



**KOWLOON SOUTHERN LINK  
Contractor's Submission Form**

**Contract:** KDB200 - West Kowloon Station and Tunnels,  
Jordan Road to East Tsim Sha Tsui Station

**To:** Engineer's Representative-Mr. Tom Keenan

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EDMS No. :  
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**Title of Submission:** Environmental Management Plan

**Submission Ref. No.** KDB200/CSF/ENV/000010/G

**Description of Contents:** (for material submissions, include information of suppliers, brand, type, and location of application)

**Please refer to attachment**                       **See Below**

Please find attached the revised document with EPD comments dated 10 April 2006 for your onward submission to EPD.

(Note: Please be reminded that as per GS section G18.4, document submissions need 1 unbound original, 1 unbound copy, ten bound copies, and two electronic copies (on two CDs); and drawing submissions need 1 A1 size original, eleven sets of A1 size prints folded into A4 size, three unbound sets of A3 size prints reduced from the A1 size original, two electronic copies, 1 drawing list (in hard and soft copy) in accordance with the CADD Manual for New Railway Works. Any deviation to the G18.4 copy requirements must state the name of the KCRC staff authorising the change into the CSF specification/drawing reference field.

**Purpose of Submission:**

**For Review**                       **For Information**                       **For Record Purposes**

**From: Contractor's Representative**  
Name: Mr. Peter Weiley                      Signature: *Peter Weiley*  
Title: Project Director  
Date: 9-May-2006



**Remarks:**

**No. of copies included in this submission:**12

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**Specification/Drawing Reference (if applicable):**  
EP Condition 2.5 and General Specification G8.1

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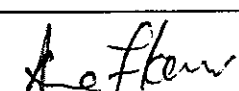
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# KCRC KOWLOON SOUTHERN LINK

## CONTRACT KDB200

### ENVIRONMENTAL MANAGEMENT PLAN

**MAY 2006**

Certified By :	Dr. Anne F Kerr
Signed :	
Position :	Environmental Team Leader
Date :	9 May 2006

EPD COMMENTS ON ENVIRONMENTAL MANAGEMENT PLAN  
(10<sup>th</sup> April 2006)

R-to-C Item No.	EMP Ref.	Comments	Contractor's Response
Textural	Relevant Section	To be consistent with KCRC's VEP application (No. VEP-210/2006) and the EP-215/2005/B, please use "spoil conveyance system" in replacing "spoil conveyor system" in relevant section(s) of the EMP.	The relevant sections are amended to update the change of the phase.
Textural	2 <sup>nd</sup> bullet point, amended pg. 7	The sentence "South of West Kowloon Station, ... to connect with the cut-and-cover tunnels under Salisbury Road adjacent to the Kowloon Park Drive Junction" is not consistent with KCRC's VEP application (No. VEP-210/2006) for the extended bored tunneling along Salisbury Road and the amended EP (No. EP-215/2005/B). Please update pg. 7 and other relevant section(s) of the EMP as necessary.	The sentence in 2 <sup>nd</sup> bullet point page 7 is updated accordingly.
Textural	S1.5 & Amended pg.8	The amended EP issued on 21.3.06 is numbered as No. EP-215/2005/B. Alternatively, KCRC/contractor may generally refer their permits as "Environmental Permit" and "Link 200 JV's Further Environmental Permit" in this section and other relevant section(s) of the EMP	The relevant sections are amended accordingly.
5 & 6, textual	S1.2	Based on the R-to-C, please amend the sentence to "other civil engineering works including: - external works comprising <del>new</del> <u>emergency vehicle accesses</u> and reinstatement of roads, footpaths, ..."	The sentence is revised with the word "new" replaced with " <u>emergency vehicle accesses</u> ".
15, 22 & 30, textual	S3.7 & Appendix 11	S.3.7 and Appendix 11 on fire and safety matters have been removed from the EMP. Please be reminded to update the content page, section numbers and appendix numbers of the EMP as S3.7 & Appendix 11 have been removed.	The EMP is updated and these sections are shown as "Not used" in the content page.
18 & 19, textual	S3.10 & S3.11	EP (No. EP-215/2005/B) has been issued. See above textual comments please.	The sections are amended accordingly.



# Link 200 Joint Venture



**Balfour Beatty**



**Link 200 Joint Venture**

## **Environmental Management Plan**

**Contract KDB200**

**West Kowloon Station and Tunnels, Jordan  
Road to East Tsim Sha Tsui Station**

for

**KCR Corporation**

Prepared by:

  
Project Environmental Manager

Approved by:

  
Project Director

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## About this document

This document is available for all employees via the project network and is approved for use. This document is regularly updated and the latest version is available electronically. Once printed, the document should no longer be considered to be the latest version. It may be distributed externally, for example to the KCR Corporation as a controlled document. As such, the front cover should be stamped "Controlled Copy" in red, a copy number added and distribution records maintained.

The project environmental manager is responsible for updating and maintaining this plan. The original hard-copy of the document should be signed to indicate approval and filed in the project filing system.

If you have any enquiry relating to this plan, please contact the project environmental manager in the first instance.

Revision	Date	Section/Description	Authorized by
0	2005-08-22	For EPD approval	PW
1	2005-09-01	Revised with KCRC and IEC comments	PW
2	2005-09-08	Revised with KCRC and IEC comments	PW
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	2006-03-09	Revised with EPD comments	PW
4	2006-05-09	Revised with EPD comments	PW

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## Section 1 – Introduction

### 1.1 Purpose

The purpose of this Environmental Management Plan is to assemble and detail in one coordinated document the specific practices, resources and activities to be implemented during activities associated with the design and construction of Contract KDB200 to achieve the stated environmental policy, objectives and targets and meet the requirements of KCRC as detailed in the Contract documents and those detailed in the approved Environmental Impact Assessment, Environmental Permit, Link 200 JV's Further Environmental Permit, Environmental Monitoring and Audit Manual and Environmental Mitigation Implementation Schedule.

The plan format is based on the outline environmental management plan contained in the KCR Corporation General Specification for Civil Engineering and Building Works.

### 1.2 Description of Works

The Kowloon Southern Link Project comprises a 3.8-kilometre underground, double-tracked electrified domestic passenger railway, which is to provide services operating between East Tsim Sha Tsui Station and Nam Cheong Station (Figure 1.1). A new West Kowloon Station will be provided under the project.

The scope of the Contract KDB200 project will involve 1.9 kilometres underground railway connecting, the West Kowloon Station, the Canton Road Plant Building and an Emergency Egress Point (Figure 1-2). The Works include the parts described in outline below (reference shall be made to the Contract as a whole to determine the full scope of the works):

- A new station, West Kowloon Station, is to be formed as a cut-and-cover box structure. The station will have two levels below ground, with an island platform at the lower level and a concourse at the upper level. At each end of the station are 3-level above-ground structures incorporating plant rooms and passenger circulation areas, together with ventilation shafts extending above ground level. The station is located between Austin Road West and Jordan Road. The station will be designed to support possible future development up to +25 mPD.
- A number of adits are required below ground to connect the station to existing subways at Jordan Road and Austin Road. A new footbridge across Jordan Road connects the station with the existing Footbridge FB14.
- The cut-and-cover station box is extended northwards under Jordan Road and terminates at the interface with Contract KDB300.
- The cut-and-cover box is extended southwards under Austin Road West, and initially forms the tunnel-boring-machine launching shaft for the construction of tunnels southwards, including the assembly of the tunnel-boring machine. A

pedestrian subway link within the tunnel-boring machine launching shaft is to be constructed to link the southern end of the concourse to the south of Austin Road. On completion of the bored tunnels, the shaft will be back-filled and handed over to the future developer of the site.

- South of West Kowloon Station, the tracks run in twin, bored tunnels beneath Canton Road and the Former Marine Police Headquarters to connect with the cut-and-cover tunnels under Salisbury Road adjacent to Nathan Road.
- Under Salisbury Road, the tunnel comprises a twin-track cut-and-cover box connecting with the overrun to East Tsim Sha Tsui Station, and incorporating the crossing of the MTR Tsuen Wan Line tunnels and modifications to and reinstatement of or provision of a new permanent subway to replace New World Subway 1. Works related to New World Subway 1 are incorporated into the Contract as Options 10.
- Canton Road emergency access point is located at the junction of Canton Road and Kowloon Park Drive, and comprises a deep, cut-and-cover shaft with above-ground structure, and incorporates ventilation ducts, staircases, lifts, plant rooms and other ancillary facilities
- Peking Road emergency egress point is located adjacent to 1 Peking Road and the Former Marine Police Headquarters, and comprises a below-ground staircase connecting the two tunnels together with a staircase to ground level. The staircases will be constructed within a shaft connecting the two tunnels and extending to ground level
- The Contract includes the building services for the station, tunnels and all ancillary structures. This will exclude railway systems but include:
  - electrical power, lightning protection, earthing;
  - ventilation, air-conditioning and smoke extract systems;
  - fire systems, including sprinklers, smoke detection and alarm systems;
  - plumbing, drainage, foul sewage and pumping equipment;
  - building-management systems;
  - gas-supply system, and
  - works provided by the contractor as specified in the Interface Specifications
- The Contract includes all architectural, builder's works and finishes, including signage and advertising panels, and the builder's works as specified in the Interface Specifications
- Other civil engineering works include:
  - external works comprising emergency vehicle accesses and reinstatement of roads, footpaths, drains, landscaping and the like;
  - temporary and permanent diversion of utilities, drains and sewers;
  - design and implementation of temporary traffic diversions, including pedestrian traffic and the maintenance of access to properties;
  - provision of facilities to accommodate railways systems and project contractors, including attendance thereon;

- miscellaneous E&M works ,including lighting, signage, traffic controls and landscaping, but excluding general highway lighting, and
- supply and erection of brackets, including fixings built into structures.

### **1.3 Operation of the Tunnel Boring Machine (TBM)**

The previously envisaged excavated spoil transport system during the planning stage required a conveyor belt system which would result in dust and noise. The proposed system uses liquid transport of excavated material inside pipelines, pumped from the Tunnel Boring Machine (TBM) to the surface treatment plant. As the excavated spoil is carried in suspension within pipes, there are no transfer points which generate dust or require enclosures. The environmental impact from the spoil handling from the Tunnel Boring Machine is significantly reduced. The details of the proposed slurry type TBM is given in Appendix 1.

### **1.4 Construction Programme**

The construction work will commence in October 2005 and is scheduled to be completed by late 2009. Testing and commissioning of the railway system will then be conducted for target completion for operation in late 2009. All construction work will be undertaken during normal working hours from 07h00 to 19h00, except for the tunnel-boring-machine launching shaft and associated activities to the south of West Kowloon Station, which will operate for 24 hours subject to the approval of construction noise permit. The commencement of construction of the Tunnel Boring Machine (TBM) launching shaft is scheduled for October 2005. The commencement of dewatering of groundwater is scheduled in June 2006. The commencement of excavation of contaminated material/soil as part of the site clearance/preparation work is scheduled in October 2005. A master construction programme is given in Appendix 2.

### **1.5 References**

This plan shall be read in conjunction with the following documents:

- Environmental Impact Assessment Report for Kowloon Southern Link, January 2005
- Environmental Permit
- Link 200 JV's Further Environmental Permit
- KCRC, General Specification G8.1 (2), 2004
- Leighton Environmental Manual, September 2001
- Environmental Management & Audit Manual for Link 200 Joint Venture, 2005
- Waste Management Plan for Link 200 Joint Venture, 2005

## Section 2 – Contractor’s Organization

### 2.1 Contractor’s Details

The contractor’s details (including subcontractors) are provided in Table 2.1 and Table 2.2, which contains key company and subcontract personnel. This table will be updated from time-to-time as significant changes occur. For current details and the complete listing of joint-venture staff, refer to the project directory document H2298/F037, held and maintained by the project secretary.

Table 2.1 Contractor’s Details

Name	Position	Organization	Telephone	Facsimile	E-mail
Peter Weiley	Project director	Link 200 Joint Venture	2737 6011	2736 0611	peter.weiley@leightonasia.com
Kevin Harman	Quality Manager	Link 200 Joint Venture	2203 0803	2736 0611	kevinwayneharman@hotmail.com
M K Cheung	Project Environmental Manager*	Link 200 Joint Venture	2737 6008	2736 0611	mingkai.cheung@gammonconstruction.com
Jimmy Chu	Project Manager	Link 200 Joint Venture	2737 6090	2736 0611	jimmy.chu@leightonasia.com
John Mcleod	Section Manager	Link 200 Joint Venture	2737 6032	2736 0611	john.mcleod@leightonasia.com
K. Hatakeyama	Section Manager	Link 200 Joint Venture	2737 6078	2736 0611	k.hatakeyama@kumagaigumi.com.hk
David Hake	Section Manager	Link 200 Joint Venture	2737 6037	2736 0611	david.hake@jhg.com.au
Rico Lai	Safety Officer	Link 200 Joint Venture	8101 9396	2736 0611	rico.lai@kumagaigumi.com.hk
Kenneth Chow	Environmental Engineer	Link 200 Joint Venture	2737 6012	2736 0611	kenneth.chow@link200.com.hk
Eddie Tse	Geotechnical Engineer/Decontamination Specialist	Link 200 Joint Venture	2737 6000	2736 0611	eddie.tse@gammonconstruction.com
Keith Phillips	Chief Engineer	Link 200 Joint Venture	2737 6082	2736 0611	keith.Phillips@gammonconstruction.com
David Sein	Design Engineer	Link 200 Joint Venture	2737 6025	2736 0611	david.sein@gammonconstruction.com
Andy Yeung	Quantity Surveyor	Link 200 Joint Venture	2737 6021	2736 0611	andy.yeung@gammonconstruction.com
Simon Dando	Planning Manager	Link 200 Joint Venture	2737 6060	2736 0611	simon.dando@gammonconstruction.com
Keith Chau	Site Agent	Link 200 Joint Venture	2737 6052	2736 0611	keith.chau@kumagaigumi.com.hk
Michael Wong	Site Agent	Link 200 Joint Venture	9659 3307	2736 0611	michael.wong@gammonconstruction.com
Bill Chan	Engineer	Link 200 Joint Venture	9720 1507	2736 0611	bill.chan@gammonconstruction.com

\* Contact for environmental protection issues

Table 2.2 Subcontractor Details

Organization	Position	Name	Telephone	Facsimile	E-mail
Gammon Construction Limited	Project Manager	Patrick Hou	9097 0899	-	patrick.hou@gammonconstruction.com
Kin Wing Limited	Project Manager	Mr. Lee	TBA	-	-

## 2.2 Responsibility and Level of Authority of Personnel

The responsibilities and authorities of staff with respect to environmental management and protection are set out in the following subsections. The management organization chart for the Link 200 Joint Venture, environmental team and communication channels to the independent environmental checker and the Environmental Protection Department is included as Appendix 3.

### 2.2.1 Project Director – 5% time allocated to environmental matters

The project director reports to the Link 200 Joint Venture board and is responsible for overall management of the project. He shall have day-to-day authority and responsibility for time, cost, safety, environmental and quality management. The project director:

- determines and actively supports the Link 200 Joint Venture’s policy regarding environmental protection and management for the project;
- determines and actively promotes the environmental objectives for the project;
- approves the Environmental Management Plan and associated documentation for issue;
- establishes and chairs the Project Environmental Review Committee;
- liaises with the KCR Corporation and the Environmental Protection Department regarding overall environmental performance;
- makes sure that Link 200 Joint Venture activities comply with all statutory and contractual environmental requirements;
- makes sure that subcontractors are made aware of their environmental obligations, and
- provides the necessary resources for effective environmental protection.

### 2.2.2 Quality Manager - 10% time allocated to environmental matters

The main duties of the quality manager are:

- Authority:
  - the quality manager has the specific authority to assist the project environmental manager to implement the approved Environmental Management Plan.

- Accountability:
  - the quality manager is directly accountable to the project director for the implementation and maintenance of the Environmental Management Plan and for overseeing the monitoring of environmental performance.
- Responsibilities:
  - assist and supervising the project environmental manager implementing the Environmental Management Plan;

### **2.2.3 Project Environmental Manager - 100% time allocated to environmental matters**

The main duties of the project environmental manager are:

- Authority:
  - the project environmental manager has the specific authority to implement and maintaining the approved Environmental Management Plan and other documents submitted under the EP with the assistance from the quality manager.
- Accountability:
  - the project environmental manager is directly accountable to the quality manager and project director for the implementation and maintenance of the Environmental Management Plan and for overseeing the monitoring of environmental performance.
- Responsibilities:
  - initiating and coordinating the initial planning, documentation and maintenance of the Environmental Management Plan and maintaining and updating that plan during the project;
  - making sure that all environmental requirements are communicated to Link 200 Joint Venture staff, subcontractors and the workforce;
  - liaising with the environmental team to make sure that the environmental monitoring and audit programme is implemented;
  - liaising with the KCR Corporation's site supervision staff, environmental staff and representatives of the Environmental Protection Department on environment-related issues;
  - making sure that procedures set out in the Environmental Management Plan are fully implemented;
  - providing or arranging technical support and assistance to Link 200 Joint Venture project staff relating to environmental issues;
  - monitoring licence and permit applications and their issue to make sure that they are prepared and received in a timely manner to prevent delays to the works;
  - monitoring of the environmental system on a day-to-day basis to make sure that the requirements of the Environment Management Plan are operational and effective;
  - monitoring environmental performance in accordance with the Environmental Management Plan;
  - collating environmental performance data and assessing performance against

- environmental objectives and targets;
- preparing periodic environmental performance reports, and
- making sure that training programmes are implemented.

#### **2.2.4 Safety Officer – 5% time allocated to environmental matters**

The safety officer:

- issues personal protective equipment to operatives, staff and site visitors against environmental aspects such as dust and noise;
- makes sure that suitable storage facilities are maintained for dangerous goods;
- erects notices and posters on site regarding environmental issues;
- makes sure that the handling of dangerous goods complies with statutory requirements;
- maintains an inventory of Material Safety Data Sheets and makes sure that they are available to staff and subcontractors for any hazardous material/chemical used on site;
- makes sure that all operatives have attended safety and environmental site induction training before starting work, and
- implements the project environmental policy and participates and contributes towards the achievement of the Link 200 Joint Venture's environmental objectives.

#### **2.2.5 Project Manager – 10% time allocated to environmental matters**

The project manager:

- makes sure that planned mitigation measures for each activity are implemented and that working practices of subcontractors and site personnel do not cause adverse environmental impacts;
- reports adverse environmental impacts and incidents to the project environmental manager for investigation and corrective action;
- makes sure that relevant environmental aspects are considered during production, and
- implements the project environmental policy and participates and contributes towards the achievement of the Link 200 Joint Venture's environmental objectives.

#### **2.2.6 Section Manager – 10% time allocated to environmental matters**

The section manager:

- makes sure that all method statements take account of the constraints imposed

by local environmental issues and permit and licensing requirements;

- makes sure that planning activities take due account of constraints imposed by environmental issues and permit and licensing requirements;
- makes sure that all relevant environmental aspects are considered during design works, and
- implements the project environmental policy and participates and contributes towards the achievement of the Link 200 Joint Venture's environmental objectives.

#### **2.2.7 Commercial manager/ quantity surveyor - 5% time allocated to environmental matters**

The commercial manager/ quantity surveyor:

- coordinates with the project environmental manager to make sure that all appropriate environmental issues, including environmental management, are included in subcontracts and purchase orders;
- makes sure that environmental requirements are fully addressed in procurement documentation, including the requirements of relevant environmental licences and permits;
- makes sure that prospective subcontractors are made aware of all the environmental issues relating to the project during negotiations prior to subcontract award, and
- implements the project environmental policy and participates and contributes towards achievement of the Link 200 Joint Venture's environmental objectives and targets.

#### **2.2.8 Environmental Engineer - 100% time allocated to environmental matters**

The environmental engineer:

- assists the project environmental manager in his preparation of weekly environmental checklist and monthly environmental reports;
- assists the project environmental manager in the implementation of the Environmental Management Plan;
- monitors and controls the works, including those of subcontractors, to ensure compliance with contractual and statutory requirements;
- reports any non-compliance to the project environmental manager and recommends remedial action;
- investigates and verifies complaints and reports to the project environmental manager; and



- makes sure that remedial actions or mitigation measures are carried out as planned.

### **2.2.9 Site Agent – 10% time allocated to environmental matters**

The site agent:

- make sure that planned mitigation measures for each activity under their specific responsibility are implemented and that working practices of personnel do not cause adverse impacts;
- make sure that relevant Material Safety Data Sheets are available at the place of work and that workers are made aware of requirements;
- carry out any necessary remedial work to correct deficiencies identified during weekly inspections, and
- implement the project environmental policy and participate and contribute towards the achievement of the Link 200 Joint Venture's environmental objectives and targets.

### **2.2.10 Engineer – 10% time allocated to environmental matters**

The Engineer:

- makes sure that the planned methodology adopted for each activity is fully implemented and that working practices of personnel do not cause adverse impacts;
- makes sure that any relevant environmental issue is fully considered in preparing work method statements;
- carries out any necessary remedial work to correct deficiencies identified during weekly inspections, and
- implements the project environmental policy and participates and contributes towards the achievement of the Link 200 Joint Venture's environmental objectives and targets.

### **2.2.11 Site Foreman – 10% time allocated to environmental matters**

The site foreman:

- makes sure that planned mitigation measures for each activity are implemented and that working practices of personnel do not cause adverse impacts;
- is responsible for the day-to-day supervision of the works and makes sure that activities are carried out in accordance with the environmental control plans;
- monitors rectification of any identified deficiencies and makes sure that they are progressed expeditiously, and

- implements the project environmental policy and participates and contributes towards the achievement of the Link 200 Joint Venture's environmental objectives and targets.

