

**South East Kowloon Development
Kai Tak Approach Channel Reclamation**

Project Profile

March 2002

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1. BASIC INFORMATION

1.1 Project Title

South East Kowloon Development - Kai Tak Approach Channel Reclamation.

1.2 Purpose and Nature of the Project

The project aims to provide land to accommodate the planned development of the former airport site. It is part of the South East Kowloon Development (SEKD) waterfront facilities and Kai Tak Nullah / Kwun Tong typhoon shelter reclamation works package proposed under Agreement No. CE 32/99, the *Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development (CFS)*.

1.3 Name of Project Proponent

Kowloon Development Office, Territory Development Department (TDD)

1.4 Location and Scale of Project and History of Site

The project site, shown in the Appendix A, is located in the Kai Tak Approach Channel and its adjacent areas. A mix of residential, commercial and industrial developments exists in the surrounding regions.

The project involves the following:

1. the cleanup of contaminated sediments in the Kai Tak Approach Channel (KTAC) and elimination of odours resulting from anaerobic decomposition of the organics in the sediment;
2. the performance of pilot tests for sediment treatment to finalise the Schedule 2 Environmental Impact Assessment (EIA) Report for submission under the Environmental Impact Assessment Ordinance (EIAO), and to formulate an environmentally friendly strategy for subsequent relevant reclamation;
3. the formation of approximately 28 ha of land;
4. the extension and widening of Kai Tak Nullah, Jordan Valley box culvert, and other drainage outfalls into KTAC, and improvement of the existing drainage systems; and
5. the construction of advance portions of the planned road tunnels underneath the extended box culverts (part of Roads D4 and D5), but excluding claddings and electrical and mechanical elements for the tunnels.
6. demolition of the former airport taxiway bridge across KTAC.

1.5 Designated Projects to be Covered

This Project Profile has been prepared in accordance with Annex 1 of the Technical Memorandum on the EIA Process for the reclamation and road tunnel Schedule 2 Designated Projects (DPs) as defined in the EIAO; designed project includes the following:-

- C.1, reclamation works (including associated dredging works) more than 5 ha in size; and
- A.7, a road or railway tunnel more than 800 m in length between portals.

1.6 Name and Telephone Number of Contact Person(s)

2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1 Project Implementation and Time-table

The project will be implemented on a fast-track programme, to be completed over five phases: Review, Design, Tender, Construction, and Completion. It will take about five years from the date of commencement, 25 January 2002, to completion by the early of 2007.

2.2 Interactions with Broader Programme Requirements

The Project may interact with the following projects:

- Development near Choi Wan Road and Jordan Valley by Civil Engineering Department (CED) (PWP Item 564CL);
- Development at Anderson Road by CED (PWP Item 566CL);
- Construction and demolition materials recycling facility at Kai Tak by CED;
- Temporary public filling barging point at Kai Tak by CED;
- Kai Tak North Apron Early Development Package by TDD (CE 42/2000); and
- Temporary re-provision of existing facilities along runway, e.g. DG Ferry Pier and public cargo working area.

3. POSSIBLE IMPACT ON THE ENVIRONMENT

3.1 Processes Involved

The Schedule 3 EIA Report proposed three reclamation options, with different implications for treatment of the approximately 860,000 m³ of contaminated sediments in KTAC:

- no dredged reclamation, with *in-situ* treatment;
- fully dredged reclamation, with *ex-situ* treatment; and
- minimum dredged reclamation, with either *in-situ* or *ex-situ* treatment.

The results of a comprehensive review of possible treatment methods will be summarised in the Schedule 2 EIA Report. Chemical oxidation and sediment washing were chosen for *in-situ* and *ex-situ* treatment, respectively. Onsite pilot-scale field trials, required under the Schedule 3 EIA Report, will be conducted to confirm the suitability and effectiveness of the treatment methods.

The *in-situ* treatment method involves the injection of a strong oxidant into the sediment, creating free radicals to oxidise the contaminants and thereby enhancing contaminant sorption onto particulates to result in contaminant demobilisation. The oxidants also oxidise the

sulphides contained in the acid volatile sulphide (AVS) content of the sediment, hence eliminating odour emissions.

Two other processes may be associated with the *in-situ* option:

- Methane biogas generation may be a potential risk.
- Some strong oxidising agents could potentially oxidise trivalent chromium (Cr^{3+}), which is present at the site in elevated concentrations, to the highly mobile and toxic hexavalent chromium (Cr^{6+}). Should the bench tests and field trials show the formation of hexavalent chromium due to the action of the oxidant, *in-situ* treatment would no longer be a feasible remediation option.

The *ex-situ* treatment option involves remediation by sediment washing, and the associated materials handling logistics issue. The full-scale cleanup would need to be completed in two years, giving an average of approximately 430,000 m³ of contaminated sediment dredged and treated each year. Storage of such a quantity of sediment both before and after treatment would need careful planning, particularly if the untreated sediment is odorous. If disposal is required, tier-II and tier-III screening tests will be conducted as per WBTC No. 3/2000 if necessary.

