Shenzhen – Hong Kong Express Rail Link (approved in September 2009);
- Road Works at West Kowloon (approved in September 2009); and
- Kowloon Southern Link (approved in March 2005).



References may be made within the study area for these approved EIA reports. Details of these previously approved EIA reports, their findings and relevance to this Project is summarised below:

Table 6.1: Summary of Previously Approved EIA Reports of Relevance to this Project

Title of Approved EIA Report	Date of Approval	Environmental Aspects Addressed	Findings, Recommended Measures and Relevance to this Project
Hong Kong Section of the Guangzhou – Shenzhen – Hong Kong Express Rail Link	28 Sep 2009	Ecology, Fisheries, Airborne Noise, Ground-borne Noise, Landscape and Visual, Cultural Heritage, Land Contamination, Waste Management, Water Quality, Air Quality, Hazard to Life, Landfill Gas Hazard, and Impacts on the Restored Ngau Tam Mei Landfill	Part of the study area for this approved EIA overlaps that for this Project at the West Kowloon Terminus, hence some of the assessment findings, including particularly the water quality and ground-borne noise impact assessment, would have direct relevance to this Project.
Road Works at West Kowloon	23 Sep 2009	Noise, Air Quality, Water Quality, Waste Management, and Landscape and Visual	Part of the study area for this approved EIA overlaps that for this Project, hence some of the identified sensitive receivers and findings including air and noise impact assessments would be relevant to this Project.
Kowloon Southern Link	30 Mar 2005	Construction Dust, Airborne Noise, Groundborne Noise, Water Quality, Waste Management, Land Contamination, Landscape and Visual, Cultural Heritage, and Hazard Assessment	Part of the study area for this approved EIA overlaps that for this Project, hence some of the identified findings, including particularly the land contamination assessment, would have direct relevance to this Project.



LEGEND: 圖例:

-  BOUNDARY OF WEST KOWLOON CULTURAL DISTRICT  
西九文化區界線
-  BOUNDARY OF EXTERNAL CONNECTIONS (INDICATIVE SUBJECT TO FUTURE DESIGN & ARRANGEMENT)  
對外連接設施的界線 (僅供參考, 視乎未來的設計和安排而定)

NOTE: 註:

THERE MAY BE ONE OPTIONAL FLOATING 'ART' PONTOON AND TWO OPTIONAL PIERS FOR WATER ACCESS SUBJECT TO RELEVANT STATUTORY REQUIREMENTS AND TECHNICAL ASSESSMENT RESULTS. 視乎相關法定要求及技術評估結果, 有可能興建一個「藝術」浮台及兩個碼頭作水上交通之用。

P4	OCT 11	MING	GENERAL REVISION	EC	AFK
P3	JUN 11	MING	GENERAL REVISION	EC	AFK
P2	MAY 11	MING	GENERAL REVISION	EC	AFK
P1	MAR 11	MING	PRELIMINARY	EC	AFK
Rev	Date	Drawn	Description	Ch'kd	App'd