#### **2.2.12 Manager, Group Systems (Located at Leighton Contractors (Asia) Limited's head office) – 30% time allocated to environmental matters**

The manager, group systems is management representative for the Leighton Contractors (Asia) Limited environmental management system which is being adopted by Link 200 Joint Venture for Contract KDB200. Responsibilities with respect to the implementation of this Environmental Management Plan include:

- ensuring that environmental management system requirements are established, implemented and maintained in accordance with ISO 14001;
- reporting to senior management on the performance of the environmental management system including progress towards achieving overall environmental objectives and targets;
- promoting awareness of new legislative requirements when necessary;
- giving support, advice and/or assistance to project staff with respect to the environmental management system;
- training Link 200 Joint Venture personnel in the use of the Leighton Contractors (Asia) Limited Environmental Management System as necessary, and
- arranging and conducting environmental management system compliance audits.

#### **2.2.13 Geotechnical Engineer/Decontamination Specialist - Full time during removal of contaminated soil**

The Geotechnical Engineer/Decontamination Specialist shall supervise the land/soil remediation programme for the excavation and removal of the contaminated material/soil. All relevant method statements prepared by the remediation contractor shall be reviewed and approved by the Geotechnical Engineer/Decontamination Specialist before proceeding with the works.

#### **2.2.14 Contractor's Environmental Team Leader and Environmental Team**

The duties of the Link 200 Joint Venture's environmental team leader and environmental team are to:

- set up all the required environmental monitoring stations;
- monitor various environmental parameters for baseline and impact monitoring, as required by this manual;
- investigate and audit the Link 200 Joint Venture's equipment and work methodologies with respect to pollution control and environmental mitigation,

and to anticipate environmental issues that may require mitigation before the problem arises;

- audit and prepare audit reports on the environmental monitoring data and the site environmental conditions;
- report the environmental monitoring and audit results to the Link 200 Joint Venture and the Engineer's Representative;
- undertake regular on-site audits/inspections and report to the Link 200 Joint Venture and the Engineer's Representative any potential non-compliance,
- follow up and close out non-compliance actions,
- investigating results of complaint cases and the effectiveness of corrective measures, and
- provide input into the Electronic Environmental Management System (EEMS) established by KCRC.

#### **2.2.15 Environmental Manager**

The environmental manager shall be employed by the KCR Corporation and shall:

- supervise the environmental monitoring and audit programme, its members and the timely production and quality of outputs;
- provide guidance to the KCR Corporation personnel in their dealings with the Link 200 Joint Venture's environmental team;
- achieve the agreed objectives and deadlines, as set out in this plan,
- ensure the quality of deliverables, and
- provide and establish the Electronic Environmental Management System (EEMS) to handle environmental data and information.

#### **2.2.16 Independent Environmental Checker**

An independent environmental checker shall be appointed by the KCR Corporation to audit and verify the overall environmental performance of Contract KDB200 and to assess the effectiveness of the environmental team in its duties. The main duties of the independent environmental checker are to:

- review and comment on the Link 200 Joint Venture's environmental submissions as per the Environmental Permit;
- arrange and conduct monthly site inspections at the different works area along the KDB200 alignment;
- review the programme of work to anticipate any potential environmental

impacts that may arise;

- ensure the impact monitoring is conducted at the correct locations at the correct frequency, as identified in this manual;
- check the mitigation measures that have been recommended in the Environmental Impact Assessment and this manual, and ensure they are properly implemented in a timely manner, when necessary,
- report the findings of site inspections and other environmental performance reviews to the environmental manager and the Environmental Protection Department,
- Verify EM&A report that has been certified by the ET leader,
- Feedback audit results to ET/Permit Holder according to Event/Action Plan in the EM&A manual, and
- provide input into the Electronic Environmental Management System (EEMS) established by KCRC.

## **2.3 General Communications**

### **2.3.1 General**

The general procedures for communication within the project team and externally are set out in the Project Management Plan. Specific requirements for environmental issues are set out in the following subsections.

### **2.3.2 Formal Written Communication**

Written communications are prepared and issued in accordance with the Project Management Plan and filed in the project filing system. A formal letter shall be used to communicate the requirements of environmental licences and permits held by the Link 200 Joint Venture to relevant subcontractors, including any changes to the documents already held, throughout the duration of the Contract.

Corrective-action requests that are raised as a result of a subcontractor's or supplier's non-compliance will be recorded in accordance with Procedure MP-019 and sent to that subcontractor or supplier under cover of letter or transmittal or recorded in minutes of meeting for necessary action.

### **2.3.3 Oral Communications**

Oral communications relating to environmental issues that are significant to environmental performance will be recorded and kept in the project filing system. Examples of such communications include oral communications with representatives from authorities such as the Environmental Protection Department when they visit the site.

### **2.3.4 Other Communication Methods**

A community-relations team shall be established to provide proactive liaison and coordination with stakeholders involved with and affected by the project.

Posters and notices shall be used as appropriate to communicate environmental issues, such as the Link 200 Joint Venture's policy, environmental objectives, site layout plans, and good and bad environmental practices.

Regular meetings shall be held internally and with subcontractors to discuss site-management issues, including environmental protection. Details of the meeting schedule for the project are included in the Project Management Plan.

Induction training sessions and tool-box meetings shall be held to communicate environmental issues to staff and the workforce. Details of training proposals are provided in the training programme, Table 2.4.

### **2.3.5 Complaints**

The communication procedures for complaints handling is detailed in the Environmental Monitoring & Audit Manual. In addition, the Link 200 Joint Venture will operate a complaint database at the project for the logging and tracking of all complaints, including environment, safety, commercial and progress.

## **2.4 Environmental Reporting**

Environmental reporting by the project team shall be carried out in accordance with the requirements of this section.

### **2.4.1 Incident Reporting- Internal**

A report shall be prepared and issued to the Link 200 Joint Venture board within 72 hours of any visit by government authorities (eg, the Environmental Protection Department and the Hong Kong Police) where there has been an alleged breach of environmental legislation or regulations. Examples of such an incident include complaint investigation followed by the issue of a yellow or pink inspection record by the Environmental Protection Department's officers.

The incident report to be prepared by the project team and submitted to the project director, and copied to KCRC if appropriate, shall include:

- details of the incident;
- a completed Corrective Action Request to address the concerns relating to the incident (Form F003) (Appendix 19);
- name and contact details of persons visiting the site from the authority, and
- records of conversation as appropriate.

### **2.4.2 Monthly Environmental Reporting - Internal**

The Monthly Environmental Report provides details of environmental performance and includes details of any incidents, complaints received, prosecution and summons, resource and energy use, quantities of waste disposed from site and quantities of recycled material.

The Monthly Environmental Report shall be prepared by the project team using standard form F517 (provided under the Leighton's Environmental Management Manual).

The report shall be approved by the project director and distributed as a minimum to the Link 200 Joint Venture board members, and to the manager, Group Systems, of Leighton Contractors (Asia) Limited, who is located at Leighton Contractors (Asia) Limited's head office. The report should be issued within seven days of the end of the reporting period.

#### **2.4.3 Quarterly Project Status Report (Environmental) - Internal**

The Quarterly Project Status Report (Environmental) provides details of the project's environmental performance relating to the environmental objectives and targets that have been established for this project (refer to Appendix 5 for further details).

The Quarterly Project Status Report shall be prepared by the project team using standard form F516 as shown in Appendix 19 (provided under the Leighton's Environmental Management Manual) and be incorporated with the monthly environmental reports for March, June, September and December.

#### **2.4.4 Contractual Reporting**

The Link 200 Joint Venture's Monthly Progress Report shall include:

- any significant environmental incident that occurred in the month;
- non-compliance situations and proposed mitigation measures;
- records of complaints and the results of investigations thereof, and
- any relevant licenses/permits obtained or amended.

#### **2.4.5 Environmental Monitoring & Audit Programme Reporting**

The reporting requirements under our environmental monitoring and audit programme are provided in the Environmental Monitoring & Audit Manual and the Link 200 JV's Further Environmental Permit.

### **2.5 Project Environmental Review Committee**

#### **2.5.1 General**

Environmental issues are given the highest priority among the activities carried out by the Link 200 Joint Venture during the activities associated with Contract KDB200. The Project Environmental Review Committee provides a forum to formally review environmental issues and concerns at the project site.

To facilitate the management of environmental issues and concerns during the execution of Contract KDB200, and to promote communication among staff and subcontractors, the person in charge of the project shall establish a Project Environmental Review Committee that will meet every three months throughout the duration of the Contract.

### **2.5.2 Membership**

Membership of the Environmental Review Committee shall comprise:

- project director (chairman);
- project manager;
- quality manager;
- section manager;
- site agent /project engineer;
- project environmental manager;
- environmental engineer;
- safety officer;
- site supervisors;
- subcontractor representatives, and
- other site staff, as appropriate.

### **2.5.3 Agenda and Minutes**

The committee shall review all relevant aspects of the environmental management system and environmental performance. The meeting agenda shall include, as appropriate:

- results of audits;
- complaints received from stakeholders;
- adverse environmental impacts;
- progress towards achieving the Link 200 Joint Venture's environmental objectives and targets;
- project activities and any required changes to environment aspects and impacts that relate to the project;
- required environmental mitigation measures and environmental operating controls;
- training, awareness and communications;
- emergency preparedness and response, and
- legislation and regulations – permit and licence requirements.

The minutes of the Project Environmental Review Committee meeting shall be taken and any actions recorded.

Any key issues arising from the Project Environmental Review Committee meeting shall be included in the subsequent Monthly Environmental Report.

## Section 3 – Presentation of Environmental Management Approach

### 3.1 General

The environmental approach adopted by the Link 200 Joint Venture is to prevent environmental impacts by careful planning, proactive management and monitoring of construction activities. When an adverse impact has been identified, prompt and effective corrective action shall be taken to correct the activities or working practices causing that adverse impact.

The Link 200 Joint Venture's Environmental Management Plan has been prepared specifically for Contract KDB200.

While the Link 200 Joint Venture is adopting Leighton Contractors (Asia) Limited's ISO 14001-based environmental management system on Contract KDB200, some of the requirements of that system may not be implemented or will be replaced by the particular contractual or statutory requirements of Contract KDB200. Those sections are detailed in Table 3.1.

Table 3.1 Exemptions and Replaced Documents

Company System Document	Replaced by	Remarks
<i>[No exemption identified.]</i>		

Applicable Link 200 Joint Venture procedures and instructions to be used in conjunction with this Environmental Management Plan for Contract KDB200 are indicated in Table 3-2.

Table 3.2 Applicable Procedures

Document	Details	Remarks
EMRV12.1	Environmental Instructions	
	Environmental Instruction 1 – Construction Dust	
	Environmental Instruction 2 – Noise and Vibration	This instruction for Noise and Vibration is dedicated for noise only and not vibration.
	Environmental Instruction 3 – Water Pollution Controls	This instruction provides details of in-house water quality monitoring procedure
	Environmental Instruction 4 – Waste Management	
EMRV14.2	Environmental Incident Classification	This procedure provides details of severity classifications used for corrective action requests (see Appendix 4)  Ground-borne noise issue, particularly in the HKCC and HKSM will be treated separately.



Document	Details	Remarks
MP-005	Risk Management	This procedure provides details of risk assessment for preventive action requests
MP-019	Corrective Action	This procedure provides details of identification and correction for adverse environmental impacts

The following table details the applicable company and project forms that are required specifically for the execution of this plan. For details of other forms used, refer to the Project Management Plan.

Table 3.3 Applicable Company Forms - Environmental Management System

Document	Details	Remarks
F003*	Corrective Action Request	
F004	Corrective Action Request Register	
F101*	Training Record	
F158*	Preventive Action Request	
F159	Preventive Action Register	
F515*	Record of Conversation	
F516*	Quarterly Project Status Report	Refer to 2.5.3 for details
F517*	Monthly Environmental Report	Refer to 2.5.2 for details
H2298/F102	Water Quality Monitoring Record	Refer to 3.10 for details

\*See Appendix 19

### 3.1.1 Environmental Policy Statement

Our environmental policy signed by the Link 200 Joint Venture members is shown in Figure 3.1.



Figure 3.1: Environmental Policy

### 3.1.2 Environmental Training and Awareness

The basic outline of the training programme for environmental issues is shown in Table 3.4.

Table 3.4 Training Programme

Details of Training	Training Recipient	Trainer/Presenter	Target Date	Frequency
Detailed review of Environmental Management Plan, Waste Management Plan and associated procedures	Project environmental manager	Manager, Group Systems, or nominee	Within one month of Contract start	Once
Introduction to Environmental Management System, Environmental Management Plan, Waste Management Plan and overview of policy and documentation	All Link 200 Joint Venture project staff	Manager, Group Systems, or nominee	Within one month of Contract start	Once, refresher training provided on a needs basis
General Environmental Awareness Training, including project's significant environmental aspects	All Link 200 Joint Venture project staff	Project environmental manager/ manager, Group Systems	Within one month of Contract start and ongoing	Periodic, as needs dictate
Specific training in operation of Environmental Management Plan, Waste Management Plan and environmental mitigation controls	Appropriate staff	Project environmental manager	As required	Depending on identified training needs
Induction to environmental issues relevant to workforce	All workers	Project environmental manager/safety officer	Before starting work on-site	Once
Tool-box talks introducing environmental issues	Workforce	Project environmental manager/safety officer	Ongoing	Monthly basis

The promotion of the environmental awareness to the surrounding community will be conducted through Community Liaison Group (CLG) Meeting held on a bi-monthly or quarterly basis.

### 3.1.3 Environmental Licences and Permits

Licences and permits relating to environmental protection that are to be obtained by the Link 200 Joint Venture, together with application details and the schedule for renewal are shown in Table 3.5 and are further described in relevant Subsection 3.2 thru 3.12.

All of the application forms, guidance notes for completion and schedules of fees are provided by the Environmental Protection Department on its website unless noted otherwise.

Table 3.5

Applicable Licences and Permits

Applicable License/Permit	Application Method	Timing/Renewal Frequency
<b>Air Pollution Control Ordinance</b>		
<p>Notify the Environmental Protection Department using Form NA before commencing any of the following activities (Notifiable Works):</p> <ul style="list-style-type: none"> <li>- site formation;</li> <li>- reclamation;</li> <li>- works carried out in any part of a tunnel that is within 100 m to any exit to the open air;</li> <li>- construction of the foundation of a building;</li> <li>- construction of the superstructure of a building, and</li> <li>- road construction work</li> </ul>	<p>Submit Form NA to Environmental Protection Department Regional Office</p>	<p>Before starting notifiable work</p>
<p>If activities or timing of the activities described under item 1 above change, notify the Environmental Protection Department using Form NB</p>	<p>Submit Form NB to any Environmental Protection Department Regional Office</p>	<p>Prior to effecting proposed change</p>
<b>Water Pollution Control Ordinance</b>		
<p>Application for a licence to discharge effluent directly into Hong Kong SAR waters or into drainage leading to Hong Kong SAR waters</p> <p>All effluents are under control except domestic sewage into communal sewers and unpolluted water into storm-water drains, river courses and water bodies</p>	<p>Establish water control zone and determine flow rate and treatment proposals to complete Form A (EPD117).</p> <p>Submit application form to Environmental Protection Department Regional Office</p> <p>Refer to Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters and Environmental Protection Department publication A Guide to the Water Pollution Control Ordinance</p>	<p>Once, prior to making discharge</p>
<b>Noise Control Ordinance</b>		
<p>Application for Construction Noise Permit for operating powered mechanical equipment during restricted hours</p>	<p>Submit Form 1 (EPD74A(s)) to Environmental Protection Department Regional Office</p> <p>Provide supporting information in accordance with Technical Memorandum</p>	<p>Between 28 days and 6 months before permit is required (Note that Environmental Protection Department's performance pledge is to issue Construction Noise Permit within 14 days but this is not a statutory requirement)</p>

Applicable License/Permit	Application Method	Timing/Renewal Frequency
Application for a Noise Emission Label for hand-held percussive breaker (mass >10 kg)	Submit completed Form 1 (EPD 124) and supporting documents to Environmental Protection Department Regional Office	Once, at least 28 days before proposed use
Application for a Noise Emission Label for air-compressor (air supply >500 kPa)	Submit Form 1 (EPD 125) and supporting documents to Environmental Protection Department Regional Office	Once, at least 28 days before proposed use
<b>Waste Disposal Control Ordinance</b>		
Application for registration as a (Chemical) Waste Producer	Determine major types of chemical waste produced (eg, spent lubricating oils and contaminated sand from spill clean-up) and complete application form (EPD 129). Submit completed form to Environmental Protection Department Local Office  Refer to Environmental Protection Department publication Code of Practice on the Packaging Labelling and Storage of Chemical Wastes	Once, prior to production of chemical waste
Application of Admission Ticket for Disposal of Special Waste at Landfills	Submit Admission Ticket to Environmental Protection Department for disposal of contaminated soil	Once, 28 days prior to disposal of contaminated soil
<b>Dumping at Sea Ordinance</b>		
Application for a Permit to Dump Material at sea	Submit Form EPD114a and supporting documents to Environmental Protection Department, 28/F Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong SAR	Once, within 28 days before proposed use
<b>Environmental Impact Assessment Ordinance</b>		
Further Environmental Permit	Apply for a Further Environmental Permit based on main permit held by KCR Corporation  Submit Form 6 (EPD186) to EIA Ordinance Register Office, 27/F Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong SAR  The application should reference the Employer's Environmental Permit and all parts of Form 6 (A-F) should be completed	Once, within 28 days of contract award

Applicable License/Permit	Application Method	Timing/Renewal Frequency
Variation to Further Environmental Permit	Submit Form 5 (EPD185) by hand to the EIA Ordinance Register Office, 27/F Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong SAR	Where change to the Further Environmental Permit is necessary

## 3.2 Air Pollution

This section relates to the following environmental aspects:

- dust from construction activities;
- air emissions from plant and equipment use, and
- use of chemicals that may give rise to air emissions.

### 3.2.1 Applicable Licence Requirements

The project environmental manager will notify the Environmental Protection Department Regional Office prior to starting notifiable works at the project site using Form NA or prior to any subsequent changes to programme dates given in Form NA by completing Form NB.

The Link 200 Joint Venture does not envisage conducting any specified processes under the Air Pollution Control Ordinance and notes that open-burning is not permitted under the Contract.

Details of licences, permits and notifications, together with application requirements and validity periods and renewal frequencies are provided in Table 3.5.

### 3.2.2 Environmental Performance Criteria

#### a) Statutory Requirements

Statutory requirements include:

- Air Pollution Control Ordinance (Cap 311);
- Air Pollution Control (Construction Dust) Regulations;
- Air Pollution Control (Open Burning) Regulations;
- Air Pollution Control (Smoke) Regulations;
- Air Pollution Control (Specified Processes) Regulations;
- Environmental Impact Assessment, and
- Link 200 JV's Further Environmental Permit.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

#### b) Contract Requirements

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Construction Dust, pages 1 and 2.

#### c) Proposed Performance Targets

The Link 200 Joint Venture's environmental performance targets are set taking

account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the relevant environmental control plan. In addition, the Link 200 Joint Venture is adopting the environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to air issues are set out in the Table 3-6.

Table 3-6 Air-pollution Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to the issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental impacts caused by the Link 200 Joint Venture (refer to EMRV – 14.2 for further details)	Number of Class 1 environmental incidents	Zero
	Number of Class 2 environmental incidents	Zero
	Severity rating of incidents causing adverse environmental impacts per million manhours worked	Continual improvement

### 3.2.3 Proposed Mitigation Measures

Details of proposed mitigation measures and operating controls with respect to air pollution are provided in the Environmental Control Plan that is included as Appendix 6.

### 3.2.4 Corrective Action

Corrective action arising from exceedance of prescribed parameters as detailed in our Environmental Monitoring and Audit Manual will be carried out in accordance with the relevant Environmental Monitoring and Audit Event Action Plans.

Corrective action is also required when a condition has been identified that has caused a nonconforming incident or event such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action should be taken immediately following the identification of a non-conformance. Table 3-7 gives guidance on the types of corrective action to be taken.

Table 3-7 Air-pollution Corrective Action

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
During day-to-day supervision activities	Haul road is dry – solution is to increase frequency of water truck use or supplement with manual water	If possible, correct condition immediately It is not necessary to formally record the action taken for routine issues however the project environmental manager should be	Advise project environmental manager if necessary

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
	spraying	advised if there is a repetitive problem	
	Black-smoke emission from construction plant	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Stockpile uncovered and dry causing dust	If possible, correct condition immediately	Make remark on checklist detailing what action was taken
	Plant emitting dark smoke	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Plant emitting dark smoke	Record in complaints register, correct condition, raise corrective action request if necessary	Entry in complaint register F003
During internal audit	-	Carry out formal corrective action in accordance with management procedure MP-020	Audit report and corrective action table

### 3.2.5 Preventive Action

The need for preventive action is identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-8 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-8 Air-pollution Preventive Action

Item No.	Preventive Action	Method
1	Periodically check and monitor condition of plant with respect to exhaust emissions	Visual check (use Micro-Ringelmann Chart where there is a dispute)
2	Carry out regular maintenance of plant and equipment	As per plant service and maintenance requirements
3	Monitor effectiveness of mitigation measures and working practices	Visual monitoring in accordance with routine environmental monitoring checklist items (see section 3.14.3)
4	Prevent wind-blown dust impacts	Provide covers/tarpaulins for large stockpiles
5	Maintain wheel-wash facilities	Check daily and remove silt regularly to optimize operation

### 3.3 Water Quality

This section relates to the following environmental aspects:

- waste water generated from construction activities;
- contaminated surface run-off, and
- waste water generated from cleaning and maintenance.



### 3.3.1 Applicable Licence Requirements

The project environmental manager shall apply for a site discharge licence to Environmental Protection Department Regional Office as soon as the temporary drainage, discharge point and water treatment arrangements are finalized. From the relevant Technical Memorandum, the following water-quality parameters are likely to be included in the licence conditions for discharges of over 10 cubic metres and less than 200 cubic metres per day into the Victoria Harbour Water Control Zone:

- total suspended solids.....30 milligrams per litre
- pH.....between 6 and 9
- Chemical Oxygen Demand.....80 milligrams per litre.

Once received from the Environmental Protection Department, the licence will be displayed on the site notice board and issued to all subcontractors.