3.2 Possible Environmental Impacts During Construction

3.2.1 Air Quality Impact

The two major potential air quality impacts during the construction phase of the project are

- dust arising from reclamation, demolition and construction of structures, and construction traffic over the site area, and wind erosion of open sites and stockpiling areas; and
- odour from sediment remediation and reclamation activities.

3.2.2 Noise Impact

Sources of noise during the construction phase would be associated with the various phases of construction activities, particularly with the use of powered mechanical equipment, such as dredgers, and increased offsite traffic along access routes. Broadly speaking, construction works involved are:

- site clearance and site formation; and
- transport infrastructure.

3.2.3 Water Quality Impact

The key issues pertinent to water pollution that would arise during the construction phase of the proposed KTAC reclamation are listed as follows:

- changes in coastline configurations that affect the hydrodynamic and water quality conditions in the harbour and the water quality sensitive receivers;
- temporary diversion of Kai Tak Nullah and Jordan Valley box culvert during reclamation, from KTAC to the temporary discharge point near the boundary between KTAC and Kwun Tong Typhoon Shelter (KTTS), including potential release of construction wastes and pollutants into the water flowing in the nullah and box culvert;
- discharges from storm drains into the To Kwa Wan Typhoon Shelter during the construction stage;

- dredging and filling, which could result in a temporary increase in suspended solids (SS) levels, generation of sediment plumes, and release of heavy metals, metalloids, organic micropollutants, and nutrients;
- construction site runoff, which could result in an increase in SS levels and turbidity;
- wastewater and sewage generated from construction activities; and
- ground improvement associated with the no dredged reclamation option and in those areas where dredging is not possible, which could potentially result in release of contaminated pore water.

3.2.4 Remediation of Contaminated Sediments

The sediment in KTAC are contaminated by metals (copper, silver, chromium, nickel, zinc, and, to a lesser extent, lead, mercury and cadmium) and organic micropollutants (polycyclic aromatic hydrocarbons – PAHs, polychlorinated biphenyls – PCBs, and tributyltin – TBT), and have elevated total organic carbon (TOC) levels.

Potential impacts due to *ex-situ* treatment and dredging of the contaminated sediments include the following:

- generation of sediment plumes;
- release of contaminants from the contaminated sediments into the water column;
- increase in SS and turbidity in the water column; and
- odour emission.

3.2.5 Waste Management Implications

Wastes generated during the construction stage of the development would generally include construction and demolition material, chemical waste, and workforce waste.

3.2.6 Ecological Impact

Potential impacts during the construction stage include the following:

- disturbance from dredging;
- habitat loss of KTAC to reclamation;
- sedimentation;
- contaminant release; and
- site runoff.

KTAC itself is essentially abiotic, and no important marine ecology sites were identified inside the assessment area.

3.2.7 Fisheries Impact

KTAC lies within fishing area 167 (Kwun Tong). The 96/97 Port Survey recorded no adult fish and fry production from this fishing area. Reclamation of KTAC should therefore have no impact on fisheries. No residual impact on other fish culture zone such as Tung Lung Chau, located approximately 9 km to the southeast of the SEKD area, and Ma Wan, more than 18 km away to the northwest, would be expected.

3.2.8 Cultural Heritage Impact

In order to determine the marine archaeological potential, a geophysical survey has been completed under the SEKD CFS. Once results from the survey are obtained, the data will be reviewed. If review shows the presence of anomalies in KTAC, further investigations like remote controlled vehicle survey or diver survey will be conducted to verify the archaeological importance. Positive confirmation would necessitate a rescue excavation to verify their archaeological importance.

3.2.9 Landscape and Visual Impact

The reclamation works will be a major element in views from many visually sensitive receivers (VSRs), both locally and across the Harbour, and will change the visual character of that part of Kowloon Bay. Due to the extent of the reclamation works, moderate to significant adverse impacts are expected during construction.

Landscape and visual impacts are also expected from temporary landscaping works.

3.3 Possible Environmental Impacts During Operation

3.3.1 Air Quality Impact

Potential impacts to air quality during operation were assessed under the approved Schedule 3 EIA Report. They include the following:

- vent shaft emissions from vehicular tunnels; and
- odour impact from maintenance of drainage channels.

3.3.2 Noise Impact

The project site is intended for residential development. The assessment performed under the approved Schedule 3 EIA Report concluded that adverse noise impacts are not expected during operation. Besides, the present project is a site formation/reclamation project and the nature, extent and layout of future land use and sensitive receivers susceptible to potential operational noise impacts are beyond the scope of this project.