Client  
**WEST KOWLOON CULTURAL DISTRICT AUTHORITY**  
西九文化區管理局



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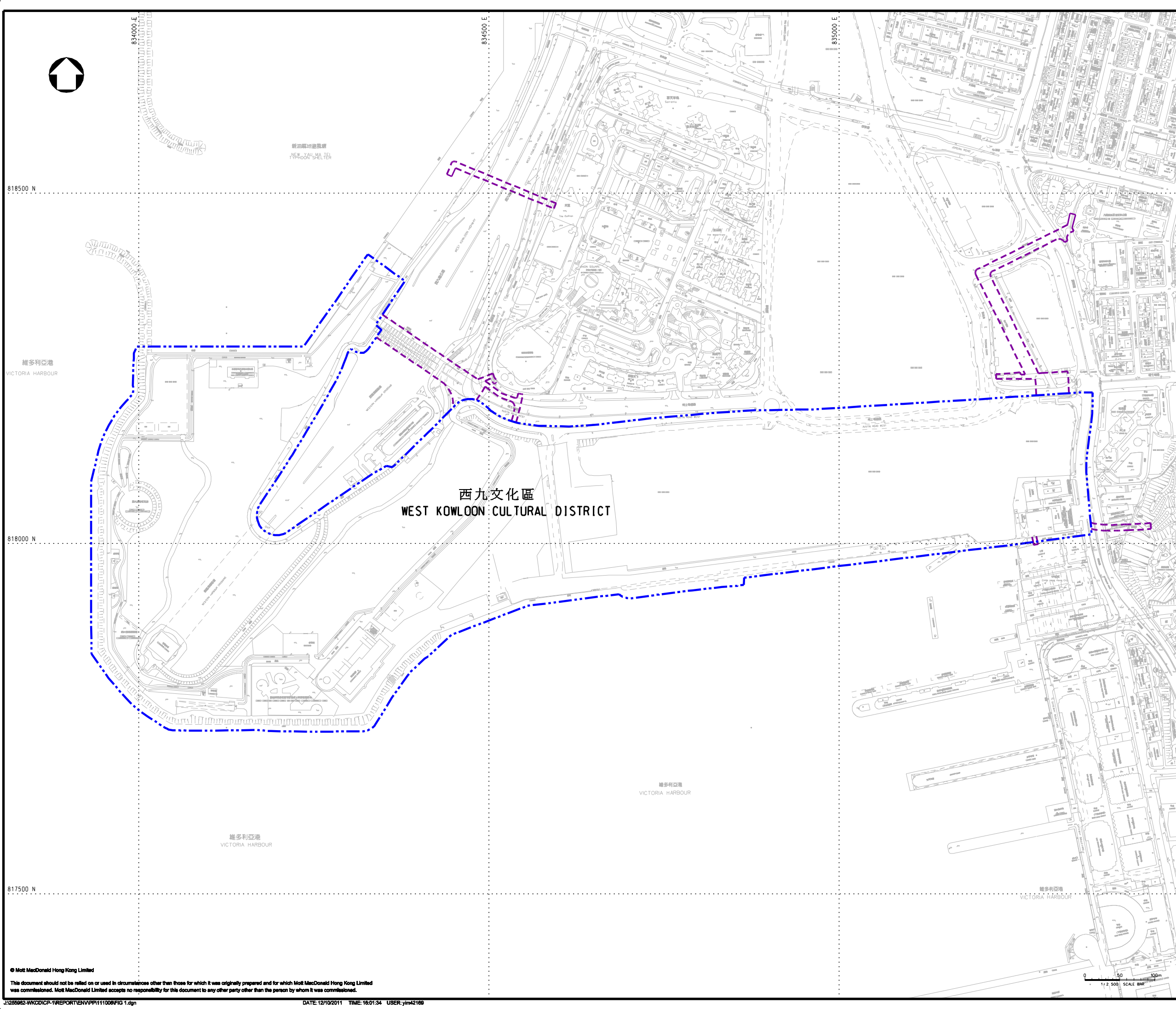


Project  
**PROJECT CONSULTANCY STUDY FOR WEST KOWLOON CULTURAL DISTRICT DEVELOPMENT PLAN**  
西九文化區發展計劃—項目顧問研究

Title  
**PROJECT AREA**  
工程項目範圍

Designed	DC	Eng check	EC
Drawn	MING	Coordination	EC
Dwg check	DC	Approved	AFK
Scale at A1	1:2500	Status	PRE
Rev	P4		

Drawing Number **FIGURE 1 圖1**





LEGEND: 圖例:

- BOUNDARY OF WEST KOWLOON CULTURAL DISTRICT  
西九文化區界線
- OPEN SPACE (INCLUDING OUTDOOR PERFORMANCE VENUES)  
休憩用地 (包括戶外表演場地)
- OTHER SPECIFIED USES  
其他指定用途

NOTE: 註:

1. LAND USE BOUNDARIES ARE INDICATIVE ONLY.  
土地用途界線僅供參考。

P5	OCT 11	MING	GENERAL REVISION	EC	AFK
P4	JUL 11	MING	GENERAL REVISION	EC	AFK
P3	JUN 11	MING	GENERAL REVISION	EC	AFK
P2	MAY 11	MING	GENERAL REVISION	EC	AFK
P1	APR 11	MING	PRELIMINARY	EC	AFK
Rev	Date	Drawn	Description	Ch'kd	App'd

Client  
**WEST KOWLOON CULTURAL DISTRICT AUTHORITY**  
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Project  
**PROJECT CONSULTANCY STUDY FOR WEST KOWLOON CULTURAL DISTRICT DEVELOPMENT PLAN**  
西九文化區發展計劃—項目顧問研究

Title  
**KEY LAND USES WITHIN THE WKCD**  
西九文化區主要土地用途

Designed	DC	Eng check	EC
Drawn	MING	Coordination	EC
Dwg check	DC	Approved	AFK
Scale at A1	1:2500	Status	PRE
Drawing Number		Rev	P5

FIGURE 2 圖2