Details of licences, permits and notifications, together with application requirements and validity periods and renewal frequencies are provided in Table 3.5.

### 3.3.2 Environmental Performance Criteria

#### a) Statutory Requirements

Statutory requirements include:

- Water Pollution Control Ordinance (Cap 358);
- Water Pollution Control (General) Regulation;
- Water Pollution Control (Southern Water Control Zone);
- Technical Memorandum Standards for Effluents Discharged into Drainage and Sewage Systems, Inland and Coastal Waters;
- Environmental Impact Assessment, and
- Link 200 JV's Further Environmental Permit.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

#### b) Contract Requirements

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Water Quality, pages 4-6.

#### c) Proposed Performance Targets

The Link 200 Joint Venture's environmental performance targets are set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the relevant environmental control plan. In addition, the Link 200 Joint Venture is adopting the environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to water issues are set out in Table 3-9.

Table 3-9 Water-quality Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental impacts caused by Link 200 Joint Venture (refer to EMRV – 14.2 for further details)	Number of Class 1 environmental incidents	Zero
	Number of Class 2 environmental incidents	Zero
	Severity rating of incidents causing adverse environmental impacts per million manhours worked	Continual improvement

### 3.3.3 Proposed Mitigation Measures

Details of proposed mitigation measures and operating controls with respect to water are provided in the Environmental Control Plan that is included as Appendix 7.

Mitigation measures are also proposed for groundwater handling and disposal. The uncontaminated groundwater disposal will be via sedimentation tanks and then to sewer. For any contaminated groundwater, treatment will be proposed depending upon the nature of contamination and disposal will be via recharge wells. The details will be subject to agreement with EPD via a working plan for groundwater as required under the EMIS.

### 3.3.4 Corrective Action

Corrective action arising from exceedance of prescribed parameters as detailed in the Environmental Monitoring & Audit Manual shall be carried out in accordance with the relevant Environmental Monitoring & Audit Event Action Plans.

Corrective action shall also be required when a condition has been identified that has caused a non-conforming incident or event, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-10 gives guidance on the types of corrective action to be taken.

Table 3-10 Water-quality Corrective Action

Non-conformance Identified:	Example Condition	Action to be Taken	Record (when appropriate)
During day-to-day supervision activities	Gully outlets in work areas found unprotected	If possible, correct condition immediately It is not necessary to formally record the action taken. However, advise project environmental manager if this is a repetitive problem	Advise project environmental manager if necessary

Non-conformance Identified:	Example Condition	Action to be Taken	Record (when appropriate)
	Perimeter U-channel damaged or missing	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Silt traps require emptying	If possible, correct condition immediately	Make a remark on checklist detailing what action was taken
	Water-quality monitoring shows an exceedance of the pH limit	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Water found seeping through unsealed hoarding	Record in Complaints Register, correct condition, raise corrective action request if necessary	Entry in Complaint Register F003
During internal audit	-	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.3.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-11 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-11 Water-quality Preventive Action

Item No.	Preventive Action	Method
1	Monitor effectiveness of mitigation measures identified	Visual monitoring in accordance with checklist items
2	Regular monitoring of effluent at discharge point	In accordance with method in section 3.14.4 of the Environmental Management Plan
3	Prevent silty waste-water run-off from excavation surface	Provide cut-off ditch or bund and cover temporary slopes
4	Reduce pH level of waste water	Provide dedicated wash-out bins for concrete trucks to segregate alkaline waste water for neutralization

### 3.4 Airborne and Ground-borne Noise

This section relates to the following environmental aspects:

- ground-borne noise from tunnelling and substructure works;
- noise from construction activities;

- noise from movement of plant and vehicles, and
- nuisance to sensitive receivers, as identified in the Environmental Impact Assessment Report.

### **3.4.1 Applicable Licence and Permit Requirements**

Engineering and production staff shall determine the need for restricted hours working as soon as practicable prior to relevant construction activities in order to allow sufficient time to make submission to the Environmental Protection Department to obtain a Construction Noise Permit.

Plant lists shall be determined and noise calculations conducted to determine whether the issue of a Construction Noise Permit is likely. Use can be made of a noise spreadsheet developed by the Link 200 Joint Venture or the Environmental Protection Department website, which now provides an on-line noise calculator.

Construction Noise Permits issued to the Link 200 Joint Venture by the Environmental Protection Department shall be displayed outside of the site on the site hoarding, on the site notice board and issued to subcontractors under cover of letter. The conditions of Construction Noise Permits shall also be communicated to the workforce through tool-box meetings when necessary.

Noise emission labels shall be attached to all breakers over 10 kilograms and all compressors capable of supplying air at over 500 kiloPascals. The relevant plant shall be checked on arrival on site by the relevant supervisory staff to make sure that the label is attached and valid.

Details of licences, permits and notifications, together with application requirements and validity periods and renewal frequencies are provided in Table 3.5.

### **3.4.2 Environmental Performance Criteria**

#### **a) Statutory Requirements**

Statutory requirements include:

- Noise Control Ordinance (Cap 400);
- Noise Control (General) Regulations;
- Noise Control (Construction Work) Regulations;
- Noise Control (Construction Work Designated Areas) Notice;
- Safety related - Noise Control (Hearing Protection) Regulations;
- Noise Control (Hand Held Percussive Breakers) Regulations;
- Noise Control (Air Compressors) Regulations;
- Technical Memorandum on Noise from Construction Work Other than Percussive Piling (TM1);
- Technical Memorandum on Noise from Construction Work in Designated Areas (TM3);
- Code of Practice on Good Management Practice;
- Environmental Impact Assessment, and
- Link 200 JV's Further Environmental Permit.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

**b) Contract Requirements**

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Construction Noise, pages 2 to 4.

**c) Proposed Performance Targets**

The Link 200 Joint Venture’s environmental performance targets are set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the relevant environmental control plan. In addition, the Link 200 Joint Venture is adopting the company environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5.. The objectives that are specifically relevant to noise issues are set out in Table 3-12.

Table 3-12 Air- and Ground-borne Noise Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental impacts caused by Link 200 Joint Venture (refer to EMRV – 14.2 for further details)	Number of Class 1 environmental incidents	Zero
	Number of Class 2 environmental incidents	Zero
	Severity rating of incidents causing adverse environmental impacts per million manhours worked	Continual improvement

**3.4.3 Proposed Mitigation Measures**

Details of proposed mitigation measures and operating controls with respect to airborne and ground-borne noise are provided in the Environmental Control Plans that are included as Appendices 8 and 9 to this plan.

**3.4.4 Corrective Action**

Corrective action arising from exceedance of prescribed parameters as detailed in the Link 200 Joint Venture’s Environmental Monitoring & Audit Manual shall be carried out in accordance with the relevant Environmental Monitoring & Audit Event Action Plans.

Corrective action shall also be required when a condition has been identified that has caused a non-conforming incident or event, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-13 gives guidance on the types of corrective action to be taken and, when necessary, the record to be prepared.

Table 3-13 Air- and Ground-borne Noise Corrective Action

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
During day-to-day supervision activities	Compressor engine-compartment door left open	If possible, correct condition immediately It is not necessary to formally record action taken. However, project environmental manager should be advised if this is a repetitive problem	Advise project environmental manager if necessary
	Excessive noise during rock breaking and operation of Tunnel Boring Machine due to change in rock strata	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Compressor engine-compartment door left open	If possible, correct condition immediately	Make a remark on checklist detailing what action was taken
	No Noise Emission Label on breaker	Carry out formal corrective action in accordance with MP-019	F003
	Exceedance of ground borne noise level for HKCC and HKSM during rock breaking activities	If possible, correct condition immediately. The monitoring shall continue daily until noise level return to acceptance range.	Make a remark on checklist detailing what action was taken
Following complaint	Noise complaint received from sensitive receiver	Record in complaints register, correct condition, raise corrective action request if necessary. Notify KCRC in accordance with complaint handling procedure.	Entry in complaint register F003
During internal audit	-	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.4.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-14 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-14 Air- and Ground-borne Noise Preventive Action

Item No.	Preventive Action	Method
1	Monitor effectiveness of mitigation measures and working practices	Visual monitoring, as per routine environmental checklist requirements
2	Estimate noise level at noise-sensitive receivers and plan works accordingly	By calculation, using Link 200 Joint Venture noise spreadsheet
3	Close engine door before turning on plant and equipment	Visual check
4	Measure noise level at sensitive receivers to confirm effectiveness of mitigation/barrier	Noise meter
5	Reduce sound power level at noise-sensitive receivers	Orientate static plant to project noise away from sensitive receivers when practicable.
6	Maintain a hotline with sensitive receivers	Set up a hotline with HKCC, HKSM and other noise sensitive receivers during the construction period.

### 3.5 Waste Management

This section relates to the following environmental aspects:

- disposal of construction and demolition material arising from the works;
- general refuse and food remnant generated from site operatives, and
- chemical waste arising from maintenance of plant and equipment and spill clean-up.

#### 3.5.1 Applicable Licence and Permit Requirements

Subcontractors or vehicle operators shall apply for and obtain a Dumping License and a Dumping Label from the Civil Engineering and Development Department for all trucks transporting inert construction and demolition material to a public filling facility.

The project environmental manager shall apply for and obtain a Chemical Waste Producer Licence from the Environmental Protection Department Regional Office for the production of chemical waste, including spent lubricating oils. Application for a permit to dump material at sea shall be undertaken prior to disposal of marine sediment at sea. Application of a admission ticket for disposal of special waste at landfills shall be undertaken prior to disposal of contaminated soil at the landfill.

Details of licences, permits and notifications, together with application requirements and validity periods and renewal frequencies are provided in Table 3.5.

#### 3.5.2 Mitigation Measures

##### a) Statutory Requirements

Statutory and other requirements include:

- Land (Miscellaneous Provisions) Ordinance (Cap 28);
- Public Health and Municipal Services Ordinance (Cap 132);
- Summary Offences Ordinance (Cap 123);
- Waste Disposal Ordinance (Cap 354);

- Waste Disposal (Chemical Waste) (General) Regulation (Cap 354);
- Dumping at Sea Ordinance (Cap 466);
- Environmental Impact Assessment, and
- Link 200 JV's Further Environmental Permit.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

**b) Contract Requirements**

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Waste Management, pages 7 to 10.

A project-specific Waste Management Plan shall be prepared in accordance with the Particular Specification.

**c) Proposed Performance Targets**

The Link 200 Joint Venture's environmental performance targets are set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the environmental control plan for waste. In addition, the Link 200 Joint Venture is adopting the company environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to waste management issues are set out in Table 3-15.

**Table 3-15 Waste-management Objectives and Targets**

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental impacts caused by Link 200 Joint Venture (refer to EMRV – 14.2 for further details)	Number of Class 1 environmental incidents	Zero
	Number of Class 2 environmental incidents	Zero
	Severity rating of incidents causing adverse environmental impacts per million manhours worked.	Continual improvement
5 Reduce the quantity of construction waste that is produced and disposed by Link 200 Joint Venture	Percentage of locations that have developed, implemented and maintained a Waste Flow Table or equivalent to monitor projected and actual construction waste quantities	All location
6 Reduce concrete wastage on construction	Quantity of concrete waste expressed as a percentage of total quantity delivered	<4.25%
8 Increase recycling of paper	Quantity of paper recycled (kg) as a percentage of total used (kg)	>10%



### 3.5.3 Proposed Mitigation Measures

Details of proposed mitigation measures and operating controls with respect to waste management are provided in the Waste and Chemical Management Environmental Control Plan that is included as Appendix 10, and also within the Link 200 Joint Venture's Waster Management Plan.

### 3.5.4 Corrective Action

Corrective action shall be required when a condition has been identified that has caused a non-conforming incident or even, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-16 gives guidance on the types of corrective action to be taken.

Table 3-16 Waste-management Corrective Action

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
During day-to-day supervision activities	Litter found on ground in vicinity of waste bin	If possible, correct condition immediately  It is not necessary to formally record action taken. However, project environmental manager should be advised if this is a repetitive problem	Advise project environmental manager if necessary
	Insufficient bins for waste segregation	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Waste skip found to be full	If possible, correct condition immediately	Make remark on checklist detailing what action was taken
	Chemical-waste drums not suitable for waste produced	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Food remnants found on floor	Record in complaints register, correct condition, raise corrective action request if necessary	Entry in complaint register F003
During internal audit	-	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.5.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When

a condition has been identified that requires documented preventive action not already covered by the items in Table 3-17 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-17 Waste-management Preventive Action

Item No.	Preventive Action	Method
1	Monitor effectiveness of ongoing mitigation measures identified and check waste-management facilities and general housekeeping	Visual monitoring in accordance with checklist
2	Minimize timber waste by careful design of formwork	Maximize re-use or consider alternative material
3	Minimize paper use and waste	Implement Leighton Asia Document Management System, provide dedicated trays on photocopier for recycled paper
4	Minimize waste sent to landfill	Sort and segregate demolition material into waste streams and recycle when practicable

### 3.6 Chemicals Management

Handling and use of chemicals is generally managed under the site safety system. Environmental aspects of chemicals management are addressed below.

#### 3.6.1 Chemical Inventory

The Safety Department shall maintain an inventory of Material Safety Data Sheets for each chemical and other hazardous material held on site. The contents of those sheets with respect to environmental concerns shall be examined to identify environmental handling and disposal risks on a quarterly basis. An inventory of the hazardous material stored on site is shown in Table 3-31.

#### 3.6.2 Handling Procedures

Chemicals shall be handled in accordance with the requirements of the appropriate Material Safety Data Sheet. Only sufficient quantities of material shall be used at any time to minimize the risk of spillage.

Particular care shall be taken when refuelling plant to prevent surplus fuel being discharged onto the ground. Precautionary measures to be taken shall include using drip trays or buckets to collect the surplus. Care shall be taken in positioning drip trays so that there is sufficient space to contain accidental spillage from refuelling operations.

#### 3.6.3 Storage

Bulk supplies of liquid chemicals shall be kept in drip trays. When small drums are moved to their place of use, they shall be handled with care and returned to the drip tray after use.

To prevent overflow of drip trays, particularly during the wet-season, the following mitigation is recommended:

- cover the drip tray to prevent water ingress, either completely or by fixing a skirt between the drums and the lip of the drip tray;
- increase the frequency of emptying the drip tray, and
- provide a cover to the open front of the chemical-waste store.

#### **3.6.4 Chemical waste**

The Link 200 Joint Venture will apply as the chemical waste producer as described in the Waste Management Plan.

Containers used for the storage of chemical waste (mainly spent lubricating oil) shall:

- be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;
- have a capacity of less than 450 litres unless the specification have been approved by the EPD; and
- display a label in English and Chinese in accordance with instruction prescribed in *Schedule 2* of the Regulations.

The storage area for chemical wastes shall:

- be clearly labelled and used solely for the storage of chemical waste;
- be enclosed on at least three sides;
- have an impermeable floor and bunding, 110% capacity of the largest container or 20% of the storage capacity, whichever is the greatest;
- have adequate ventilation;
- be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and
- be arranged so that incompatible materials are adequately separated.

Disposal of chemical waste shall:

- be via a licensed waste collector; and
- be to an off site facility licensed to receive chemical waste, such as a recycling facility located in Yuen Long Industrial Estate or the Chemical Waste Treatment Facility located in Tsing Yi; or
- be to a reuser of the waste, under the approval from the EPD.

The procedures for handling of chemical spillage incidents are described in Section 3.13.

### **3.7 Not Used**

### **3.8 Ecological Resources**

No ecological impact was identified for the Canton Road Scheme according to Table 3.6 of the EIA report.

### **3.9 Landscape Preservation and Visual Impacts**

This section relates to the following environmental aspects:

- damage to existing trees during site establishment and the execution of construction activities due to inadequate protection;
- damage to trees during transportation for transplantation;

- a need to fell an extra tree due to transgression of site boundaries;
- glare to nearby sensitive receivers due to the position and operation of night lighting, and
- visual impacts to nearby sensitive receivers due to the design, position and condition of hoardings and noise barriers.

### 3.9.1 Applicable Licences and Permits

The project shall obtain any necessary permission from the government to fell and transplant trees during the Tree Felling Application Process. The numbers of trees to be retained, transplanted and felled shall also be determined and agreed in that process.

### 3.9.2 Mitigation Measures

#### a) Statutory Requirements

Statutory requirements include:

- Land (Miscellaneous Provisions) Ordinance (Cap 28);
- Public Health and Municipal Services Ordinance (Cap 132);
- Summary Offences Ordinance (Cap 123);
- Environmental Impact Assessment, and
- Link 200 JV's Further Environmental Permit.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

#### b) Contract Requirements

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Landscape and Visual, page 11.

#### c) Proposed Performance Targets

The Link 200 Joint Venture's environmental performance targets shall be set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the relevant environmental control plan. In addition, the Link 200 Joint Venture is adopting the company environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to landscape preservation and visual impact issues are set out in Table 3-21.

Table 3-18 Landscape and Visual-impacts Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental impacts caused by Link 200	Number of Class 1 environmental incidents	Zero
	Number of Class 2 environmental incidents	Zero

Objective	Performance Indicator	Target
Joint Venture (refer to EMRV – 14.2 for further details)	Severity rating of incidents causing adverse environmental impacts per million manhours worked	Continual improvement

### 3.9.3 Proposed Mitigation Measures

Specific details of proposed mitigation measures and operating controls with respect to landscape preservation and visual impact are provided in the Landscape and Visual Environmental Control Plan that is included as Appendix 13.

### 3.9.4 Corrective Action

Corrective action shall be required when a condition has been identified that has caused a non-conforming incident or event, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-22 gives guidance on the types of corrective action to be taken.

Table 3-19 Landscape and Visual-impacts Corrective Action

Non-conformance Identified	Example Condition	Action to be Taken	Record (where appropriate)
During day-to-day supervision activities	Construction plant operating too close to trees to be retained	If possible, correct condition immediately It is not necessary to formally record action taken. However, project environmental manager should be advised if this is a repetitive problem	Advise project environmental manager if necessary
	No protection around trees	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Protection found to be inadequate	If possible, correct condition immediately	Make a remark on the checklist detailing what action was taken
	Trees to be retained found to be uprooted	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Broken branches on trees to be retained	Record in complaints register, correct condition, raise corrective action request if necessary	Entry in complaint register F003
During internal audit	-	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.9.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-23 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-20 Landscape and Visual-impacts Preventive Action

Item No.	Preventive Action	Method
1	Monitor effectiveness of ongoing mitigation measures identified	Visual monitoring in accordance with checklist
2	Maintain protection around trees	Periodically check condition of protection measures
3	Prevent plant from operating too close to trees to be retained	Train all plant operators during induction training
4	Prevent damages on trees during transportation for transplantation	Inspect conditions and level of protection prior to leaving site
5	The potential for soil erosion shall be reduced by minimising the extent of vegetation disturbance on site and by providing a protective cover over exposed soil	Periodically check condition of protection measures
6	A tree protection plan shall be prepared for the protection of trees prior to undertaking any works adjacent to all retained trees	Prepare and implement a tree protection plan
7	Large temporary stockpiles of excavated material shall be covered with impervious sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation.	Periodically check condition of protection measures

### 3.10 Archaeological and Historical Resources

This section relates to the following environmental aspects:

- possible structural damage to the historical buildings and tunnels at the Former Marine Police Head Quarter site due to bored-tunnel activities, and
- possible structural damage to the Old Fire Station Building Accommodation Block and the Old Fire Station Main Hall during construction.

#### 3.10.1 Applicable Licences and Permits

Environmental Permit and Link 200 JV's Further Environmental Permit under the Environmental Impact Assessment Ordinance.

#### 3.10.2 Mitigation Measures

##### a) Statutory Requirements

Statutory requirements include:

- Antiquities and Monuments Ordinance (Cap 53);
- Environmental Impact Assessment,
- Environmental Permit.

– Link 200 JV’s Further Environmental Permit.

Section 3.20 of the Link 200 JV’s Further Environmental Permit requires the contractor to make available, and Section 3.20 of the Environmental Permit requires KCRC to deposit, five (5) sets of as-built drawing(s) within 1 month after the completion of the tunnelling works underneath the Former Marine Police Headquarters (FMPHQ) to confirm the vertical separation of 6-16m between the tunnels and the heritage elements in the FMPHQ compound is maintained. There shall be no physical contact with the Old Fire Station Buildings (OFSB) during construction. For the tunnel section underneath FMPHQ, a clear separation of about 6m between the tunnels and the OFSB, and 16m from the FMPHQ Main Building shall be maintained. The as-built drawing(s) shall be certified by the ET Leader and verified by the IEC before depositing with EPD.

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

b) **Contract Requirements**

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Cultural Heritage, page 12.

c) **Proposed Performance Targets**

The Link 200 Joint Venture’s environmental performance targets shall be set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the relevant environmental control plan. In addition, the Link 200 Joint Venture is adopting the company environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to archaeological and historical resources issues are set out in Table 3-24.

Table 3-21 Archaeological- and Historical-resources Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 rate less than 0.5
4 Reduce adverse environmental impacts caused by Link 200 Joint Venture (refer to EMRV 14.2 for further details)	Number of Class 1 environmental incidents Number of Class 2 environmental incidents Severity rating of incidents causing adverse environmental impacts per million manhours worked	Zero Zero Continual improvement

**3.10.3 Proposed Mitigation Measures**

Details of proposed mitigation measures and operating controls with respect to archaeological and historical resources are provided in the Environmental Control Plan that is included as Appendix 14.

### 3.10.4 Corrective Action

Corrective action shall be required when a condition has been identified that has caused a non-conforming incident or event, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-25 gives guidance on the types of corrective action to be taken.

Table 3-22 Archaeological- and Historical-resources Corrective Action

Non-conformance Identified:	Example Condition	Action to be Taken	Record (where appropriate)
During day-to-day supervision activities	Excessive structural vibration	If possible, correct condition immediately It is not necessary to formally record action taken. However, project environmental manager should be advised if this is a repetitive problem	Advise project environmental manager if necessary
	Possible structural damage	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Excessive structural vibration	If possible, correct condition immediately	Make a remark on checklist detailing what action was taken
	Possible structural damage	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Excessive structural vibration / Possible structural damage	Record in complaints register, correct condition, raise corrective action request if necessary	Entry in complaint register F003
During internal audit	-	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.10.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-26 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.