3.3.3 Water Quality Impact

The key issues pertinent to water pollution that would arise during the operational phase of the proposed SEKD were assessed under the approved Schedule 3 EIA Report. They are listed as follows:

- presence of the reclamation, which would result in a slight reduction in discharge capacity (less than 3%) in the Victoria Harbour Channel when the SEKD is complete, and a slight increase of current speed along the channel with enhanced dispersion of pollutants;
- water quality of the possible discharges from storm drains into To Kwa Wan Typhoon Shelter during the implementation stage of SEKD.
- discharges from storm drains and sewage outfalls/nullah. The diversion of Kai Tak Nullah and Jordan Valley box culvert from the KTAC to Kowloon Bay and the reclamation itself would eliminate the existing odour problem and dilution of pollutants will be improved;
- water quality in the extended sections of diverted nullah, predicted to be within acceptable levels, could nevertheless be affected by deposited sediments containing hydrogen sulphide; and
- storm and emergency overflows into the new KTTS.

3.3.4 Remediation of Contaminated Sediments

The potential impacts associated with the contaminated sediments during operation were assessed under the approved Schedule 3 EIA Report. It was determined that the biogas risk, the key issue, would be eliminated in the operational stage with the fully dredged reclamation option and *ex-situ* treatment, but could be a potential constraint to future developments on the project site with *in-situ* treatment. Methane gas generated from the reclaimed land could seep into rooms below ground, underground car parks, lift pits, pumping stations, and maintenance chambers, especially under low atmospheric pressure conditions; and would accumulate in the poorly ventilated areas. Mitigation measure will be imposed if necessary.

3.3.5 Waste Management Implications

The assessment performed under the approved Schedule 3 EIA Report determined that waste generated during the operational stage would mainly be municipal solid waste. Since this is a site formation / reclamation project, the long-term generation and management of municipal solid waste is beyond the scope of this project.

3.3.6 Ecological Impact

These impacts have already been assessed under the approved Schedule 3 EIA Report. It was determined that the habitat loss of the KTAC to reclamation would be permanent and irreversible. However, the KTAC is essentially abiotic; no adverse ecological impact is therefore expected.

3.3.7 Fisheries Impact

The assessment performed under the approved Schedule 3 EIA Report concluded that the operational phase should have no impact on fisheries.

3.3.8 Cultural Heritage Impact

There should be no cultural heritage impact during the operational stage.

3.3.9 Landscape and Visual Impact

These impacts have already been assessed under the approved Schedule 3 EIA Report. The major landscape and visual impacts during operation would result from the new coastline and from long-term development of the reclamation. Impact of temporary landscaping before permanent development will be assessed. Since this is a site formation/reclamation project, the long-term development of the reclamation and its landscape and visual impact is beyond the scope of this project.

4. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

The project site is situated in an area that has a mix of residential, commercial, and industrial developments. The area immediately surrounding the site is mostly disused parts of the former Kai Tak Airport.

Air quality in the vicinity of the study area is influenced by emissions from the following sources:

- the road network within and around the study area;
- the industrial areas around the study, namely Kwun Tong, Kowloon Bay, San Po Kong, To Kwa Wan, and Hung Hom;
- construction activities within and around the study area; and
- potential odour emissions from KTAC and Kwun Tong Typhoon Shelter.

Existing air and noise sensitive receivers within 500 m of the KTAC reclamation site, for which operational impacts were assessed in detail under the Schedule 3 EIA Report, are shown in Appendix A.

The water quality impact assessment area under the approved Schedule 3 EIA Report included several existing and planned water quality sensitive receivers: seawater intakes, typhoon shelters, mariculture zones, cooling water intakes, and gazetted beaches in the Western Buffer, Victoria Harbour, and Eastern Buffer Water Control Zones. These are shown in Appendix B.

5. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED

5.1.1 Air Quality Impact

5.1.1.1 Construction Phase

Construction Dust

The approved Schedule 3 EIA Report concluded that construction dust is unlikely to be an issue with the implementation of proper dust control and suppression measures, as stipulated in the Air Pollution Control (Construction Dust) Regulation. This EIA study will identify all dust-generating construction activities, specify the dust control and suppression measures required under the above Regulation as permit conditions in the EP, and specify environmental monitoring and audit (EM&A) requirements for odour (if *ex-situ* treatment is adopted for full-scale implementation) and construction dust.

Odour Impact from Reclamation Activities

After the completion of reclamation, the odour problem in the reclamation areas would be eliminated. With *in-situ* treatment of sediments, no dredging would be required, and odour emission during construction is therefore not likely to be an important issue. As outlined in the approved Schedule 3 EIA Report, odour impacts from dredging associated with *ex-situ* sediment treatment are unlikely to be a critical issue with proper mitigation measures, including the following:

- the use of suction dredging to prevent the exposure of sediments to the atmosphere;
- the addition of oxidant to sediments in the suction dredging pipeline to immediately oxidise odour-generating sulphides;
- covering the dredged sediments after loading into the dredger;
- suitable enclosures for the treatment facility and associated stockpiles;
- where practicable, carrying out dredging during favourable wind and temperature conditions to help minimise the odour to sensitive receivers.