Table 3-23 Archaeological- and Historical-resources Preventive Action

Item No.	Preventive Action	Method
1	Monitor effectiveness of ongoing mitigation measures identified	In accordance with checklist requirements
2	Prevent structural damage on historical buildings during mined tunnelling	Conduct blasting assessment before starting construction works in accordance with the requirements from Mines Division of CEDD
3	Carry out structural monitoring on historical buildings	Any proposed site works (including ground investigation and tunnelling work) and structural monitoring measures within the boundary of the declared monument would need to comply with the requirements under Section 6 of the Antiquities and Monument Ordinance

### 3.11 Land Contamination

This section relates to the following environmental aspects:

- land contamination and required remediation works.

#### 3.11.1 Applicable Licences and Permits

Applicable licences and permits are:

- Contamination Action Plan;
- Contamination Assessment Report, and
- Remediation Action Plan.

#### 3.11.2 Mitigation Measures

##### a) Statutory Requirements

Statutory and other requirements include:

- Environmental Impact Assessment;
- Environmental Permit;
- Link 200 JV's Further Environmental Permit;
- Contamination Action Plan;
- Contamination Assessment Report, and
- Remediation Action Plan.

The requirements as stipulated in Conditions 3.10 to 3.13 of Link 200 JV's Further Environmental Permit and Conditions 3.10 to 3.13 of Environmental Permit are:

*3.10 The remediation area for contaminated material/soil shall be clearly marked out on site and excavated to an extent of 3.5m radius from the sample location.*

*3.11 No excavated contaminated material/soil shall be stockpiled on site. Excavated contaminated material/soil shall be loaded onto trucks immediately. All trucks carrying contaminated material/soil for disposal at landfill site shall be covered by sheets to prevent dispersion/loss of*

*contaminated material/soil during transport.*

- 3.12 *Confirmatory testing shall be carried out following excavation at each contaminated site to confirm the removal of all contaminated material/soil. The confirmatory testing shall consist of five samples in each contaminated site, situating immediately to the north, south, east and west of each contaminated site and at the base of the contaminated excavation if confirmatory testing identifies extended/continued contamination. The area of excavation shall be extended by a further 5m radius in the quadrant where further contaminated sample is encountered, or by further 0.5m depth if the contaminated sample is from the base of excavation. Confirmatory test shall be carried out following this excavation. This procedure shall be followed until no further contamination is encountered.*
- 3.13 *The remediation programme shall be supervised by an on-site Geotechnical Engineer/Decontamination Specialist. All relevant method statements prepared by the remediation contractor shall be reviewed and approved by the Geotechnical Engineer/Decontamination Specialist before proceeding with the works. The method statement shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report (Register No. AEIAR-083/2005).*

For the full version of the legislative and regulatory requirements, refer to <http://www.justice.gov.hk/Home.htm>.

**b) Contract Requirements**

Particular Specification Appendix AP 18.3, Contract Specific Environmental Requirements – Land Contamination, page 10.

**c) Proposed Performance Targets**

The Link 200 Joint Venture's environmental performance targets shall be set taking account of its legal and contractual obligations, its policy and the significant environmental aspects of its construction activities.

Performance standards shall be determined based on those obligations and be set out in the environmental control plan. In addition, the Link 200 Joint Venture is adopting the company environmental objectives and associated targets set by Leighton Contractors (Asia) Limited, a full list is given in Appendix 5. The objectives that are specifically relevant to land contamination issues are set out in Table 3-27.

Table 3-24 Land-contamination Objectives and Targets

Objective	Performance Indicator	Target
1 Comply with all Hong Kong SAR environmental regulations and laws	Number of incidents (ie, reportable to Link 200 Joint Venture board within 72 hours) that may lead to issuing of a summons per million manhours worked	2005 = 0.5
4 Reduce adverse environmental	Number of Class 1 environmental incidents	Zero

Objective	Performance Indicator	Target
impacts caused by Link 200 Joint Venture (refer to EMRV – 14.2 for further details)	Number of Class 2 environmental incidents Severity rating of incidents causing adverse environmental impacts per million manhours worked	Zero Continual improvement

### 3.11.3 Proposed Mitigation Measures

Specific details of proposed mitigation measures and operating controls with respect to land contamination are provided in the Land Contamination Environmental Control Plan that is included as Appendix 15.

### 3.11.4 Corrective Action

Corrective action shall be required when a condition has been identified that has caused a non-conforming incident or event, such as an adverse environmental impact or improper working practice. Such conditions may be identified through day-to-day supervision of the works, during formal routine environmental monitoring activities, following audit or via complaints from stakeholders. Ideally, corrective action shall be taken immediately following the identification of a non-conformance. Table 3-28 gives guidance on the types of corrective action to be taken.

Table 3-25 Land-contamination Corrective Action

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
During day-to-day supervision activities	Poor supervision of decontamination and remediation works	If possible, correct condition immediately It is not necessary to formally record action taken. However, project environmental manager should be advised if this is a repetitive problem	Advise project environmental manager if necessary
	Improper method of decontamination and remediation works	Report condition to production manager/project environmental manager to investigate and instigate corrective action in accordance with MP-019	F003
During formal routine environmental monitoring and inspection	Poor supervision of decontamination and remediation works	If possible, correct condition immediately	Make a remark on checklist detailing what action was taken
	Improper method of decontamination and remediation works	Carry out formal corrective action in accordance with MP-019	F003
Following complaint	Poor / Improper method of decontamination and remediation works	Record in complaints register, correct condition, raise corrective action request if necessary	Entry in complaint register F003

Non-conformance Identified	Example Condition	Action to be Taken	Record (when appropriate)
During internal audit	To be determined	Carry out formal corrective action in accordance with procedure MP-020	Audit report

### 3.11.5 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not already covered by the items in Table 3-29 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-26 Land-contamination Preventive Action

Item No.	Preventive Action	Method
1.	The remediation area for contaminated soil shall be clearly marked out on site to an extent of 3.5 metre radius from the sampling location.	In accordance with Remediation Action Plan
2.	Excavation shall be undertaken by dedicated earth-moving plant.	In accordance with Remediation Action Plan. A Geotechnical Engineer/Decontamination Specialist shall be appointed for supervising the land/soil remediation programme.
3.	The excavated contaminated soil shall be immediately loaded onto trucks and taken to the chosen landfill site. All trucks carrying contaminated material shall be adequately covered by sheets to prevent dispersion of contamination.	In accordance with Remediation Action Plan. A Geotechnical Engineer/Decontamination Specialist shall be appointed for supervising the land/soil remediation programme.
4.	All relevant method statements shall be reviewed and approved by the decontamination specialist before proceeding with the works.	In accordance with environmental permit and Environmental Monitoring & Audit Manual requirements

## 3.12 Miscellaneous Environmental Management

### 3.12.1 Proposed Mitigation Measures

Details of proposed mitigation measures and operating controls with respect to miscellaneous environmental management are provided in the Environmental Control Plan that is included as Appendix 16.

### 3.12.2 Preventive Action

The need for preventive action shall be identified and action determined by using a number of different methods, including risk assessment, day-to-day supervision of the works and formal routine environmental monitoring and audit activities. When a condition has been identified that requires documented preventive action not

already covered by the items in Table 3-30 or in the relevant environmental control plan, a formal preventive action request (F158) shall be generated and implemented.

Table 3-27 Miscellaneous-environmental-measures Preventive Action

Item No.	Preventive Action	Method
1	Carry out routine monitoring of site and perimeter of site to check tidiness and visual impact	Visual monitoring in accordance with checklist
2	Monitoring – Check effective implementation of mitigation measures	In accordance with checklist requirements

### 3.13 Environmental Emergency Procedures

#### 3.13.1 Purpose

The purpose of this procedure is to describe the environmental emergency preparedness and response procedure for this site.

#### 3.13.2 Scope

This procedure shall apply to emergency situations that impact on the environment, such as spillage and rainfall.

#### 3.13.3 Terminology

None.

#### 3.13.4 References

References include:

- Risk Management (MP-005), and
- Corrective Action (MP-019).

#### 3.13.5 Actions

##### a) General

A potential for an environmental emergency exists at this site due to the large number of different construction activities being carried out and the types of material, plant and equipment being used. Additionally, natural events may create an environmental emergency situation that must be appropriately managed. Those potential emergencies are addressed in this section as events that could trigger the implementation of environmental emergency preparedness and response procedures.

The types of potential environmental emergency that could arise at the site are:

- spill and material release, which may:
  - cause surface-water or marine-water contamination via drains and channels;
  - cause the release of toxic fumes and liquids, and
  - result in the contamination of equipment and storage vessels;

- incident, which may:
  - cause spill;
  - result in the mixing of incompatible chemicals;
  - cause surface-water or marine-water contamination through the release of hazardous material, and
  - may cause release of fumes or vapours into the atmosphere, and
  
- natural event, such as:
  - heavy rains that may result in the flooding of channels and waterways;
  - typhoons accompanied by high winds and heavy rain;
  - high winds, which may result in dust and flying debris, and
  - earthquakes.

**b) Emergency Contacts**

Emergency contacts and telephone lists shall be located on the safety notice boards located throughout the site. Telephone numbers and contact person lists shall be updated when necessary and shall normally contain at least contact information for:

- Ambulance;
- Hong Kong Police Force;
- Fire Service Department;
- Hospital, and
- KCR Corporation.

**c) Spill Containment and Response**

***General Requirements***

The main objective of spill containment is to minimize uncontrolled releases, thus preventing soil and surface-water contamination and protecting adjacent ground-water and marine-water environments.

The hierarchy of priorities when a spill occurs is:

- 1) Assess the situation and the likelihood of resulting injuries.
- 2) Stop further spillage if practicable by shutting down pumps and valves.
- 3) Use radio to dispatch appropriate site equipment and personnel to the spill location for containment, control and clean-up.
- 4) Contain spilled material and clean up.
- 5) Document incident using corrective action request form, distribute and file.
- 6) Follow up with site training when appropriate.
- 7) The production manager, project environmental manager or safety officer on duty assess the situation, call the appropriate authorities if necessary and document the

spill and clean up.

### **Hazardous Material**

The hazardous material identified in Table 3-31 will be stored and handled on the site.

Table 3-28 Storage of Hazardous Material

Location	Material	Storage Method
On-site	Diesel fuel	Above-ground storage tank
	Liquid petroleum gas	Gas cylinder
	Cleaning solvents	Tin can
	Engine oil	Steel drum
	Hydraulic oil	Steel drum
	Waste oil	Steel drum
Stores	Miscellaneous chemicals	Generally tin can or plastic container

### **Spill Containment Kit**

Typical items to be included in a spill-containment kit (the exact content shall suit site requirements) are:

- ultra-violet resistant wheelie bin (220 litres) (to contain absorbed material for disposal);
- 2 5-kilogram bag of fibre containing 150 litres of compressed product (absorbent capable of absorbing 130 litres per bag);
- two booms (100 millimetres diameter in 1.2-metre and 3-metre lengths) (absorbent capable of absorbing 14 litres per metre of boom);
- three absorbent pillows (400 millimetres by 75 millimetres) (absorbent capable of absorbing 21 litres per pillow);
- broom;
- spark proof shovel;
- brush and pan set;
- mask with filter;
- goggles, and
- gloves.

### **Liquid Spills**

Liquid spills are most likely in areas where plant and equipment is refuelled or maintained, ie, at the on-site storage tank.

### ***Spillage of Oils***

All permanent stores of oil and fuel shall be contained in a bunded area, thus reducing the risk of spills reaching water courses or contaminated land. If a spill does occur, the spill shall be dyked using booms or sandbags, sand or soil to contain the spill and to prevent it from entering the drainage system. Absorbent fibre/pillows, soil or sand shall be used to absorb the bulk of the spill. Contaminated material shall be stored temporarily in a chemical-waste store pending disposal off-site. Disposal of the resulting waste shall be to an authorized disposal site via a chemical-waste collector. The disposal site for solid chemical waste is usually the active area of a landfill (on application to the landfill operator) or to a chemical-waste treatment facility.

Spills involving flammable liquids shall be treated with extreme caution to minimize the risk of injury and damage. Note that water shall only be used to minimize fire damage and protect personnel. Excessive use of water can cause flammable liquids to spread over an extensive area.

### ***Spills at On-site Storage Tank***

Any on-site storage tank shall be kept in a bunded area to minimize the risk of uncontrolled spillage. If a spill does occur, the spill shall be dyked using booms, sandbags, sand or soil to prevent it from entering the drainage system. Absorbent fibre/pillows, soil or sand shall be used to absorb the bulk of the spill. Disposal of the resulting waste shall be to an authorized disposal site via a chemical-waste collector. The disposal site for solid chemical waste is usually the active area of a landfill (on application to the landfill operator) or to a chemical-waste treatment facility.

### ***Solid Spills***

Solid spills are generally associated with material delivery, movement or waste disposal. Those spills are usually the result of accidents or improper packaging of the material involved and is generally cleaned up by the appropriate subcontractor.

In the event that the subcontractor or carrier is unable to clear the spillage, eg, due to injury, the spillage shall be cleared taking all necessary precautions depending on the nature of the material involved.

### ***Training Drill for Spill Incident***

A practice drill for a spill incident shall be carried out as early as practicable during the contract to confirm that procedures are operating satisfactory. The drill shall involve all relevant key staff as detailed in this procedure.

### ***Precautions and Actions Relating to Rainstorms***

The following precautions shall be taken when a rainstorm is likely:

- 1) Maintain silt-removal facilities, channels and manholes and regularly remove deposited silt and grit.
- 2) Cover temporarily-exposed slope surfaces, eg by tarpaulin.
- 3) Protect temporary access roads by hard paving or protect with crushed stone or



gravel.

- 4) Provide intercepting channels (eg, along the crest/edge of the excavation) to prevent storm run-off from washing across exposed soil surfaces.
- 5) Dig and back-fill trenches in short sections. Take measures to minimize the ingress of rainwater into trenches.

***Actions to be Taken When Rainstorm is Imminent or Forecast***

When a rainstorm is imminent or forecast:

- 1) Check silt-removal facilities, channels and manholes to make sure that they can function properly.
- 2) Cover open stockpiles of construction material (eg, aggregates, sand and fill material) on site with tarpaulin or similar fabric.
- 3) Secure all temporary covers to slopes and stockpiles.

***Actions to be Taken After Rainstorms***

Check and maintain silt-removal facilities, channels and manholes to make sure that they are working satisfactorily.

***Post-emergency Procedures***

Post-emergency procedures are designed to prevent recurrence, to clean up and dispose of residuals, and to debrief personnel.

***Treatment and Disposal of Residual Material***

Once the emergency situation has ended, the person in charge of the project, safety officer or project environmental manager on duty shall initiate the clean up and disposal of any residues. That shall take place as soon as practicable to avoid further contamination or incident recurrence.

Liquid spills occurring within a containment area or sump shall be analyzed, treated and pumped or drained for appropriate disposal. Spilled liquids shall be cleaned up with absorbent fibre/pads or dry soil or sand and disposed of as chemical waste.

***Personnel Debriefing***

The safety officer or project environmental manager shall conduct meetings with site supervisory staff and subcontractors to review preparedness, prevention and response activities. Based on that review, suggestions for revisions to the existing emergency and work practices shall be made to the person in charge of the project and adopted if appropriate.

***Incident Reporting***

The project environmental manager shall record spills and environmental incidents using the corrective or preventive action procedure MP-019.

### **3.14 Site Inspections and Monitoring**

#### **3.14.1 Environmental Monitoring & Audit Programme**

Environmental monitoring and audit under the Environmental Permit and Link 200 JV's Further Environmental Permit shall be conducted in accordance with the Environmental Monitoring & Audit Manual. Further monitoring and inspection under the environmental management system is detailed in the following sections.

#### **3.14.2 General Environmental Compliance**

The project environmental manager or nominee and environmental team shall carry out a formal weekly site inspection using a standard routine environmental monitoring checklist as shown in Appendix 17. Any non-conformances identified during those inspections shall be recorded on the checklist and either corrected immediately, as soon as practicable after identification or be subject to formal corrective action in accordance with the Link 200 Joint Venture's procedures. A procedure MP-019 for corrective action is shown in Appendix 18 and a Form 003 – Corrective Action Request is provided in Appendix 19.

When necessary, the checklist shall be distributed to production staff for action. The completed checklist shall be filed in the appropriate section of the project filing system.

#### **3.14.3 Air quality**

Exhaust emissions from plant following initial start-up periods shall be assessed visually. If necessary, Micro-Ringelmann charts (available from the Link 200 Joint Venture) may be used when there is a dispute.

#### **3.14.4 Water Quality**

The quality of water discharged from the site shall be regularly monitored for compliance with the requirements of the Site Discharge Licence. That monitoring will be carried out and recorded on the Water Quality Monitoring Record, form H2298/F102 (attached in Appendix 20). Each discharge point shall be monitored at least twice each week in accordance with a monitoring schedule. The following sets out a routine check procedure:

- Take sample of effluent from the discharge point using an empty sampling jar. If there is no discharge from the discharge point or the sample was taken from a different location (eg, adjacent manhole), a remark should be made on the Water Quality Monitoring Record
- Record the following information on the Water Quality Monitoring Record as appropriate:
  - i) record time and date of sampling
  - ii) visually compare the water sample with the control sample and record the observation (a comparison photo may be taken where practicable) as either better, similar or worse than the control sample
  - iii) visually inspect the surface of the water sample for oil or other contaminants and record an observation
  - iv) check the odour of the water sample as an indication of contamination by cement or similar and record an observation

- v) determine the pH of the water sample by placing a universal indicator paper strip onto the surface of the sample, allow fluid to be absorbed until paper changes colour, match colour with chart on side of box and record result
  - vi) measure temperature of water sample only if required by Discharge Licence and record result
  - vii) record any other remarks e.g. actions taken, reference to a corrective action request or similar
  - viii) person conducting the monitoring to initial the entry made on the Water Quality Monitoring Record
- If the sample does not comply with the conditions of the licence inform the Environmental Manager immediately so that a Corrective Action Request can be issued
  - Pass completed record to Environmental Manager for filing within the Project Filing System

In addition to regular self inspection and monitoring, monitoring and testing of the water-quality parameters defined on the site discharge licence shall be conducted by Hong Kong Laboratory Accreditation Scheme accredited laboratories as specified by the licence. If no requirements are stipulated on the licence, testing shall be carried out at least once every two months.

### 3.14.5 Noise

Noise monitoring shall be conducted to validate noise-barrier effectiveness in the event of a noise complaint received by the Link 200 Joint Venture or as specified on the Construction Noise Permits.

## 3.15 Auditing

### 3.15.1 Internal Environmental Auditing

Environmental auditing of the project shall be carried out by qualified environmental auditors from Leighton Contractors (Asia) Limited's head office. Audits shall be conducted and reported in accordance with Leighton Contractors (Asia) Limited's procedures. The programmed environmental audits for the project are:

- 1st audit ..... month 6
- 2nd audit ..... month 12
- 3rd audit ..... month 18
- 4th audit ..... month 24.

More frequent audit shall be conducted if the need arises.

### 3.15.2 Environmental Management Committee Audits

In addition to the formal environmental audits described above, the project shall also be subject to Environmental Management Committee audits carried out by senior managers, including directors from Leighton Contractors (Asia) Limited and the Link 200 Joint Venture board approximately every two months. The audit roster shall be issued to the person in charge of the project separately.

Prior to the Environmental Management Committee audit, a self-audit shall be completed by the project team using standard form F530 as shown in Appendix 19 page 222. Leighton Contractors (Asia) Limited's policy requires the personal attendance of the person in charge of the project and the field manager or superintendent at the Environmental Management Committee audit and the self audit.

### **3.16 General Housekeeping**

General housekeeping is addressed by both the company safety and environmental management systems.

#### **3.16.1 Site Layout Plan**

In order to record the location of environmental facilities used for the project and to keep that information up-to-date, a site layout plan shall be prepared and maintained by the project environmental manager or nominee. That plan shall include the location of fixed and mobile facilities, and may include:

- wheel wash;
- high-pressure water hoses;
- chemical-waste store(s);
- noise barriers;
- noise enclosures;
- fixed dust-suppression sprays;
- water-treatment facilities and silt traps and details of the discharge point;
- waste-sorting areas;
- general-refuse bins;
- waste skips, and
- spill-containment kits.

#### **3.16.2 Tropical Hardwoods**

Tropical hardwoods shall not be used on the project. All timber for temporary works shall be obtained from known sources.

#### **3.16.3 General Waste Disposal**

General waste shall be removed from the site in a timely manner to prevent visual impact and hygiene concerns. Records of trip tickets shall be maintained.

Waste-disposal issues shall be covered during site induction and at tool-box meetings.

#### **3.16.4 Site Cleanliness**

Adequate numbers of waste bins shall be provided to maintain the site in a clean condition.

Routine monitoring of the site and perimeter shall be conducted weekly by the project environmental manager or nominee. Any adverse conditions identified during those inspections shall be corrected immediately or on the same day whenever practicable. If necessary, a formal corrective action request shall be generated and implemented to correct any outstanding non-conformance.

## Section 4 – Environmental Records

### 4.1 Records to be Kept

#### 4.1.1 Trip Tickets

A monitoring system for the proper disposal/removal of construction and demolition material and chemical waste to disposal facilities shall be maintained. Once the waste has been delivered to the designated disposal facility, a receipt shall be issued to the vehicle operator for return to the Engineer for verification of the Link 200 Joint Venture's compliance with policy requirements. An example of a construction and demolition material disposal form is shown in Figure 4.1.

#### 4.1.2 Licences and Permits

Environmental-related licences and permits shall be maintained by the project environmental manager within the project filing system. The documents shall be displayed on site as required by legislation. For example, the Link 200 JV's Further Environmental Permit and Construction Noise Permits shall be displayed prominently outside the site on the hoarding.

In addition, the content and conditions specified in the licences and permits shall be actively communicated to staff, subcontractors and the workforce via correspondence, training or prominent posting on site.

#### 4.1.3 Staff and Workforce Training Records



Records are maintained for all training conducted by the project. The type of training record and the persons responsible for maintaining those records are detailed in Table 4-1.

Table 4-1 Training Records Maintenance

Training Record Description	Record Type (Typical)	Person Responsible
Link 200 Joint Venture employees' employment records	Résumés Details of education and qualifications held Professional qualifications	Human Resources Department
Environmental induction records – site staff	Training record form F101	Project environmental manager
Induction training – workforce	Training records	Safety officer
Environmental tool-box meetings	Training records	Safety officer/project environmental manager

#### 4.1.4 Correspondence with Authorities

All correspondence with authorities, particularly the Environmental Protection Department, shall be maintained within the project filing system. When an oral communication has taken place that is significant to the project, it shall be confirmed either in writing or a record kept using a standard record of conversation (Form F515) or similar as shown in Appendix 19 page 218.

<p>Serial No. 0012345678</p>  <p>Date: 日期: _____</p> <p>Designated PFF/Landfill: 指定公眾填土設施 / 堆填區: _____</p> <p>Vehicle Licence Plate Number.: 車牌號碼: _____</p> <p>Issued By: 簽發: _____</p> <p>Approximate Load: 大約承載量: <input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> Full 滿</p> <p>Remark: 備註: _____</p> <p><small>(This part retained by issuing office) (此部分由簽發部門保留) CEDD(CEO)84</small></p>	<p>Serial No. 0012345678</p> <p>Date: 日期: _____</p> <p>Designated PFF/Landfill: 指定公眾填土設施 / 堆填區: _____</p> <p>Vehicle Licence Plate Number.: 車牌號碼: _____</p> <p>Issued By: 簽發: _____</p> <p>Chop of Designated Public Filling Facility/ Landfill 公眾填土設施 / 堆填區蓋印</p>	<p style="text-align: center;"><b>Construction and Demolition Materials Disposal Delivery Form</b> 拆建物料運載記錄票</p> <p style="text-align: right;">Serial No. 0012345678</p>  <p style="text-align: center;"><small>(Information contained in this form may be displayed on Internet) 此表格內載資料可於網上公開及檢閱</small></p> <p>Date: _____ Time of departure from site: _____ Vehicle Licence Plate Number: _____ 日期: _____ 離開地盤時間: _____ 車牌號碼: _____</p> <p>Designated Public Filling Facility/Landfill: _____ Location of Site: _____ 指定公眾填土設施 / 堆填區: _____ 地盤位置: _____</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><input type="checkbox"/> Central &amp; Western 中西區</td> <td><input type="checkbox"/> Wanchai 灣仔</td> <td><input type="checkbox"/> Eastern 東區</td> <td><input type="checkbox"/> Southern 南區</td> <td><input type="checkbox"/> Sai Kung 西貢</td> </tr> <tr> <td><input type="checkbox"/> Yau, Tsim, Mong 油尖旺</td> <td><input type="checkbox"/> Shamshuipo 深水?</td> <td><input type="checkbox"/> Kowloon City 九龍城</td> <td><input type="checkbox"/> Wong Tai Sin 黃大仙</td> <td><input type="checkbox"/> Outlying Islands 離島</td> </tr> <tr> <td><input type="checkbox"/> Kwun Tong 觀塘</td> <td><input type="checkbox"/> Kwai Tsing 葵青</td> <td><input type="checkbox"/> Tsuen Wan 荃灣</td> <td><input type="checkbox"/> Tuen Mun 屯門</td> <td><input type="checkbox"/> Shatin 沙田</td> </tr> <tr> <td><input type="checkbox"/> Yuen Long 元朗</td> <td><input type="checkbox"/> North 北區</td> <td><input type="checkbox"/> Tai Po 大埔</td> <td colspan="2"></td> </tr> </table> <p>Approximate Load: <input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> 3/4 <input type="checkbox"/> Full 滿 大約承載量:</p> <p style="text-align: right;"><small>Please stick contract no. barcode above 請在上方貼上合約號碼</small></p> <p>Chop of Designated Public Filling Facility/Landfill 公眾填土設施 / 堆填區蓋印</p> <p>Chop of Engineer's/Architect's Representative 工程師 / 建築師代表蓋印</p>	<input type="checkbox"/> Central & Western 中西區	<input type="checkbox"/> Wanchai 灣仔	<input type="checkbox"/> Eastern 東區	<input type="checkbox"/> Southern 南區	<input type="checkbox"/> Sai Kung 西貢	<input type="checkbox"/> Yau, Tsim, Mong 油尖旺	<input type="checkbox"/> Shamshuipo 深水?	<input type="checkbox"/> Kowloon City 九龍城	<input type="checkbox"/> Wong Tai Sin 黃大仙	<input type="checkbox"/> Outlying Islands 離島	<input type="checkbox"/> Kwun Tong 觀塘	<input type="checkbox"/> Kwai Tsing 葵青	<input type="checkbox"/> Tsuen Wan 荃灣	<input type="checkbox"/> Tuen Mun 屯門	<input type="checkbox"/> Shatin 沙田	<input type="checkbox"/> Yuen Long 元朗	<input type="checkbox"/> North 北區	<input type="checkbox"/> Tai Po 大埔		
<input type="checkbox"/> Central & Western 中西區	<input type="checkbox"/> Wanchai 灣仔	<input type="checkbox"/> Eastern 東區	<input type="checkbox"/> Southern 南區	<input type="checkbox"/> Sai Kung 西貢																		
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<input type="checkbox"/> Yuen Long 元朗	<input type="checkbox"/> North 北區	<input type="checkbox"/> Tai Po 大埔																				

Remark: Original form with a light red and inclined watermark "DDF".

Figure 4.1: Example construction and demolition Material Disposal Delivery Form

4.1.5 Environmental Complaints

Any written environmental complaints received directly by the Link 200 Joint

Venture shall be logged by the project environmental manager using a complaints database and responded to promptly. An initial response shall preferably be provided within 72 hours giving the complainant the time-frame for investigation and formal reply. The environmental team leader shall undertake the complaint investigation according to the Environmental Monitoring and Audit Manual.

#### 4.1.6 Monitoring, Test and Audit Records

All monitoring and test records compiled by, or on behalf of, the Link 200 Joint Venture shall be checked on receipt by the project environmental manager or nominee and maintained and filed in the project filing system.

Audit records, both internal and by Leighton Contractors (Asia) Limited's Environmental Management Committee, shall be kept by the project environmental manager in the project filing system.

#### 4.1.7 Person Responsible for Records and Location of Records

Table 4-2 provides details of who is responsible for maintaining records under this plan. The project filing list provides further details of where the documents shall be kept. Further details on records management can be found in the Project Management Plan.

Table 4-2

Records Responsibility

Record Description	Person Responsible	Record Location
Trip Tickets	Project environmental manager	In accordance with project filing system
Licences and permits	Project environmental manager	In accordance with project filing system
Staff training records	Project environmental manager/safety manager	In accordance with project filing system
Correspondence with authorities	Project environmental manager/secretary	In accordance with project filing system
Environmental complaints	Project environmental manager	In accordance with project filing system
Emergency incidents	Safety officer	In accordance with project filing system
Monitoring records	Project environmental manager	In accordance with project filing system
Hong Kong Laboratory Accreditation Scheme test records	Project environmental manager	In accordance with project filing system
Contemporaneous Log Book	Environmental Team Leader	In accordance with EP requirement

## Section 5 – Glossary of Terms

### *activities*

Includes the operation of plant and equipment, site establishment, construction processes and other miscellaneous activities involved with carrying out the works at the project site.

### *audit*

Verification activities to measure compliance levels with system requirements or achievement of product quality as appropriate.

### *checklist*

Documented list of items to be inspected checked or verified by signature as work proceeds.

### *Client*

KCR Corporation.

### *Client's Representative*

KCR Corporation.

### *controlled copy*

An issue of a document or item that has its details of issue, revision and document type recorded and registered.

### *corrective action*

The proposed method of rectifying or remedying conditions that have caused a non-conformance or are adverse to project delivery and service provision. The corrective action is documented by issuing a Corrective Action Report.

### *environmental aspect*

Element of the project's activities, products or services that can interact with the environment.

### *Environmental Management Procedure*

Standard environmental management procedure prepared by Leighton Contractors (Asia) Limited and adopted by Link 200 Joint Venture for Contract KDB200.

### *Environmental Management Reference Volume*

Reference volume prepared by Leighton Contractors (Asia) Limited to maintain environmental guidelines and information relevant to its construction activities and adopted by the Link 200 Joint Venture.

### *Management Procedure (MP)*

The company management procedures established by Leighton Contractors (Asia) Limited and adopted by the Link 200 Joint Venture, and that comply with ISO 9001:2000.

### *method statement*

Documents outlining the planned approach for executing a work activity that also



contains sections on environmental protection.

*non-conformance*

Failure to achieve a specified requirement. For an environmental non-conformance, the non-conformance is documented by issuing a Corrective Action Request.

*preventive action*

Action taken to avoid occurrence of an anticipated non-conformance – risk-management techniques are used for this purpose.

*project*

Contract KDB200, West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station.

*project environmental manager*

The generic term for the project representative responsible and main point of contact for environmental management matters at a project.

*project instructions/procedures*

Procedures developed for use on the project by the project team to manage aspects that are not adequately covered by existing procedures.

*project network*

The local area network established at the project office(s) to enable information to be shared electronically. The network is also linked to the Link 200 Joint Venture's head offices to enable electronic communication between the project and support functions.

*Quality Management Procedure*

Standard quality management procedure prepared by Leighton Contractors (Asia) Limited and adopted by the Link 200 Joint Venture for Contract KDB200.

*stakeholder*

A stakeholder is any person, organization or group that is directly influenced by or benefits from the project, eg, local community or client.

## Figures

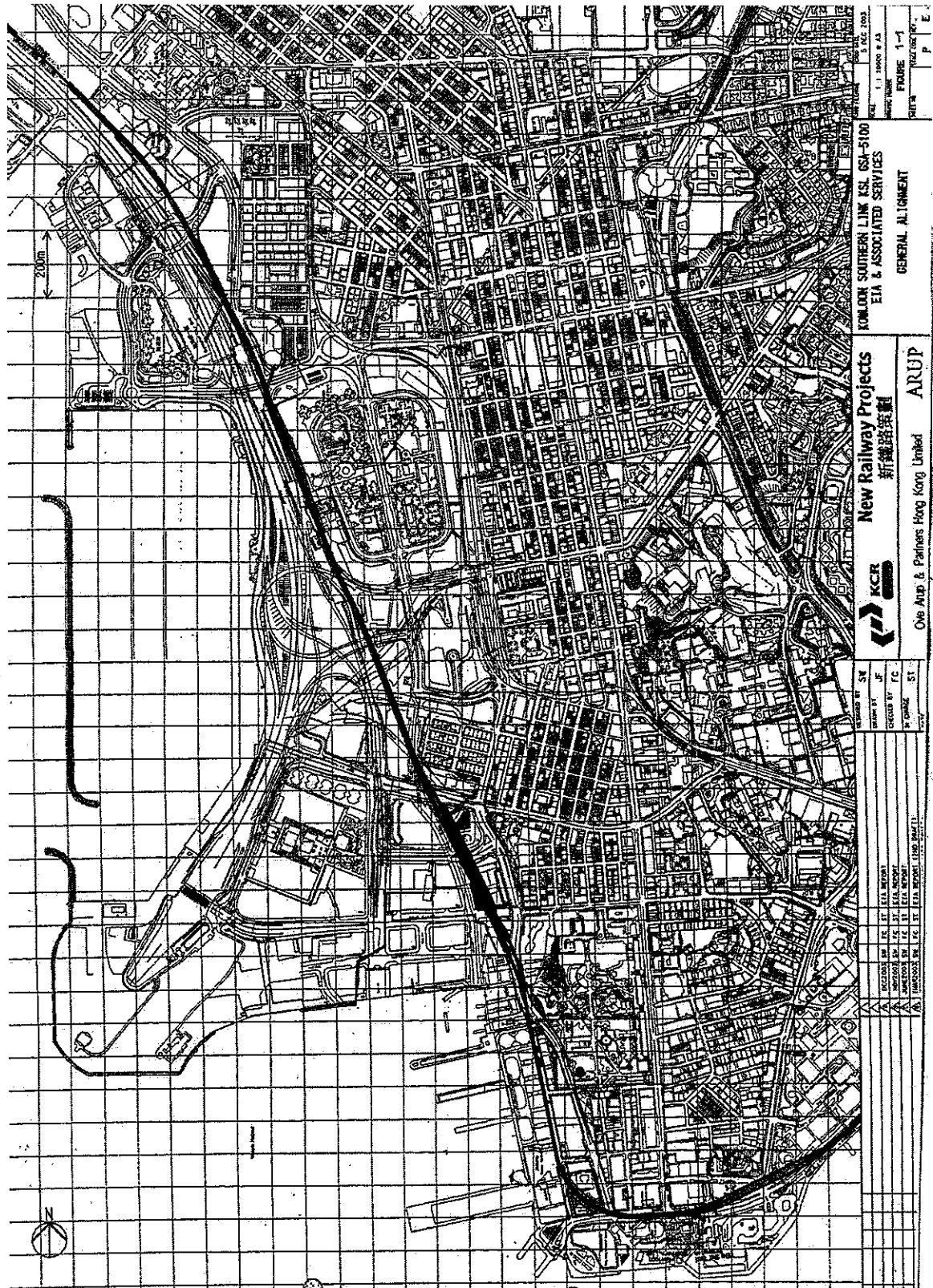


Figure 1-1: General Alignment

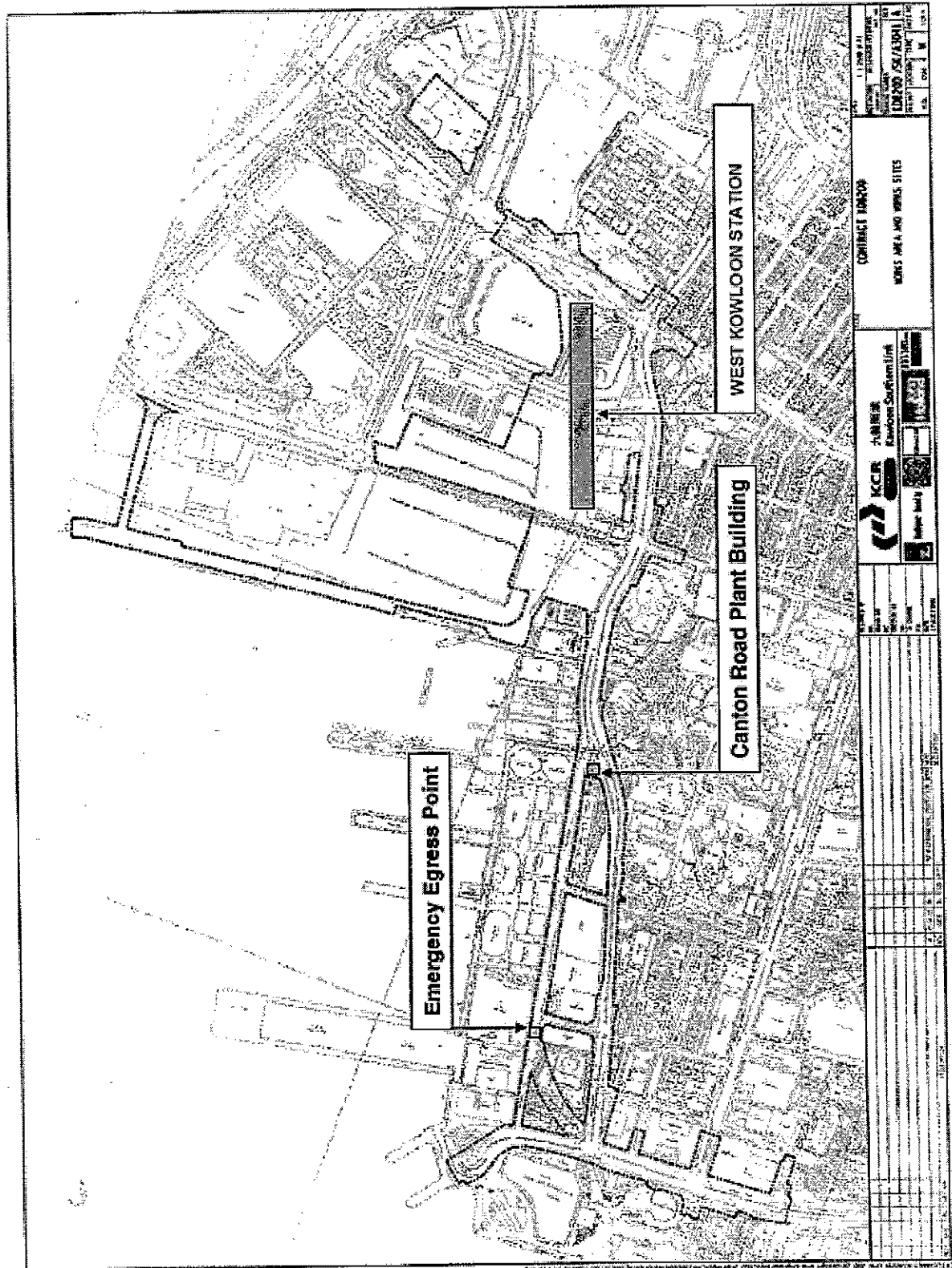


Figure 1-2: Site Boundary

## Appendix 1 Operation of the Tunnel Boring Machine (TBM)

## **Operation of the Tunnel Boring Machine (TBM)**

### **Introduction**

The two tunnels for the KCRC Kowloon Southern Link Contract KDB200, West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station will be constructed using a slurry type, mixed shield TBM.

For each tunnel drive the TBM will drive from the launch shaft located at the southern end of the West Kowloon station.

### **Spoil Conveyance System**

The slurry type, mixed shield TBM does not use conveyors for the transportation of spoil. Rather, the spoil is carried in pipes by bentonite slurry from the TBM along the tunnel to the slurry treatment plant located on the surface.

The slurry treatment plant separates the spoil from the slurry. After treatment the slurry is returned into the slurry system while the separated spoil is conveyed from the separation plant to the spoil handling area for subsequent loading and transport to barges for disposal, all in accordance with the approved procedures.

Slurry is pumped into the head of the TBM where it mixes with the excavated spoil. The spoil laden slurry is then pumped from the TBM head, along the slurry pipeline to the surface.

### *Noise*

A slurry pump will be located on the TBM backup train. This pump travels forward with the machine, it is not a source of noise with nuisance value to the environment.

### *Dust*

Dust is not generated by the TBM and slurry system. The face excavation is carried out in the front chamber of the TBM which is sealed from the rest of the tunnel. The sealed chamber is basically full with the slurry and excavated spoil. The combined slurry and spoil is pumped directly from the chamber into pipes for transportation to the surface.

### *Visual Impact*

As the TBM is located underground, it has no visual impact nuisance value to the environment.

### **Tunnel Slurry Lines**

The slurry lines are located on the walls of the tunnel. One line feeds the clean slurry to the TBM. The other line (return line) transports the combined slurry and spoil to the surface. A pump will be included in the return line.

### *Noise*

As the slurry lines are silent and the pump is contained within the tunnel, the tunnel slurry lines and pump are not a source of noise with nuisance value to the environment.

### *Dust*

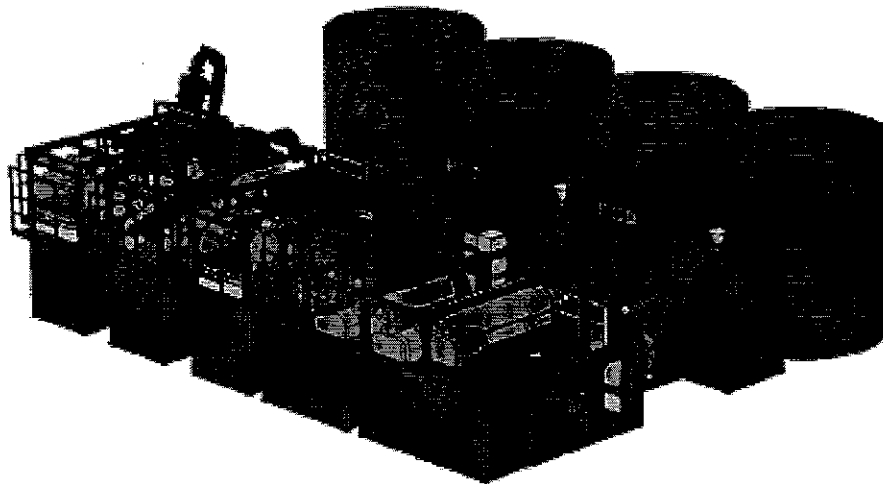
The tunnel slurry lines and pump are not a source of dust creation and have no dust nuisance value to the environment.

### *Visual Impact*

As the tunnel slurry lines and pump are located underground, they have no visual impact nuisance value to the environment.

### **Slurry Treatment Plant (STP)**

The STP is a modular unit consisting of a primary screening unit, three desander units, two centrifuges, a flocculation system and slurry mixing and storage tanks. The STP schematic layout is shown below in Figure 1.



### **Slurry Treatment Plant Schematic Layout**

#### *Noise*

The components of the STP are electrically driven. The electric drives are quiet but the operation of the plant components does generate levels of noise. To maintain the tunnel construction it is necessary that the STP operate 24 hours per day subject to granting of a construction noise permit.

To ensure the 24 hour operation of the STP and to maintain acceptable levels of noise at all times, the STP is to be contained within a full noise enclosure. The enclosure will be a shed with internal acoustic panelling specifically designed to at least achieve the required noise levels.

#### *Dust*

The STP separates the spoil from the slurry, with the spoil moisture content lowered to between 10% and 20% wet.