5.1.1.2 Operational Phase

These impacts have already been assessed and mitigation measures proposed under the approved Schedule 3 EIA Report. They are summarised below.

Vent Shaft Emissions From Vehicular Tunnels

Air quality modelling conducted for the approved Schedule 3 EIA Report predicted that, with implementation of the proposed mitigation measures, vent shaft emissions from the D4 and D5 road tunnels to be constructed under SEKD would not be of concern during operation.

Odour Impact from Maintenance of Drainage Channel

The best practicable means will be adopted to minimise odour impacts as much as possible. Two odour control options are available: (1) Apply odour mist over desilting openings; and (2) Use “mobile” enclosures with odour control system over downstream desilting openings.

During operation, an odour monitoring program in accordance with the EM&A Manual should be implemented to check that the odour reduction measures are effective in preventing adverse odour impacts to the sensitive receivers in the vicinity.

5.1.2 Noise Impact

5.1.2.1 Construction Phase

Construction noise impacts and mitigation measures for the KTAC reclamation project were included in the Schedule 3 EIA Report. The project site is far from noise sensitive receivers and should therefore not constitute adverse noise impacts. Assumptions on the number of dredgers working simultaneously, construction traffic, and other nearby concurrent construction and other activities will be reviewed to determine whether the previous assessment is still valid. If not, a construction noise impact assessment will be conducted to meet EIAO-TM requirements. This EIA study will also specify noise mitigation measures as permit conditions in the EP, as well as the EM&A requirements for construction noise.

5.1.2.2 Operational Phase

These impacts have already been assessed and mitigation measures proposed under the approved Schedule 3 EIA Report.

In summary, the project site is planned for residential use. As such, no adverse noise impacts are expected to sensitive receivers in the vicinity. Furthermore, several concepts were incorporated in developing the layout plan for SEKD in order to minimise likely noise impacts from road traffic and other sources. Details on these design measures can be found in the approved Schedule 3 EIA Report.

5.1.3 Water Quality Impact

5.1.3.1 Construction Phase

Water quality modelling undertaken for the Schedule 3 EIA Report showed that adverse construction phase impacts could be mitigated to acceptable levels, with no significant impacts to nearby sensitive receivers. Water quality impacts due to construction site runoff into Victoria Harbour will be evaluated in detail and mitigation measures proposed. EM&A requirements will also be proposed if dredging is necessary. The key issues are summarised below.

Changes in Coastline Configurations

The approved Schedule 3 EIA Report concluded that this is unlikely to be an issue during construction because of predicted weak current velocity both at the site and in the Kwun Tong Typhoon Shelter that separates KTAC from Victoria Harbour. Moreover, after the completion of the SEKD, the smoothness of the future coastline in this region would be improved, with less restriction to flow movement in Kowloon Bay.

Temporary Diversion of Nullah and Box Culvert during Reclamation

The Schedule 3 EIA Report concluded that the temporary diversion of flows from the Kai Tak Nullah and Jordan Valley box culvert near the boundary between the KTAC and KTTS would not be likely to have much difference from the original situation, where the flows are first discharged into the KTAC and finally to the open water via KTTS. The arrangement and

alignment of the diversion will be reviewed, and additional assessment will be carried out as needed.

Dredging and Filling

Measures to minimise the release of pollutants during dredging and filling operations, outlined in the Schedule 3 EIA Report, include the following:

- installation of silt curtains at the entrance to KTAC to contain SS within KTAC;
- construction of the seawall in the early stages of the reclamation, to effectively confine sediment release during dredging and filling; and
- reduction of the dredging rate, use of tightly closed grabs, and control of grab descent speed to minimise disturbance to the seabed and sediment loss during dredging and raising of grabs.

Water quality monitoring will be included in the EM&A programme to detect any increases in contaminant levels in nearby water bodies during dredging and filling.

Construction Site Runoff / Wastewater and Sewage Generated from Construction Activities

Adverse water quality impacts are not expected to be significant with the adoption of good site arrangement and management practices to minimise potential pollution. Mitigation measures are outlined in the Schedule 3 EIA Report.

Ground Improvement

The Schedule 3 EIA Report concluded that with suitable site arrangement and control facilities, pore water released from ground improvement of undredged areas would be retained within the reclaimed land and would be unlikely to cause significant water quality impacts. Mitigation measures are outlined in the Schedule 3 EIA Report.

5.1.3.2 Operational Phase

These impacts have already been assessed and mitigation measures proposed under the approved Schedule 3 EIA Report. They are summarised below.

Presence of the Reclamation

The approved Schedule 3 EIA Report concluded that hydrodynamic and water quality conditions in the harbour would not be adversely affected by the presence of the SEKD.