Dust is not generated as part of the STP operation hence it has no dust nuisance value to the environment.

### *Visual Impact*

As the STP is contained within a fully contained noise enclosure, painted in environmentally friendly colouring and all located behind the site hoardings, the visual impact of the STP is minimised to at least acceptable standards.

### **Slurry Treatment Plant Conveyor**

The separated spoil from the slurry treatment plant is conveyed to the spoil handling area by a fixed conveyor. It will be necessary for the conveyor to operate whenever the STP is operating, anticipated to be 24 hours per day subject to granting of a construction noise permit.

### *Noise*

The STP conveyor is not large and is quiet in its operation. The loading of the conveyor is carried out within the confines of the STP noise enclosure.

The conveyor passes from the noise enclosure to its discharge point over the spoil handling area. The spoil handling area is located at the rear of the STP noise enclosure hence the conveyor faces away from populated areas, it is inside the site hoardings and there is an extended screen on the side of the spoil handling area all which further reduce its impact. The conveyor noise nuisance value is reduced to an acceptable level.

### *Dust*

As stated previously, the water content of the spoil product from the STP is between 10% and 20%. Dust will not be generated by the STP conveyor. Regardless, the conveyor will be enclosed. Dust for the slurry treatment plant conveyor has no nuisance value to the environment.

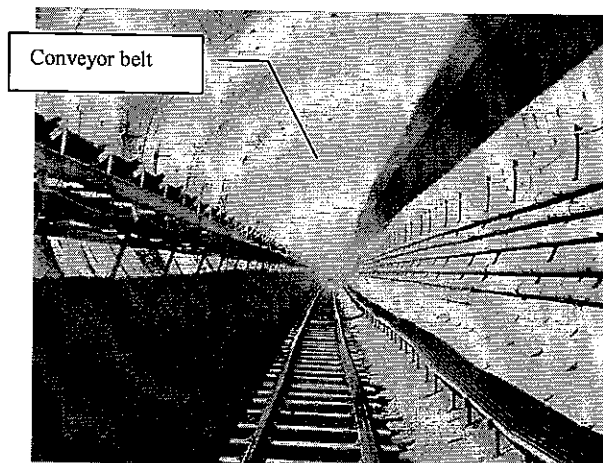
### *Visual Impact*

The end of the conveyor protruding from the STP noise enclosure will have minimal visual impact to the surrounding area due to its location on the site. To further minimise its visual impact an extended screen is to be located on the side of the spoil handling area.

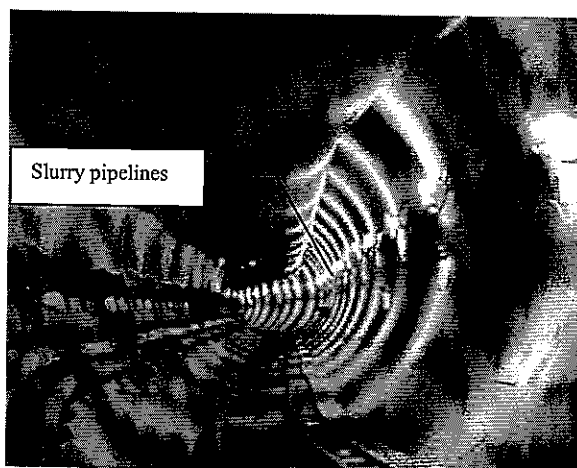


### Construction Methodology Spoil Handling and Transport

The previously envisaged excavated spoil transport system required a conveyor belt system which would result in dust and noise.



The proposed system uses liquid transport of excavated material inside pipelines, pumped from the TBM to the surface treatment plant.

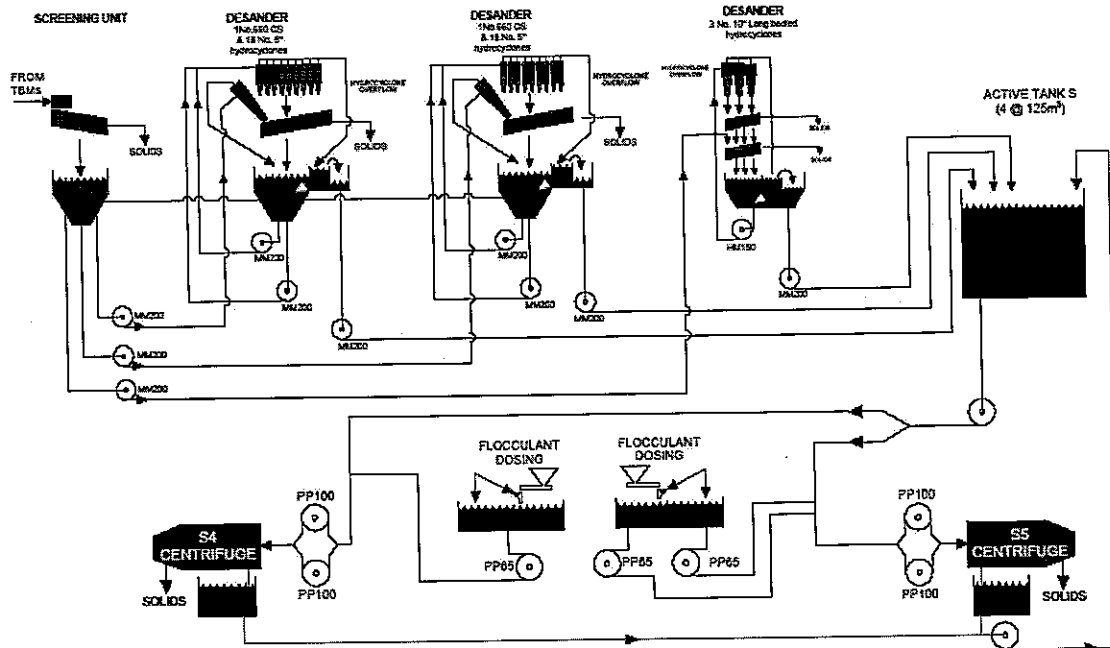


As the excavated spoil is carried in suspension within pipes, there are no transfer points which generate dust or require enclosures.

The slurry treatment plant would be enclosed within an acoustic building, similar as below.



The slurry process flow diagram is shown below



The excavated spoil is separated and discharged from the treatment plant in a damp condition and hence there is no dust generation.



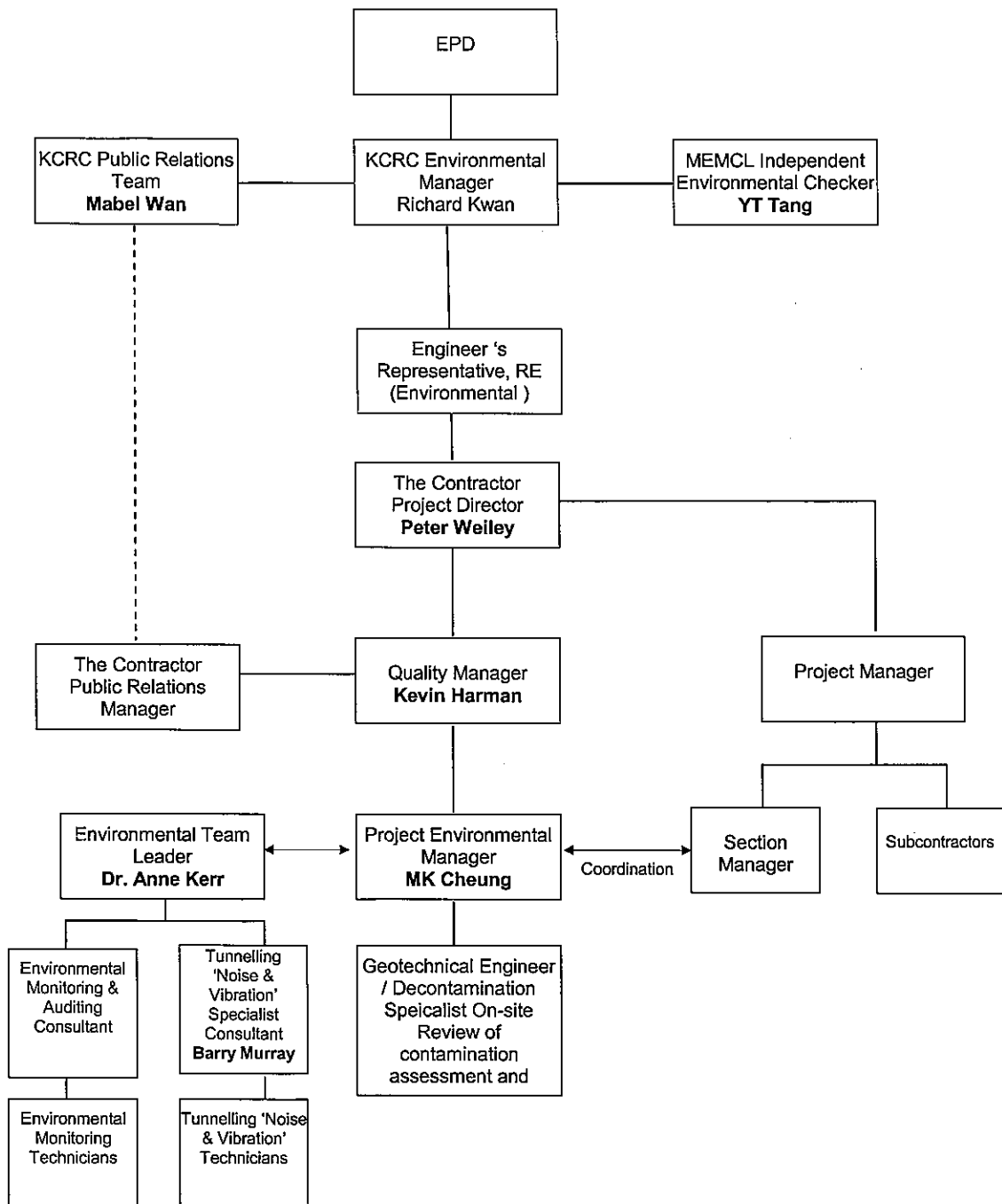
## **Appendix 2**

# **Master Construction Programme**

Activity Description	Start	Finish	2005												2006												2007												2008												2009											
			A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O																					
<b>Salisbury Road C&amp;C Tunnel, ETS - Retrieval Shaft</b>																																																														
Utility Diversions	15OCT05	09FEB06	[Gantt bar]																																																											
Temporary Piled Wall and Decking	19DEC05	10APR07	[Gantt bar]																																																											
Excavation Works	09JAN06	29MAY07	[Gantt bar]																																																											
Construction Works	28MAR07	20MAR08	[Gantt bar]																																																											
Backfilling and Reinstatement	25MAR08	20FEB09	[Gantt bar]																																																											
<b>Salisbury Road, TBM Retrieval Shaft</b>																																																														
Utility Diversions	15OCT05	09FEB07	[Gantt bar]																																																											
Excavation Works	17DEC05	19APR07	[Gantt bar]																																																											
Temporary Piled Wall and Decking	19DEC05	17MAR07	[Gantt bar]																																																											
Disassemble TBM, Up Track	27APR07	02JUN07	[Gantt bar]																																																											
Disassemble TBM, On Track	03JAN08	25JAN08	[Gantt bar]																																																											
Construction Works	25JAN08	01APR08	[Gantt bar]																																																											
Shaft E&M/ABWF Fit-out	01APR08	28FEB09	[Gantt bar]																																																											
Backfilling and Reinstatement	01APR08	14OCT08	[Gantt bar]																																																											
<b>Peking Road Emergency Egress Shaft</b>																																																														
Utility Diversions	19DEC05	25MAY06	[Gantt bar]																																																											
Temporary Piled Wall and Decking	26MAY06	26SEP06	[Gantt bar]																																																											
Excavation Works	27SEP06	24AUG07	[Gantt bar]																																																											
Construction of PREEP	25AUG07	28JAN08	[Gantt bar]																																																											
Backfilling and Reinstatement	29JAN08	18AUG08	[Gantt bar]																																																											
E&M/ABWF Fitout	29JAN08	18AUG08	[Gantt bar]																																																											
<b>Canton Road Emergency Access Point</b>																																																														
Utility Diversions	15OCT05	03MAR06	[Gantt bar]																																																											
Temporary Piled Wall and Decking	04MAR06	22JUN06	[Gantt bar]																																																											
Excavation Works	23JUN06	29MAY07	[Gantt bar]																																																											
Construction of CREAP	30MAY07	28DEC07	[Gantt bar]																																																											
Backfilling and Reinstatement	29DEC07	07AUG08	[Gantt bar]																																																											
E&M/ABWF Fitout	29DEC07	07AUG08	[Gantt bar]																																																											
<b>Bored Tunnel, WKN Stn to Retrieval Shaft</b>																																																														
Commence Removal of Contaminated Soil	15OCT05		[Gantt bar]																																																											
Diaphragm Wall in Launching Shaft	15OCT05	13MAR06	[Gantt bar]																																																											
Commence Construction of TBM Launching Shaft	15OCT05		[Gantt bar]																																																											
Excavation in Launching Shaft	14MAR06	31JUL06	[Gantt bar]																																																											
Ground Treatment	25APR06	31JUL06	[Gantt bar]																																																											
Commence Dewatering Contaminated Water	12JUN06		[Gantt bar]																																																											
Assembling TBM in Launching Shaft	01AUG06	14SEP06	[Gantt bar]																																																											
Bored Tunnel Drive, Up Track	14SEP06	27APR07	[Gantt bar]																																																											
E&M/ABWF Fitout	27APR07	19MAR09	[Gantt bar]																																																											
Bored Tunnel Drive, Dn Track	02JUN07	03JAN08	[Gantt bar]																																																											
Construction of Launch Shaft Structure	03JAN08	28MAR08	[Gantt bar]																																																											
<b>West Kowloon Station</b>																																																														
Utility Diversion	15OCT05	13DEC05	[Gantt bar]																																																											
Diaphragm Wall	10NOV05	15MAY06	[Gantt bar]																																																											
Pre-bored H-Piles	12APR06	13JUN06	[Gantt bar]																																																											
Excavation Works	14JUN06	15SEP06	[Gantt bar]																																																											
Construction works	01DEC06	29APR08	[Gantt bar]																																																											
E&M/ABWF Fit out	01MAR07	02DEC08	[Gantt bar]																																																											
<b>Jordan Road C&amp;C Tunnel, WKN Stn - KDB300</b>																																																														
Utility Diversions	15OCT05	28FEB06	[Gantt bar]																																																											
Temporary Piled Wall and Decking	15NOV05	27JUL06	[Gantt bar]																																																											
Excavation Works	27JUL06	29NOV06	[Gantt bar]																																																											
Construction	29NOV06	30MAY07	[Gantt bar]																																																											
Backfilling and Reinstatement	30MAY07	30AUG07	[Gantt bar]																																																											
New Footbridge	30AUG07	09MAY08	[Gantt bar]																																																											

## **Appendix 3**

### **Contract KDB200 Environmental Management Organization Chart**




*Environmental Management Organization Chart*

## **Appendix 4**

### **EMRV 14.2 - Environmental Incident Classification**




<b>ENVIRONMENTAL MANAGEMENT REFERENCE VOLUME</b>	 Link 200 Joint Venture Kowloon Southern Link
<b>Environmental Incident Classification</b>	Doc. No.: EMRV 14.2
	Rev. No.: 0
	Date: 09.03.06
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## ENVIRONMENTAL INCIDENT CLASSIFICATION

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<b>ENVIRONMENTAL MANAGEMENT REFERENCE VOLUME</b>	
Environmental Incident Classification	Doc. No.: EMRV 14.2
	Rev. No.: 0
	Date: 09.03.06
	Page 2 of 5

### Foreword

The classification of environmental incidents is required to satisfy both internal and corporate environmental reporting requirements and provides a standardised method of reporting across the Company.


Classification levels 1, 2 and 3 shown in the table overleaf provide details for determining the severity of the environmental impact of an incident. The classifications are the same as those used by Leighton in Australia.

For incidents where no adverse impact has occurred, the notation "NA" should be selected. Examples of incidents of that type are listed below:


- Drums/containers for chemical waste placed in the chemical waste store but have not been properly labelled;
- Insufficient waste bins on site;
- Speed limit signs missing;
- Drums of oil not stored in a drip tray or other form of containment, and
- No spill clean-up material available.

The appropriate classification should be recorded on all Corrective Action Requests raised to address an environmental nonconformance.


\* Link 200 Joint Venture

<b>ENVIRONMENTAL MANAGEMENT REFERENCE VOLUME</b>	
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<b>Environmental Incident Classification</b>	

Category and Type of Impact	Level 3 (Low Severity)	Level 2 (Medium Severity)	Level 1 (High Severity)
<b>A</b> General environmental - (to be used where other categories do not apply)	<p>Pollution or degradation which has short-term (less than one month) and reversible detrimental effects on the environment.</p>	<p>Pollution or degradation which has persistent (greater than three months) but reversible detrimental effects on the environment.</p>	<p>Pollution or degradation which has or may have irreversible detrimental effects on the environment.</p>
<b>B</b> Controlled and uncontrolled discharges to water	<p>Minor pollutant discharge to water. No impact on water resources e.g.</p> <ul style="list-style-type: none"> <li>discharge from sedimentation tank or sedimentation basin above allowable limits;</li> <li>uncontrolled discharge of site drainage run-off water.</li> </ul>	<p>Major or persistent discharge to water. Short-term impact on water resources e.g.</p> <ul style="list-style-type: none"> <li>oil spill escapes into stormwater drain or watercourse;</li> <li>operations cause minor pollution of groundwater in localised area(s);</li> <li>uncontrolled discharge from bored piling without treatment and above allowable limits;</li> <li>uncontrolled discharge from sedimentation tank or sedimentation basin via emergency spillway above allowable limits.</li> </ul>	<p>Major and persistent discharge of pollutant to water outside site or workface. Major long-term impact on water resources e.g.</p> <ul style="list-style-type: none"> <li>acid drainage run-off from mining operations;</li> <li>tailings dam failure;</li> <li>extensive contamination / pollution of groundwater or water catchment areas.</li> </ul>
<b>C</b> Contamination of land	<p>Minor spill of hydrocarbons or chemicals e.g.</p> <ul style="list-style-type: none"> <li>no residual contamination of land;</li> <li>spill contained to defined area(s) within site or workplace;</li> <li>no significant cleanup required other than removal of contaminated material to approved waste area;</li> <li>spill less than 1000 litres.</li> </ul>	<p>Significant spill of hydrocarbons or chemicals.</p> <ul style="list-style-type: none"> <li>some residual contamination of land;</li> <li>spill contained to defined area(s) within site or workplace;</li> <li>significant cleanup required over and above removal of contaminated material to approved waste area;</li> <li>spill greater than 1000 litres.</li> </ul>	<p>Major spill or escape of hydrocarbons or chemicals.</p> <ul style="list-style-type: none"> <li>persistent contamination of land;</li> <li>spill may or may not be contained to defined area(s) within site or workplace;</li> <li>extensive cleanup required;</li> <li>spill greater than 5000 litres from operations or storage into ground.</li> </ul>

<b>ENVIRONMENTAL MANAGEMENT REFERENCE VOLUME</b>			
		Doc. No.: EMRV 14.2	
		Rev. No.: 0	
		Date: 09.03.06	
		Page 4 of 5	
<b>Environmental Incident Classification</b>			

Category and Type of Impact	Level 3 (Low Severity)	Level 2 (Medium Severity)	Level 1 (High Severity)
<b>D</b> Controlled and uncontrolled emissions to atmosphere	Minor discharge of pollutant to atmosphere outside site or workplace e.g. <ul style="list-style-type: none"> <li>• overflow of cement silo, cement dust release;</li> <li>• no risk environment.</li> </ul>	Major or persistent release of pollutant to atmosphere outside site or workplace.	Major or persistent discharge of hazardous pollutant to atmosphere outside site or workplace e.g. <ul style="list-style-type: none"> <li>• explosion or leak of hazardous gas;</li> <li>• possible or actual evacuation of local vicinity;</li> <li>• risk to the environment.</li> </ul>
<b>E</b> Noise, dust and odour	Generation of dust, noise or odour causing periodic inconvenience or disruption to community and the environment e.g. <ul style="list-style-type: none"> <li>• occasional breach of noise restrictions outside approved hours i.e. concrete pour takes longer than planned;</li> <li>• Vehicles with mud on wheels leaving site without using wheel washing facilities.</li> </ul>	Generation of dust, noise or odour causing sustained periods of inconvenience or disruption to community and the environment e.g. <ul style="list-style-type: none"> <li>• sustained generation of dust with inadequate dust suppression or causing nuisance.</li> </ul>	Generation of dust, noise or odour causing damage to property outside site or workplace, the environment e.g. <ul style="list-style-type: none"> <li>• noise generated;</li> <li>• non-contained hazardous dust generation.</li> </ul>
<b>F</b> Solid and other wastes	Unapproved storage, transport, treatment or disposal of a minor quantity (205 litres, 200 kg or 0.2 m <sup>3</sup> ) of non-hazardous waste (solid or other), easily removed to an appropriate location.	Unapproved storage, transport, treatment or disposal of a significant quantity (10,000 litres, 10 tonnes or 10.0 m <sup>3</sup> ) of non-hazardous waste or minor quantity (205 litres, 200 kg or 0.2 m <sup>3</sup> ) of hazardous waste (solid or other), easily removed to an appropriate location.	Unapproved storage, transport, treatment or disposal of a significant quantity (10,000 litres, 10 tonnes or 10.0 m <sup>3</sup> ) of hazardous waste (solid or other) not easily removed to an appropriate location.

 <p><b>Link 200 Joint Venture</b> Kowloon Southern Link</p>
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<p><b>Environmental Incident Classification</b></p>

Category and Type of Impact	Level 3 (Low Severity)	Level 2 (Medium Severity)	Level 1 (High Severity)
G Effects on the natural environment	<p>Minor loss or impact on land or water based flora, fauna &amp; habitat, but no negative effect on the eco-system. Limited damage to an area of land of no ecological significance e.g.</p> <ul style="list-style-type: none"> <li>• death of a native animal or species, that is not identified as abundant or a pest;</li> <li>• accidental felling of a tree;</li> <li>• over clearing of an area that is not native bush.</li> </ul>	<p>Medium impact on land or water based flora, fauna and habitat. Short-term impact on eco-system. Damage that can be remediated e.g.</p> <ul style="list-style-type: none"> <li>• partial destruction of native habitat leading to impact on local species numbers or disruption to breeding cycles.</li> </ul>	<p>Major loss or impact on land or water based flora or fauna. Destruction of ecologically significant habitat. Endangering viability of species, habitat or eco-system. Damage that cannot be remediated without risk of long-term loss e.g.</p> <ul style="list-style-type: none"> <li>• Destruction of habitat in a national park;</li> <li>• Death of an animal or species that is in danger of extinction.</li> </ul>
H Archaeological, heritage or cultural issues	<p>Minor repairable damage to common place structures, or minor infringement of cultural values.</p>	<p>Damage to structures / items of cultural / heritage significance, or significant infringement of cultural values / sacred locations.</p>	<p>Destruction or irreparable damage to highly valued structures / items / locations of cultural of heritage significance or value.</p>

## **Appendix 5**

### **Company Environmental Objectives and Targets**



# Link 200 Joint Venture



**Balfour Beatty**



**Contract KDB200**  
**West Kowloon Station and Tunnels,**  
**Jordan Road to East Tsim Sha Tsui Station**

## **Environmental Objectives**

[Note: These objectives are based on the approved environmental objectives and targets established and implemented by Leighton Contractors (Asia) Limited, whose environmental management system has been adopted by Link 200 Joint Venture]

<i>Objective</i>	<i>Performance Indicator</i>	<i>2005 Targets</i>
1 Comply with all HKSAR environmental regulations and laws	Number of reportable environmental incidents <sup>(1)</sup> per million manhours worked	Achieve continual improvement  2005 target < 0.5
2 Improve the environmental awareness of Link 200 employees whose activities may have a significant impact on the environment	Average test score (%) from staff environmental questionnaire, which is designed to measure environmental awareness	Achieve continual improvement  2005 target > 75% score
3 Educate and train the workforce (eg, subcontractors and direct labour) in environmental matters to raise their awareness	Percentage of direct labour and subcontractors' employees to have attended an environmental induction within 7-days of commencing on site	Achieve continual improvement  2005 target > 98%
	Average test score (%) from environmental questionnaire, which is designed to measure environmental awareness of workforce	New target:  2005 target: To prepare questionnaire and determine baseline score
4 Reduce adverse environmental impacts caused by Link 200 Joint Venture activities associated with KDB200.	Number of level 1 (high severity) environmental incidents <sup>(2)</sup>	New target:  2005 target: zero incidents
	Number of level 2 (medium severity) environmental incidents per million manhours worked	New target:  2005 target: Measure and report company performance and monitor and analyse performance against Leighton Group Companies (adopt group-wide target when those are established by Leighton Holdings Limited)



<i>Objective</i>	<i>Performance Indicator</i>	<i>2005 Targets</i>
	<p>Environmental Incident Frequency Rate: Total number of environmental incidents (level 1, 2 and 3 incidents) per million manhours worked</p>	<p>New target: 2005 target: Measure and report company performance and monitor and analyse performance against Leighton Group Companies (adopt group-wide target when those are established by Leighton Holdings Limited)</p>
<p>5 Reduce the quantity of construction waste that is produced and disposed</p>	<p>Percentage of locations that have developed, implemented and maintained a Waste Flow Table <sup>(3)</sup> or equivalent to monitor projected and actual construction waste quantities</p>	<p>New target: 2005 target: 100% (all locations) <sup>(4)</sup></p>
<p>6 Reduce concrete wastage on construction projects</p>	<p>Quantity of concrete waste <sup>(5)</sup> expressed as a percentage of total quantity delivered</p>	<p>Achieve continual improvement: 2005 target: &lt; 4.25%</p>
<p>7 Reduce energy use</p>	<p>Link 200 JV energy consumption in appropriate units converted to Joules <sup>(6)</sup></p>	<p>New target: 2005 target: Establish comprehensive energy consumption statistics for all projects and head office</p>
<p>8 Increase recycling of paper</p>	<p>Quantity of paper recycled (kg) as a percentage of total used (kg)</p>	<p>New target: 2005 targets: Project office &gt; 10%</p>
<p>9 Projects to determine one additional specific objective to suit environmental aspects</p>	<p>Project to determine</p>	<p>Project to determine</p>

### Explanatory Notes

1. Incidents that may lead to the issuing of a summons by an authority. Those are reportable to general manager within 72 hours of receipt. Examples include issuing of an improvement notice by Environmental Protection Department.
2. Environmental incidents classification:  
Level 1, high severity: Pollution or degradation which has or may have irreversible detrimental effects on the environment and/or community  
Level 2, medium severity: Pollution or degradation which has persistent but reversible effects on the environment and/or community  
Level 3, low severity: Pollution or degradation which has short-term and reversible detrimental effects on the environment and/or community
3. Waste Flow Table is a reconciliation of expected waste quantities to be generated, recycled or reused and actual quantities.
4. This target selected to better understand current construction waste production and disposal quantities ahead of construction waste charging expected later in 2005.
5. Waste concrete is defined as any concrete that is not used for the permanent works.
6. Energy consumption includes electricity, diesel, oil, gas and petrol. The factors defined in the Global Reporting Initiative sustainability reporting guidelines are to be adopted for conversion to standard units.

## **Appendix 6**

### **Environmental Control Plan ECP 1 – Construction Dust**

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 1
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
1	Mitigation measure: Water exposed spoil regularly Water exposed spoil with manual water spray or automatic sprinkler system	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	West Kowloon Station and other areas	West Kowloon Station excavation - at least 4 times per day All other areas - at least twice a day during dry or windy conditions	No visible dust or recorded air-quality monitoring exceedance
2	Mitigation measure: Cover any stockpile of dusty material with impervious sheeting if it is being kept on site for a prolonged period Cover by impervious sheeting properly secured around the perimeter of stockpile or kept secure by sandbags on rope (for large stockpiles)	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No unprotected stockpile of dusty material
3	Mitigation measure: Any excavated or stockpile of dusty material shall be maintained in a dampened state prior to removal and back-filling Manual water spray if natural moisture content is insufficient	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 1
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
4	Mitigation measure: Any dusty material remaining after a stockpile is removed shall be dampened with water and cleared from the surface of roads or streets  Manual water spray and remove by brush/shovel or use street cleaning vehicle	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dusty material on surface of roads and streets
5	Operating controls: Stockpiles of dusty material shall not extend beyond the pedestrian barriers, fencing or traffic cones.  Use timbers, sandbags or similar to retain toe of stockpile	Prevention of dust impacts and prevent dusty material from being deposited in public areas (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Visual observation as per operating controls
6	Operating controls: The load of dusty material on a vehicle leaving a construction site shall be covered entirely by clean impervious sheeting to ensure that dusty material does not leak from the vehicle  Cover vehicle load entirely with clean impervious sheeting securely fixed	Prevention of dust impacts and to prevent dusty material being deposited on the road (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Visual observation as per operating controls

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 1
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
7	Mitigation measure: Provide wheel-wash bay with silt trap and/or high-pressure water jet or similar cleaning facility at every vehicle entry/exit points to work site areas  Construct proprietary automatic wheel-wash bay/designed wheel-wash bay with manual water spray	Prevention of dust impacts, and to prevent dusty material being deposited on the road  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Constructed in accordance with drawings and operated in accordance with manufacturer's recommendations
8	Mitigation measure: The area where vehicle washing takes place and the road section between the washing facilities and the exit point shall be paved with concrete, bituminous material or hardcore  Surfacing to be determined based on site requirements; surface in the vicinity of the facility to be sloping towards wheel wash	Prevention of dusty material from being deposited in public areas  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Visual observation as per mitigation measure
9	Operating controls: Carry out regular maintenance of wheel-washing facilities  Establish maintenance schedule, allocate labour to maintain and clean facilities, remove residual spoil regularly by grab truck	Dust suppression  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule, no visible spoil, silt trap clear of silt

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 1
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
10	Operating control: Construction plant and vehicles are to use vehicle wheel- and body-washing facilities when leaving the site  Erect notices and include in awareness training for all subcontractors and vehicle drivers	Prevention of dust impacts and to prevent dusty material being deposited on the road  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Each vehicle checked prior to leaving site
11	Mitigation measure: Erect hoarding of not less than 2.4 m high with provision for public crossing along the site boundary when there is open excavation and reinstatement works  Define hoarding boundary on site layout plan during planning stage and erect accordingly during mobilization phase	Prevention of dust impacts and to prevent dusty material from being deposited in public areas  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	In accordance with site layout plan
12	Mitigation measure: Pave all main haul roads with concrete, bituminous material, hardcore or metal plates  Define main haul roads on site layout plan during planning stage and pave accordingly during mobilization phase	Prevention of dust impacts  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	In accordance with site layout plan

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 1</b>
<b>Environmental Aspect:</b> Construction Dust					<b>Contract No:</b> KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
13	Mitigation measure: All main haul roads shall be kept clear of dusty material or sprayed with water or a dust suppression chemical to maintain the entire road surface in a dampened state  Manual water spray/automatic sprinkler system on timer	Prevention of dust impacts  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
14	Mitigation measure: The portion of any road leading only to construction site that is within 30 m of a vehicle entrance or exit shall be kept clear of dusty material  Provide labour with water spray and brush/road-cleaning vehicle	Prevention of dust impacts and to prevent dusty material being deposited on the road  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
15	Mitigation measure: Spray surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place with water or dust suppression chemical continuously  Provide labour with water spray or water feed hose attached to mechanical equipment	Dust suppression  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance



<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 1</b>
<b>Environmental Aspect:</b> Construction Dust					<b>Contract No:</b> KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
16	Mitigation measure: Spray any area that involves demolition activities with water or a dust suppression chemical immediately prior to, during and immediately after the activities to maintain the entire surface wet  Provide labour with water spray/set up automatic sprinkler system	Dust suppression (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
17	Mitigation measure: Provide effective dust screens, sheeting or netting to enclose scaffoldings from the ground floor level of a building/provide a canopy from the first-floor level up  Securely enclose entire scaffolding, canopy secured on scaffolding	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
18	Mitigation measure: Totally enclose any skip hoist for material transport by impervious sheeting  Securely enclose skip hoist with impervious sheeting	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible gap between sheeting and skip hoist

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 1</b>
<b>Environmental Aspect:</b> Construction Dust					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
19	Mitigation measure: Every stock of more than 20 bags of cement shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the three sides  Make sure impervious sheeting is securely covering stock, sheltered area of adequately capacity	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No cement in quantities of more than 20 bags stored openly on-site
20	Mitigation measure: Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer  Provide compaction by drum roller, surface covered and sealed by impervious sheeting	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
23	Mitigation measure: Cement, or any dusty material collected by fabric filters or other air-pollution control system or equipment, shall be disposed of in totally enclosed containers  Dusty material removed by labour and will not be released in the open	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 1</b>
<b>Environmental Aspect:</b> Construction Dust					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
24	Mitigation measure: Carry out regular watering using fine spray or water truck during dry conditions to reduce dust from exposed site surfaces and unpaved roads Frequently water particularly-dusty construction areas close to the site boundary and sensitive receivers, provide manual water spray/automatic sprinkler system on timer	Dust suppression (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
25	Mitigating measure: Minimize the number and size of stockpiles of dusty material and protect when necessary (eg, windy condition). Remove back-fill stockpile as soon as practicable, manual water spray/cover with impervious sheeting during windy condition	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
26	Mitigation measure: Spray water when handling any material that has the potential to create dust from excavation and during material transfer and filling works Provide labour with water spray/set up automatic sprinkler system	Dust suppression (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 1</b>
<b>Environmental Aspect:</b> Construction Dust					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
27	Operating control: Limit dropping distance when handling dusty material and spray with water during the operation Provide labour with water spray, include in awareness training for all subcontractors and workforce	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible dust or recorded air-quality monitoring exceedance
28	Mitigation measure: Position plant as far as practicable from sensitive receivers Carefully plan construction sequence during mobilization/planning stage of the project	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No recorded air-quality monitoring exceedance
29	Fully enclose the spoil transfer from the bottom of the launching shaft to the at-grade level near Area A7 Securely enclose spoil transfer system to suppress dust emission	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Launching shaft during tunnelling	Construction stage	No visible dust or recorded air-quality monitoring exceedance
30	Enclose spoil transfer points and hopper discharge areas at the launching shaft if applicable Securely enclose spoil transfer system to suppress dust emission	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Launching shaft during tunnelling	Construction stage	No visible dust or recorded air-quality monitoring exceedance

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 1</b>
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
31	Enclose the fixed transfer point at the launching shaft with a three-sided roofed enclosure and a flexible curtain at the entrance if applicable Exhaust fans should be provided for this enclosure and vented to a suitable fabric filter system if applicable Erect enclosure with flexible curtain and exhaust fan prior to the operation of transfer point at the launching shaft if applicable	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Launching shaft during tunnelling	Construction stage	No visible dust or recorded air-quality monitoring exceedance
32	Design the barging facility with paved road surfaces Define road surfaces to be paved at the barging facility on site layout plan during design stage	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Barging facility	Construction stage	Evidence of consideration taken during design activities
33	Design the barging facility with dust enclosures along the loading ramps Prepare calculations and drawings of dust enclosures during design stage	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Barging facility	Construction stage	Evidence of consideration taken during design activities

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 1
Environmental Aspect: Construction Dust					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
34	All vehicles to use designated wheel washing facilities before leaving the barging facility Erect notices and include in awareness training for all subcontractors and vehicle drivers	Prevention of dust impacts and to prevent dusty material being deposited on the road (Legal and contractual compliance)	Project Manager	Barging facility	Construction stage	Random vehicle checking at the barging facility
35	All exposed areas within the barging facility should be dampened with water Water exposed areas with manual water spray or automatic sprinkler system	Prevention of dust impacts (Legal and contractual compliance)	Project Manager	Barging facility	At least twice a day	No visible dust or recorded air-quality monitoring exceedance

## **Appendix 7**

### **Environmental Control Plan ECP 2 – Water Quality**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
1	Mitigation measure: At the start of site establishment (including the barging facility), construct perimeter cut-off drains to direct off-site water around the site with internal drainage works and implement erosion and sedimentation control facilities  Carry out construction at the start of site establishment, allocate labour and grab truck to remove sediment from facilities	Control surface run-off and improve effluent standard to meet water-quality objectives  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Off-site run-off is directed around site effectively, erosion and sediment control facilities of adequate capacity
2	Mitigation measure: Provide channels (temporary and permanent drainage pipes and culverts), earth bunds or sandbag barriers on site to direct storm water to silt removal facilities  Allocate labour and plant to maintain and remove silt from facilities on a regular basis	Control surface run-off and improve effluent standard to meet water-quality objectives  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Storm water directed effectively, silt removal facilities regularly emptied
3	Mitigation measure: Provide dykes or embankments for flood protection around the boundaries of earthwork areas  Provide sandbags or similar along perimeter of excavation during rainy season	Flood control and run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No ingress of water to excavated area



Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 2</b>
Environmental Aspect: Water Quality					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
4	Mitigation measure: Provide temporary ditches to facilitate run-off to discharge into an appropriate watercourse, via a silt/sediment trap. Incorporate the sediment/silt traps in the permanent drainage channels to enhance deposition rates  Excavate and maintain temporary ditches during rainy season, allocate labour and grab truck to remove silt/sediment	Improve effluent standard to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No uncontrolled discharge of run-off, silt/sediment trap cleared out regularly
5	Mitigation measure: The design of efficient silt removal facilities shall be based on Link 200 Joint Venture guidelines and shall take account of Appendix A1 of ProPECC PN 1/94  The retention time for silt/sand traps shall be appropriate to the particle size under maximum flow conditions	Improve effluent standard to meet water quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No recorded water-quality monitoring exceedance
6	Mitigation measure: Programme construction works to minimize surface excavation works during the rainy season (April to September)  Carefully plan construction sequence during planning or mobilization phase	Flood control and run-off quality control. (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Minimal surface excavation works during the rainy season

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<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
7	Mitigation measure: All exposed earth areas should be completed and vegetated as soon as practicable after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks when practicable  Start planting after final compaction is carried out	Erosion control and surface run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Started at least 14 days after completion of earthworks
8	Mitigation measure: Cover exposed slope surfaces by tarpaulin or other means if excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely  Cover slopes that are not being worked on for an extended period by impervious sheeting. Properly secure sheeting to prevent removal	Erosion and surface run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No extensive soil erosion and muddy/silty surface run-off

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
9	Mitigation measure: The overall slope of the site shall be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast  Carefully plan construction sequence and site layout, lay and compact at least one layer of coarse stone ballast on unpaved access roads	Erosion and surface run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No extensive soil erosion and muddy/silty surface run-off
10	Mitigation measure: Inspect and maintain all drainage facilities and erosion and sediment control structures regularly to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit shall be removed regularly and disposed of by spreading evenly over stable, vegetated areas  Establish maintenance schedule, include in weekly inspection checklist, allocate labour for routine maintenance, and remove deposit by grab trucks, spread by excavator/load loader	Maintain performance and efficiency of facilities and control structures to meet water-quality objectives  (Good site practice and contractual compliance)	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule, no blockage of drainage facilities and erosion and sediment control structures

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
11	Mitigation measure: Minimize the ingress of site drainage into excavations during rainy season by digging and back-filling trenches in short sections whenever practicable, enclose the entire excavated area with sandbags or similar embankments, cover unfinished excavated area with impervious material between works	Flood control and run-off quality control (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No flooding inside excavated area
12	Mitigation measure: Water pumped out from trenches or foundation excavations shall be discharged into storm drains via silt-removal facilities  Set up pump in the vicinity of the excavation, directly pump water to temporary drainage connecting to silt removal facilities	Flood control and run-off quality control (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No uncontrolled discharge of muddy/silty water

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
13	Mitigation measure: Open stockpiles of construction material (eg, aggregate, sand and fill material) of more than 50 m <sup>3</sup> shall be covered with tarpaulin or similar fabric during rainstorms. Cover by impervious sheeting properly secured around the perimeter of stockpile or kept secure by sandbags on rope (for large stockpiles) to prevent the washing away of construction materials, soil, silt or debris into any drainage system	Surface run-off quality control (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No blockage of drainage system	
14	Mitigation measure: Adequately cover and temporarily seal manholes (including newly constructed ones) with temporary steel plates, wooden board or similar or have permanent cover in place as soon as practicable to prevent silt, construction material or debris being washed into the drainage system and storm run-off being directed into foul sewers	Prevent uncontrolled discharge (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No uncovered manholes	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
15	Mitigation measure: Implement, as far as practicable, precautions/actions relating to rainstorms, as stipulated in Appendix A2 of ProPECC PN 1/94. Particular attention shall be paid to the control of silty surface run-off during storm events, especially for areas located near steep slopes  Check working conditions of silt removal facilities, channels and manholes prior to storm events in accordance with environmental emergency procedures	Run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No excessive deposit inside silt removal facilities, no blockage of channels and manholes
16	Mitigation measure: All vehicles and plant to be cleaned before leaving the construction site to ensure no earth, mud, debris and the like is deposited on roads  Erect notices and include in awareness training for all subcontractors and workforce, check each vehicle on leaving site	Prevent contaminants from entering public drainage system off site	Project Manager	All construction sites	Construction stage	All vehicles and plant cleaned and checked before leaving construction site

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 2</b>
Environmental Aspect: Water Quality					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
17	Mitigation measure: Provide an adequately designed and sited wheel-washing bay at every construction site exit  Construct proprietary automatic wheel-wash bay/wheel-wash bay with manual water spray	Prevent contaminants from entering public drainage system off site	Project Manager	All construction sites	Construction stage	Constructed in accordance with drawings
18	Mitigation measure: Water from wheel wash shall have sand and silt settled out and removed regularly (at least on a weekly basis) to ensure the continued efficiency of the process  Establish maintenance schedule, allocate labour to maintain and clean facilities, remove residual spoil regularly by grab truck	Prevent contaminants from entering public drainage system off site	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule, no visible spoil, silt trap clear of silt
19	Mitigation measure: Pave the section of access road leading to, and exiting from, the wheel-wash bay to the public road with sufficient back-fall toward the wheel-wash bay to prevent vehicles tracking soil and silty water onto public roads and into drains  Include in site establishment/layout drawings	Prevent contaminants from entering public drainage system off site	Project Manager	All construction sites	Construction stage	Paved in accordance with drawings

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
20	Mitigation measure: Oil interceptors are to be provided in the drainage system downstream of any oil/fuel pollution sources (eg, plant maintenance areas) Include in site establishment/layout drawings.	Improve effluent standard to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Constructed in accordance with drawings
21	Operating controls: The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm-water drainage system Establish maintenance schedule, allocate labour to empty and clean oil interceptors, remove and place residue in chemical-waste storage area	Maintain performance and efficiency of oil interceptors to meet water-quality objectives	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule
22	Mitigation measure: Provide a bypass for the oil interceptor to prevent flushing during heavy rain and rainstorm	Prevent uncontrolled discharge (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible oil and grease at discharge points



<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
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<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
23	Operating controls: Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water-quality impacts. Refer to Environmental Control Plan – Waste and Chemical Management and the Waste Management Plan for further details on solid-waste management	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible waste, debris and rubbish inside water channels, manholes
24	Mitigation measure: Establish waste storage areas, rubbish skips and recycling bins on-site and have them regularly emptied by reputable waste collectors to prevent water-quality impacts. Refer to Environmental Control Plan – Waste and Chemical Management and the Waste Management Plan for further details on solid waste management	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No visible waste, debris and rubbish inside water channels, manholes