Discharges from Storm Drains and Sewage Outfalls / Nullah

Upon commencement of the reclamation, Kai Tak Nullah would no longer discharge into KTAC but instead into Kowloon Bay, where relatively fast-moving tidal currents would be able to disperse pollutants from outfall outlets. The SEKD implementation programme will be reviewed, and the possible impact of discharging in To Kwa Wan Typhoon Shelter will be assessed. Effective controls on illegal discharge of wastewater into the nullah would be required to minimise water quality impacts. A programme will be specified as part of the EM&A during the operational phase to monitor changes of water quality resulting from extension of the nullah and box culvert.

Water Quality in Extended Sections of Diverted Nullah Box Culvert

The Schedule 3 EIA Report determined that adverse water quality impacts to the extended sections of diverted nullah box culvert can be minimised through the use of appropriate design measures, as well as routine maintenance work to maintain hydraulic capacity.

Storm and Emergency Overflows

Mitigation measures to minimise the impacts of overflows to the new KTTS are outlined in the Schedule 3 EIA Report and include the following:

- diversion of storm drains from the typhoon shelter;
- setting KTTS storm overflow weirs to a suitable level; and
- design of the overflow structure into the typhoon shelter to avoid dry weather overflows, which tend to form a thin layer on top of seawater due to the lower density.

5.1.4 Remediation of Contaminated Sediments

The potential environmental impacts occurring as a result of remediation of the contaminated sediments would depend on the treatment method, which will be determined based on data from the bench- and pilot-scale tests specified in the Schedule 3 EIA Report. Thus, this EIA study will:

- compare the findings of the bench-scale and pilot-scale field trials for both *in-situ* and *ex-situ* treatment methods;
- compare the residual impacts of full-scale implementation for each option;
- recommend the option that would result in the least environmental impact during full-scale implementation;
- develop further mitigation measures as needed;
- develop performance criteria, based on bench-scale test and pilot-scale field trial results, for full-scale implementation of the recommended option. These criteria will become a condition in the Environmental Permit with which the Contractor must comply; and
- develop EM&A requirements for full-scale implementation of the recommended option.

5.1.4.1 Construction Phase

If the *ex-situ* treatment option becomes necessary to treat the contaminated sediments, the mitigation measures described in the Schedule 3 EIA Report should be implemented to minimise dredging impacts.

5.1.4.2 Operational Phase

As recommended in the Schedule 3 EIA Report, methane gas monitoring will be included as part of the EM&A programme. The need for protective measures would be based on monitoring results, if necessary.

5.1.5 Waste Management Implications

The approved Schedule 3 EIA Report concluded that with the implementation of standard practicable waste management measures as outlined in the Report, the associated impacts are not considered to be insurmountable environmental constraints either during construction or operation.

5.1.6 Ecological Impact

The potential impacts on aquatic ecology assessed under the Schedule 3 EIA Report are considered minor. The measures proposed in the Schedule 3 EIA Report for preventing water quality deterioration during the construction phase are considered adequate to mitigate impacts on aquatic ecology; no additional mitigation would be required. The EM&A activities for water quality would serve to protect against unacceptable impacts to the aquatic ecological

environment. Therefore, a specific monitoring programme for aquatic ecology would not be required.

5.1.7 Fisheries Impact

The nearest fish culture zones should be far enough away that adverse impacts during construction and operation of the project are unlikely, as determined in the Schedule 3 EIA Report.

5.1.8 Cultural Heritage Impact

If review of the data obtained from the geophysical survey performed under the SEKD CFS shows the presence of anomalies in KTAC, further investigation like remote controlled vehicle survey or diver survey will be conducted to verify the archaeological importance. Positive confirmation would necessitate a rescue excavation.

5.1.9 Landscape and Visual Impact

5.1.9.1 Construction Phase

Although unlikely to be key issues, these impacts will be addressed for the construction phase in accordance with the EIAO-TM. Possible solutions to reduce adverse visual impacts of the reclamation works will be investigated.

The landscape and visual impacts for temporary landscaping works will be assessed.

5.1.9.2 Operational Phase

This is a site formation/reclamation project. The nature, extent, and layout of the future land use and its resulting landscape and visual impact are beyond the scope of this project.

6. USE OF PREVIOUSLY APPROVED EIA REPORTS

Most of the potential environmental impacts arising from this project, particularly for the operational phase, have already been assessed under the Schedule 3 EIA Report for the *Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development* (Agreement No. CE 32/99), approved on 25 September 2001 with conditions (see EPD's EIAO web site). Air quality impact, noise impact, water quality impact, sediment contamination, sewerage system, waste management implications, land contamination impact, hazard to life, ecological impact, fisheries impact, cultural heritage impact, landscape and visual impact, land use option, and environmental monitoring and audit and schedule of recommended mitigation measures were addressed in the Schedule 3 EIA Report for the SEKD as a whole.

The Schedule 3 EIA Report described construction phase impacts in a cursory way mainly because information such as construction program and construction plant items was lacking at the time. In this design and construction assignment, such information will be better defined and developed to allow for quantitative assessments on construction phase impacts.

This EIA study will therefore focus on the construction impacts while making reference to the Schedule 3 EIA Report on the operational impacts. The Schedule 3 Report also described the need to conduct bench-scale and pilot-scale field tests for *in-situ* and *ex-situ* treatment of the contaminated sediment in KTAC. This EIA Study will thus include the methodology and findings of these tests, and will establish performance criteria for the full-scale implementation programme.

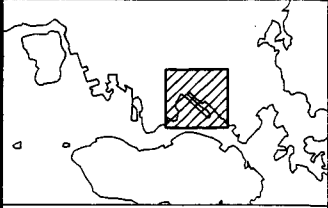
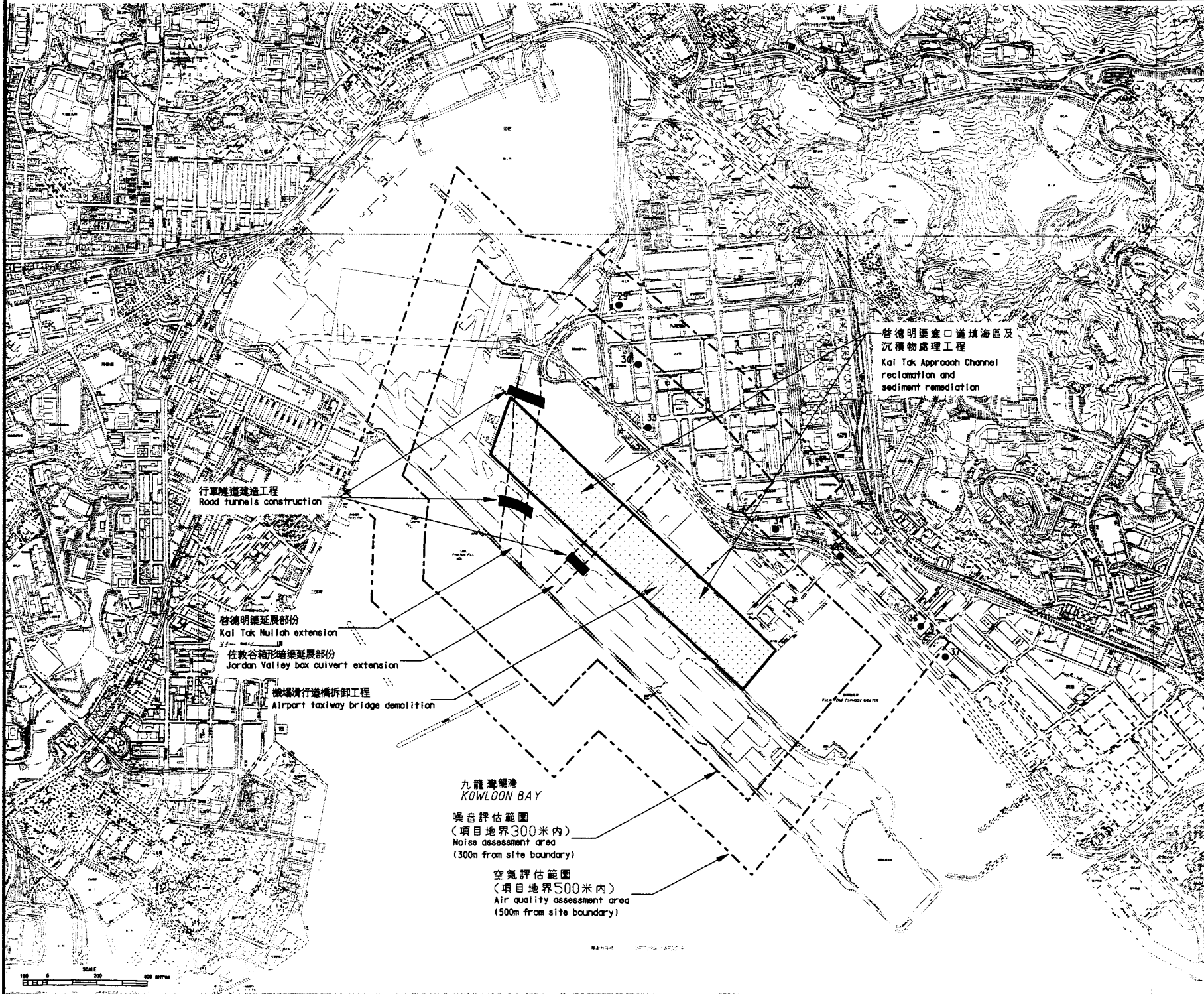
7. SUMMARY OF IMPACTS TO BE ASSESSED

Potential Impacts		Remarks
Construction Phase		
Air Quality	<ul style="list-style-type: none"> Construction dust. Odour emission from sediment remediation and reclamation. 	To be assessed under this Schedule 2 EIA.
Noise	<ul style="list-style-type: none"> Noise from powered mechanical equipment. Increased offsite traffic along access routes. 	To be assessed under this Schedule 2 EIA.
Water Quality	<ul style="list-style-type: none"> Changes in hydrodynamic and water quality conditions. Increased SS levels and turbidity. Generation of sediment plumes. Contaminant release during dredging / filling. Wastewater and sewage from construction activities. 	To be assessed under this Schedule 2 EIA.
Contaminated Sediments	<ul style="list-style-type: none"> Generation of sediment plumes during dredging. Contaminant release during dredging. Increase in SS and turbidity during dredging. Odour emission during dredging. 	To be assessed under this Schedule 2 EIA, following <i>ex-situ</i> and <i>in-situ</i> treatment pilot field trials.
Waste Management Implications	<ul style="list-style-type: none"> Construction and demolition material. Chemical waste. Workforce waste. 	Previously assessed and mitigation proposed under Schedule 3 EIA.
Ecological	<ul style="list-style-type: none"> Disturbance from dredging. Habitat loss of KTAC to reclamation. Sedimentation. Contaminant release during dredging / filling. Pollution from site runoff. 	Previously assessed under Schedule 3 EIA. No special mitigation measures required.
Fisheries	No impact on fisheries expected.	Previously assessed under Schedule 3 EIA.
Cultural Heritage	Marine archaeological potential may exist depending on geophysical survey review.	To be reviewed under this Schedule 2 EIA.
Landscape and Visual	Change in visual character of the works area.	To be assessed under this Schedule 2 EIA.
Operational Phase		
Air Quality	<ul style="list-style-type: none"> Vent shaft emissions from vehicular tunnels. Odour emission from drainage channels maintenance. 	Previously assessed and mitigation proposed under Schedule 3 EIA.
Noise	Adverse noise impacts are not expected during operation. Nature, extent, and layout of future land use and sensitive receivers susceptible to potential operational noise impacts are beyond the scope of this reclamation project.	Previously assessed and mitigation proposed under Schedule 3 EIA.
Water Quality	<ul style="list-style-type: none"> Slight reduction in average discharge. Improved pollutant dispersion / dilution in Kowloon Bay. Elimination of existing odour problem. Water quality in the extended sections of diverted nullahs could be affected by deposited sediments. Storm / emergency overflows into new KTTS and marina. 	Previously assessed and mitigation proposed under Schedule 3 EIA. SEKD implementation programme will be reviewed for possible discharges into TKWTS under this Schedule 2 EIA.
Contaminated Sediments	Possible methane biogas risk associated with leaving sediments in place.	To be assessed under this Schedule 2 EIA.
Waste Management Implications	Mainly municipal solid waste. Long-term generation and management of municipal solid waste is beyond the scope of this reclamation project.	Previously assessed under Schedule 3 EIA.
Ecological	No adverse ecological impact expected (KTAC is abiotic).	Previously assessed under Schedule 3 EIA. No special mitigation measures required.

Potential Impacts		Remarks
Fisheries	No impact on fisheries expected.	Previously assessed under Schedule 3 EIA. No special mitigation measures required.
Cultural Heritage	No cultural heritage impact expected. Temporary Landscaping before permanent development will be assessed.	A geophysical survey has been carried out by SEKD CFS. An assessment will be made in this Schedule 2 EIA.
Landscape and Visual	Landscape and visual impact of long-term development is beyond the scope of this reclamation project.	Previously assessed under Schedule 3 EIA.

APPENDIX A

**Project Site Location,
Air and Noise Sensitive
Receivers**



LEGEND 附註:

根據環境影響評估條例
附表3所確定的空氣及
噪音敏感受體

36
● Air and Noise Sensitive
Receivers identified in
the Schedule 3 EIA

Rev	Description	By	Date

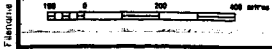
Consultant
ARUP 偉信 Scott Wilson
Arup - Scott Wilson Joint Venture

Project title
九龍東南發展計劃 —
啓德明渠連口道填海工程
**SOUTH EAST KOWLOON DEVELOPMENT -
KAI TAK APPROACH CHANNEL
RECLAMATION**

Drawing title
工程項目位置及空氣及噪音敏感受體
**PROJECT SITE LOCATION, AIR
AND NOISE SENSITIVE
RECEIVERS**

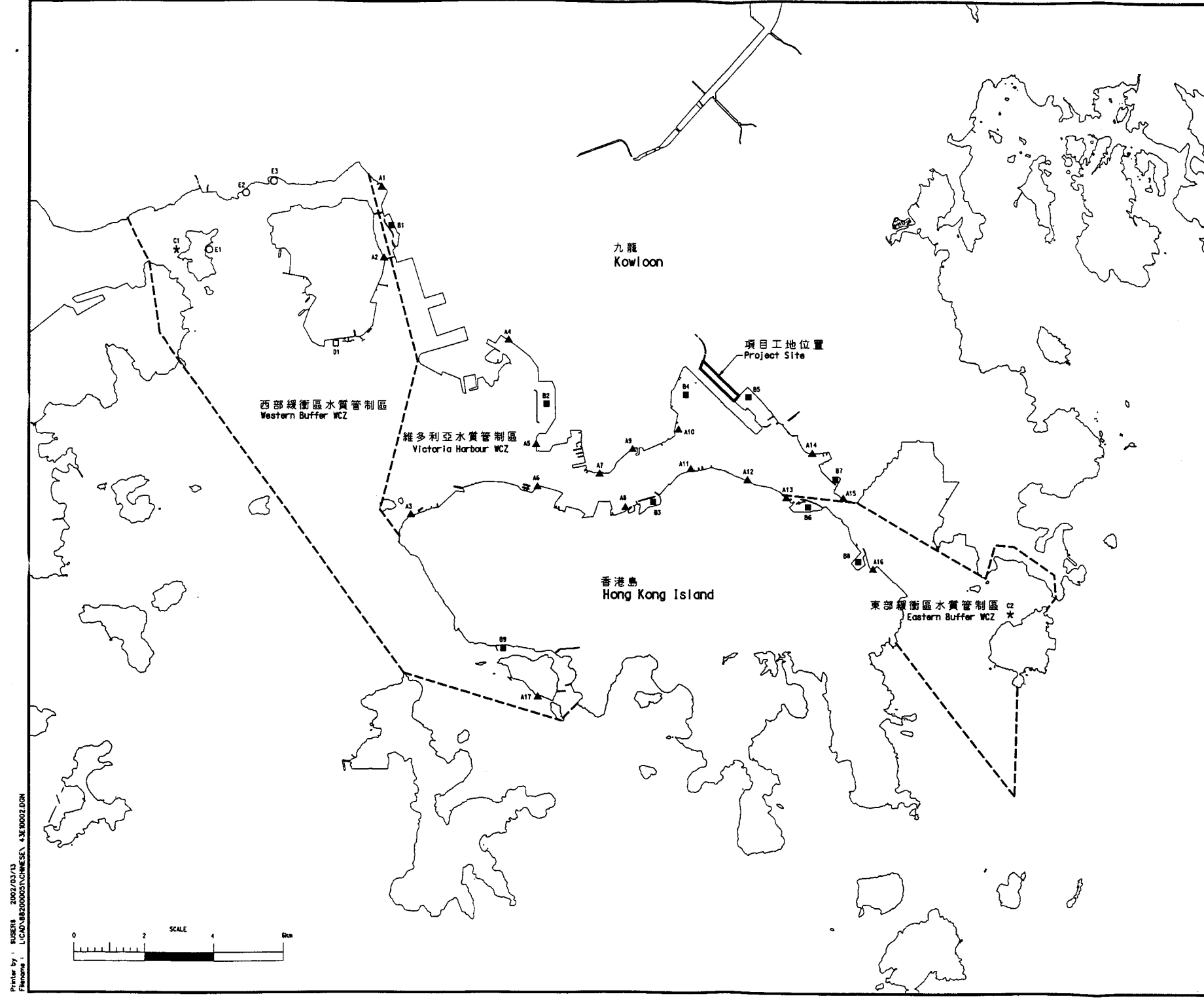
Drawing no.	23463/E/10/K/001	Rev.	1
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Scale	1:7000 ON A1	Status	PRELIMINARY

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APPENDIX B

**Existing Water Quality
Sensitive Receivers**



- LEGEND 附註:**
 根據環境影響評估條例
 附表3所確定的水質敏感受體
 Water Quality Sensitive Receivers
 Identified in the Schedule 3 EIA
- 海水進水口
Sea Water Intakes
▲ A1 to A17
 - 避風塘
Typhoon Shelters
■ B1 to B9
 - 水產養殖區
Mariculture Zones
★ C1 and C2
 - 冷卻水進水口
Cooling Water Intake
□ D1
 - 公告泳灘
Gazetted Beaches
○ E1 to E3

Rev	Description	By	Date

Consultant
ARUP 信 Wilson
 Arup - Scott Wilson Joint Venture

Project Site
 九龍東南發展計劃 -
 啓德明渠進口道填海工程
**SOUTH EAST KOWLOON DEVELOPMENT -
 KAI TAK APPROACH CHANNEL
 RECLAMATION**

Drawing Title
**現有水質敏感受體
 EXISTING WATER QUALITY
 SENSITIVE RECEIVERS**

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