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
25	Mitigation measure: Fuel tanks and fuel storage areas to be provided with locks and solid base to prevent spilled fuel oils from reaching water sensitive receivers nearby  Provide drip tray of a capacity equal to 110% of the storage capacity of the largest tank, provide with skirting to prevent the ingress of water during rainstorm	Prevent water-quality impacts  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Located as far away from water-sensitive receivers as practicable	
26	Mitigation measure: Provide drip trays or similar containment under all items of static plant and any chemical tanks/ drums  Position plant so that fuel point is within the tray/bund	Prevent water-quality and land-contamination impacts  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Adequate capacity (110% of tank capacity), good condition/no leakage, valves operating and kept shut	

Environmental Control Plan						Link 200 Joint Venture
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Environmental Aspect: Water Quality					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
27	Mitigation measure: Waste water generated from the washing down of mixer trucks and drum mixers and similar equipment shall, whenever practicable, be recycled. The discharge of waste water shall be kept to a minimum. When discharge is necessary, treatment will include pH adjustment and removal of silt when necessary to suit Discharge Licence requirements  Provide washing-out pits or similar away from existing drainage, adjust pH when necessary prior to discharge, remove resulting spoil in accordance with Waste Management Plan	Prevent water-quality impacts  (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No uncontrolled discharge of waste water, no recorded water-quality monitoring exceedance
28	Operating controls: Carry out comprehensive site checks following the raising of an Amber Rainstorm Warning in accordance with environmental emergency procedures	Prevention of flooding and surface run-off quality control  (Good site practice, legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Satisfactory condition/standard of all check items

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 2
Environmental Aspect: Water Quality					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
<b>Tunnelling Works</b>						
1	Mitigation measure: Conduct the cut-and-cover tunnelling work incrementally to limit the amount of construction run-off generated from exposed areas during the wet season (April to September) Place temporary steel plates or similar on top of cut-and-cover tunnel during wet season, carry out construction in the shortest section as practicable and back-fill before starting the next section	Reduce demand on water-treatment plant to improve efficiency (Good site practice)	Project Manager	All construction sites	Construction stage	Run-off within capacity limit of on-site treatment facilities
2	Mitigation measure: Pumped discharge, including ground-water seepage pumped out of tunnels, shall pass through settlement tanks prior to off-site discharge Install and utilize on-site proprietary waste-water treatment facility, settlement tank or similar	Reduce demand on water treatment plant to improve efficiency (Good site practice)	Project Manager	All construction sites	Construction stage	No uncontrolled discharge of waste water, no recorded water-quality monitoring exceedance

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<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
3	Mitigation measure: Treat the waste water from tunnelling work before discharge to remove suspended solid, oil, lubricants and grease. Oil interceptors to be installed to remove any oil, lubricants and grease from the waste water Install and utilize on-site oil interceptors and proprietary waste-water treatment facility, settlement tank or similar with sufficient retention time	Improve effluent standard to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No uncontrolled discharge of waste water, no recorded water-quality monitoring exceedance	
4	Recondition and re-use bentonite slurry whenever practicable. Temporary storage locations (typically a properly-closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed Install and utilize bentonite de-sander on-site, establish enclosed containers with lock for the storage of unused bentonite	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No direct discharge of bentonite slurry, in accordance with the requirements on handling and disposal of bentonite slurries stipulated in ProPECC PN 1/94	
<b>Sewage Effluent</b>							

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
1	Mitigation measure: Provide portable chemical toilets and for handling the construction sewage generated by the workforce. A licensed contractor shall be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance  Number to suite number of workers and stage of construction, establish maintenance schedule	Improve effluent standard to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Chemical toilets provided by licensed contractor, maintained in accordance with maintenance schedule	
2	Mitigation measure: Provide sewage holding tanks for handling the construction sewage generated by workforce  Install sewage holding tank to suit peak staff period, employ licensed collectors for appropriate disposal and maintenance, establish maintenance schedule	Improve effluent standard to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Constructed in accordance with drawings, maintained in accordance with maintenance schedule	
3	Mitigation measure: Provide connection to sewer for handling the construction sewage generated by the workforce  Pipe size to suit peak staff period, establish maintenance schedule	Prevent water-quality impacts at storm-water system (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule	

Environmental Control Plan						Link 200 Joint Venture	
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No.	ECP 2
Environmental Aspect: Water Quality					Contract No: KDB200 (H2298)		
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved	
4	Mitigation measure: Provide sewage treatment plant for handling the construction sewage generated by the workforce Install sewage treatment plant to suit peak staff period, establish maintenance schedule	Improve effluent to meet water-quality objectives (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Maintained in accordance with maintenance schedule	
<b>Ground Water from Contaminated Areas</b>							
1	Submission: Apply for a Discharge License under the Water Pollution Control Ordinance through the Regional Office of the Environmental Protection Department for the ground-water recharge operation	Legal compliance	Project Manager	All construction sites	Construction stage	Discharge License issued by Environmental Protection Department before recharge operation	
2	Mitigation measure: Recharge contaminated ground water from dewatering process back into the ground at the discharge wells	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	In accordance with requirement set out in Discharge License	
3	Mitigation measure: Update the extent of potential ground-water contamination by collecting more ground-water samples along the alignment	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	In accordance with requirement set out in environmental monitoring and audit programme	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
4	Mitigation measure: Install a petrol interceptor with sufficient retention time to remove free products prior to discharge	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No untreated water is being recharged
5	Mitigation measure and submission: Perform ambient measurements on the ground-water quality and submit a working plan to the Environmental Protection Department for agreement	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	In accordance with requirement set out in environmental monitoring and audit programme and ProPECC PN 3/94, approved working plan by Environmental Protection Department
6	Mitigation measure: Select and install ground-water recharging wells at locations agreed by the Environmental Protection Department. Measurement of the pollutant levels of the ground water to be recharged shall not be higher than the ambient ground-water quality measured (baseline measurement)	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No ground water with pollutant levels higher than baseline is recharged



<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298).		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
7	Mitigation measure: Install ground-water monitoring wells to monitor the effectiveness of the recharge wells	Prevention of water-quality exceedance for prolonged period and to enable timely execution of necessary water-quality mitigation measures in case of exceedance (Contract compliance)	Project Manager	All construction sites	Construction stage	In accordance with requirement set out in environmental monitoring and audit programme	
8	Mitigation measure: Monitor the ground-water level to ensure that there is no likelihood of locally risen ground-water level and transfer of pollutants beyond the site boundary	Prevention of water-quality exceedance for prolonged period and to enable timely execution of necessary water-quality mitigation measures in case of exceedance (Contract compliance)	Project Manager	All construction sites	Construction stage	In accordance with requirement set out in environmental monitoring and audit programme, no recorded transfer of pollutants beyond the site boundary	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 2</b>
<b>Environmental Aspect:</b> Water Quality					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
9	Mitigation measure: Treat the ground water to the baseline level or lower if the pollutants of the recharging ground water (after petrol interceptor) exceed the baseline limit. Implement appropriate ground-treatment method (chemical precipitation and activated-carbon adsorption)	Prevent water-quality impacts (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	No ground water with pollutant levels higher than baseline is recharged
10	Make sure barges/marine transport avoid release of material into marine environment by cleaning barge tops prior to moving from barging point	Prevent marine-ecology impacts	Project Manager	Barging point / sediment handling	Construction stage	Works carried out within boundary defined on site-layout plan

## Appendix 8 Environmental Control Plan ECP 3 – Airborne Noise

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
1	Mitigation measures: Reduce the number of plant operating simultaneously and/or in close proximity of critical noise-sensitive receivers (if any)  Minimize the number of construction activities being carried out at the same time when near to noise-sensitive receivers	Noise reduction	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise monitoring exceedance	
2	Operating controls: Display and communicate Construction Noise Permits on site  Display in accordance with Construction Noise Permit requirement and on notice board, notify all subcontractors in writing and carry out tool-box meetings	Good communication of noise requirements on-site  (Legal compliance)	Project Manager	All construction sites	Construction stage	Valid Construction Noise Permits on display at all time	
3	Mitigation measure: Obtain and display valid Noise Emission Labels on all hand-held percussive breakers and air compressors  Display in accordance with labelling requirement	Comply with statutory requirements  (Legal compliance)	Project Manager	All construction sites	Construction stage	Valid Noise Emission Labels on display at all times	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
4	Mitigation measure: Only operate well-maintained plant on site and service plant regularly during the construction programme  Establish maintenance schedule, allocate adequate resources to service plant and utilize MEX plant software	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	No excessive noise when plant is running, no recorded noise-monitoring exceedance
5	Operating controls: Shut down or throttle down machine and plant that may be in intermittent use during works period  Include in induction training of staff and workforce	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	Engine shut down or throttled down on all idling machine and plant
6	Operating controls: Plant known to emit noise strongly in one direction shall, when practicable, be orientated so that the noise is directed away from nearby noise-sensitive receivers  Identify sensitive noise-sensitive receivers and advise staff accordingly, close engine compartment doors	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	Plant orientated to reduce noise impact at noise-sensitive receivers

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
7	Mitigation Measure: Properly install and maintain silencers or mufflers on construction equipment during the construction works  Check silencers and mufflers are properly fitted on delivery, establish maintenance schedule, allocate adequate resources for servicing	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	Well maintained silencers or mufflers are fitted, no excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
8	Operating controls: Locate mobile plant as far away from noise-sensitive receivers as possible where practicable  Carefully plan construction sequence during planning or mobilization phase	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
9	Mitigation measure: Effectively use material stockpiles, site office and other structures, when practicable, to screen noise from on-site construction activities  Strategically plan site layout and construction sequence when practicable	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
10	Mitigation measure: Install purpose-built noise barriers of 2.4 m high located on the site boundaries between noisy construction activities and noise-sensitive receivers  Use material with sound-insulating properties	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
11	Mitigation measure: Install movable noise barriers or acoustic mat close to noisy plants (eg, handheld breaker, circular saw, crawler drill and electric drill hole machine, auger, chisel, electric down-the-hole rig, piling, crawler crane/chisel/oscillator/ reverse-circulation drills (RCD) and pipe pile rigs.)  Surface density of barriers to be not less than 14 kg/m <sup>2</sup> , position barriers as close to plant as is safe and practicable	Noise reduction (Legal and contract compliance)	Project Manager	For plant items listed in 3.4 of Environmental Permit at West Kowloon Station	Construction stage	5 dB(A) noise reduction  No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station					Plan No.	ECP 3
Environmental Aspect: Airborne Noise					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
12	Mitigation measure: Install enclosures for static plant during operation (eg, air compressors, electric grout pump, filtering plant/desander, silenced generator, electric grout mixer and water pump)	Noise reduction (Legal and contract compliance)	Project Manager	For plant items listed in 3.4 of Environmental Permit at West Kowloon Station	Construction stage	10 decibels(A) noise reduction No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
13	Mitigation measure: Liaise with school representatives to schedule construction works outside school examination periods Identify schools and regularly liaise with school representatives before the start of construction work and plan construction sequence, if construction activities cannot be avoided during examination periods	Noise reduction during examination periods (Legal and contract compliance)	Project Manager	Construction sites near school such as Lai Chak Middle School, Canton Road Government School	Construction stage	No excessive noise at schools, no recorded noise exceedance (ie, <65 dB(A))
14	Mitigation measure: For plant items listed in 3.5 of Environmental Permit	Noise reduction (Contract compliance)	Project Manager	For plant items listed in 3.5 of Environmental Permit at the TBM launching shaft	Construction stage	In accordance with BS 5228 or Technical Memorandum standards



<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
15	Mitigation measure: Carefully sequence and plan noisy construction activities during planning or mobilization phase	Noise reduction (Contract compliance)	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
16	Mitigation measure: Review the need of ground treatment for the section along Canton Road, taking into account any specific construction methodology for the bored tunnelling  Plan construction activities and review construction methodology periodically to minimize the need of ground treatment	Noise reduction from less ground treatment works needed (Contract compliance)	Project Manager	Bored tunnelling section along Canton Road outside two schools	Construction stage	Reduced noise impacts in terms of duration
17	Mitigation measure: Consult with the school representatives to confirm the practicability of scheduling the ground treatment work along Canton Road to tie in with long school vacations and the arrangement of summer courses during this period  Identify schools in the vicinity of Canton Road and regularly liaise with school representatives before the start of treatment work and plan construction sequence accordingly	Prevention of noise impacts (Contract compliance)	Project Manager	Bored tunnelling section along Canton Road outside two schools	Construction stage	Minimal noisy treatment works during school period

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
18	Mitigation measure: Install a noise insulating cover for the launching shaft. Install acoustic panels with 1.5-mm galvanized-steel outer skin, 100-mm acoustic infill with density of 80 kg/m <sup>3</sup> and an inner perforated sheet. This cover shall be shut during night time	Noise reduction (Contract compliance)	Project Manager	Launching shaft	Construction stage	22 dB(A) noise reduction No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
19	Provide and use dead-blow hammers when appropriate to reduce noise impact when hammering steel	Minimizing noise impacts (Good practice)	Project Manager	All construction sites	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
20	Monitoring: Implement real-time continuous noise monitoring under environmental monitoring and audit programme Engage an environmental team for noise monitoring, procure and provide environmental monitoring equipment for the engineer	Prevention of noise exceedance for a prolonged period and to enable the timely execution of necessary noise-mitigation measures in case of exceedance (Legal and contract compliance)	Project environmental manager	Lai Chack Middle School and Man King Building, or other approved location	Construction stage	In accordance with requirement set out in environmental monitoring and audit programme

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
21	Mitigation measure: Install ventilation fan with a sound attenuator to reduce noise impact for the operation of launching shaft near West Kowloon Station  Procure and purchase sound attenuator to reduce noise impacts by at least 15 dB(A), install in accordance with manufacturer's recommendations	Noise reduction (Contract compliance)	Project Manager	Launching shaft and associated conveyance system	Construction stage	No excessive noise at noise-sensitive receivers, no recorded noise-monitoring exceedance
22	Mitigation measure: Install suitably designed enclosures for the spoil conveyance system for the operation of launching shaft near West Kowloon Station	Noise reduction (Contract compliance)	Project Manager	Launching shaft and associated conveyance system	Construction stage	Reduce noise impacts by at least 10 dB(A), no excessive noise at noise-sensitive receivers, no recorded noise monitoring exceedance
23	Mitigation measure: Screen motor of gantry for the operation of launching shaft near West Kowloon Station	Noise reduction (Contract compliance)	Project Manager	Launching shaft and associated conveyance system	Construction stage	Reduce noise impacts by at least 5 dB(A), no excessive noise at noise-sensitive receivers, no recorded noise monitoring exceedance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
24	Mitigation measure: Close noise insulating cover for launching shaft near West Kowloon Station during night time Close cover no later than 19h00, allocate labour to check before finishing work everyday	Prevention of noise impacts at night. (Legal and contract compliance)	Project Manager	Launching shaft	Construction stage	Noise insulating cover securely closed, no excessive noise at noise-sensitive receivers, no recorded noise monitoring exceedance
25	Apply a separate Construction Noise Permit for bored-tunnelling works during restricted hours Prepare plant and equipment inventory and apply for Construction Noise Permit well in advanced of bored-tunnelling works	To protect sensitive receivers in vicinity of launching shaft from noise impacts due to overnight operations	Project Manager / Project Environmental Manager	Launching shaft	Construction stage	Valid Construction Noise Permit issued by Environmental Protection Department for bored tunnelling
26	Install temporary noise barriers for specific plant items (eg, dump truck/lorries, concrete lorry mixers, concrete pump trucks) Surface density of barriers to be not less than 14 kg/m <sup>2</sup> , position barriers as close to plant as is safe and practicable	Noise reduction (Contract compliance)	Project Manager	West Kowloon Station	Construction stage	No excessive noise at Man King Building No recorded noise monitoring exceedance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 3</b>
<b>Environmental Aspect:</b> Airborne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
27	Schedule the tunnel section (about 100 m) to be constructed in two shorter sections (about 50 m) sequentially Incorporate this requirement into construction programme during planning stage	Reduce total amount of plant items to be operated to achieve noise reduction	Project Manager	Launching shaft	Construction stage	No excessive noise at Man King Building No recorded noise monitoring exceedance

## **Appendix 9**

### **Environmental Control Plan ECP 4 – Ground-borne Noise**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 4</b>
<b>Environmental Aspect:</b> Ground-borne Noise					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
1	Refine/confirm predictions in Control of Groundborne Noise from Tunnelling Study (Report 05061-T) by conducting detailed monitoring of early tunnel-boring-machine operations	Confirmation of report predictions	Noise specialist Environmental-team leader	Bored tunnelling and affected noise-sensitive receivers	During early tunnel-boring-machine operations and ongoing	Prevention of disturbance and meeting noise criteria
2	Liaise and maintain a hotline with the management of all potentially-affected buildings to coordinate operations and to refine noise criteria	Prevent undue disturbance and nuisance at noise-sensitive receivers	Project Manager / Public Relations Manager	Bored tunnelling and affected noise-sensitive receivers	During tunnelling operations for whole construction process	Prevention of disturbance and meeting noise criteria
3	Restrict operating hours for rock breaking activities including operation of tunnel-boring machine during sensitive hours for noise-sensitive receivers, such as HKCC and HKSM	Prevent undue disturbance and nuisance at noise-sensitive receivers	Project Manager	Bored tunnelling at locations that are sensitive to noise-sensitive receivers	During tunnelling operations for whole construction process	Prevention of disturbance and meeting noise criteria
4	Monitor to ensure ground-borne noise criteria	Confirm predicted noise levels are not exceeded and assist in day-to-day management of tunnelling and rock breaking operations	Noise specialist / Environmental-team leader	During bored tunnelling and rock breaking and at affected noise-sensitive receivers	During tunnelling and rock breaking operations for whole construction process	Prevention of disturbance and meeting noise criteria

## **Appendix 10**

### **Environmental Control Plan ECP 5 – Waste and Chemical Management**



Environmental Control Plan						Link 200 Joint Venture	
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No.	ECP 5
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)		
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved	
<b>Storage, Collection and Transportation</b>							
1	Handle and store waste in a manner that ensures that it is held securely without loss or leakage Establish separate waste bins for construction waste, general refuse and recyclables on-site and have their locations labelled on the site-layout plan	Minimize the potential for pollution (Contract compliance)	Project Manager	All construction sites	Construction stage	Different waste stream are handled and stored in accordance with site-layout plan and Waste Management Plan	
2	Use waste collectors authorized or licensed to collect the specific category of waste Only engage licensed waste collectors during the procurement phase	Waste disposal control (Contract compliance)	Project Manager	All construction sites	Construction stage	Waste collectors authorized and licensed by Environmental Protection Department	
3	Remove waste in a timely manner Allocate staff to monitor capacity of storage facilities and contact licensed waste collectors for collection, include check item on routine environmental checklist	Waste management and housekeeping (Prevent visual impacts and hygiene concerns)	Project Manager	All construction sites	Construction stage	Adequate capacity for workforce activities	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
4	Maintain and clean waste storage areas regularly Establish maintenance schedule, allocate labour to carry out routine maintenance and cleaning	Waste management and housekeeping to prevent visual impacts and hygiene concerns (Contract compliance)	Project Manager	All construction sites	Construction stage	Maintained and cleaned in accordance with maintenance schedule
5	Minimize wind-blown litter and dust during transportation by either covering trucks or transporting wastes in an enclosed container Secure cover prior to leaving and make sure truck is not overloaded	Prevention of public road contamination (Contract compliance)	Project Manager	All construction sites	Construction stage	Visual check by gate attendant or other assigned personnel
6	Obtain the necessary waste-disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and the Land (Miscellaneous Provisions) Ordinance (Cap 28) Apply well in advance of disposal activities	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	All construction sites	Construction stage	Waste disposal permits issued by appropriate authorities

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
7	Dispose of waste at licensed sites Engage licensed waste collectors for disposal, incorporate trip-ticket system	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	All construction sites	Construction stage	In accordance with permit conditions, record of signed and chopped trip tickets
8	Develop procedures, such as a ticketing system, to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of waste does not occur  Set up trip ticket system in accordance with requirements set out in ETWB TC 31/2004, issue trip ticket for each truck load of waste being transported off site	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	All construction sites	Construction stage	Signed and chopped trip tickets returned for each truckload of waste, in accordance with Waste Management Plan
9	Maintain records of the quantities of wastes generated, recycled and disposed  Establish waste flow tables at Contract start and keep them maintained and updated throughout the Contract period	Waste management	Project Manager	All construction sites	Construction stage	Waste flow tables updated at least on a monthly basis, in accordance with Waste Management Plan
<b>Contaminated Soil and Marine Deposit</b>						
1	Dispose of contaminated soil in landfill site  Engage licensed waste collectors for disposal, incorporate trip-ticket system	Contaminated waste disposal control (Legal and contractual compliance)	Project Manager	Contaminated area	Construction stage	Record of signed and chopped trip tickets

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
2	Uncontaminated marine deposits shall require open-sea disposal Engage licensed waste collectors, incorporate trip-ticket system	Waste disposal control (Contractual compliance)	Project Manager	All construction sites	Construction stage	Record of signed and chopped trip tickets
3	Non-contaminated alluvial and marine deposits will be transported by leach-proof trucks to ensure that any water will not be leaked during transportation to the barging facility for open-sea disposal. The trucks should also be covered with impervious sheeting to prevent any dust emissions Secure cover prior to leaving, make sure truck is not overloaded and tailgate is securely sealed and locked	Prevention of public road contamination (Legal and contractual compliance)	Project Manager	All construction sites	Construction stage	Visual check by gate attendant or other assigned personnel

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
4	During the handling of contaminated/uncontaminated alluvial/marine sediment, all construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location Establish maintenance schedule, collect and treat cleaning water from plant maintenance prior to discharge	Prevention of uncontrolled release of waste material	Project Manager	All construction sites	Construction stage	Construction plant and equipment maintained in accordance with maintenance schedule, maintain plant and equipment in designated area (eg, workshop) only	
5	During the handling of contaminated/uncontaminated alluvial/marine sediment, size all vessels such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash Select vessel taking account of sea-bed profile	Prevention of contaminated deposit from releasing into the water column	Project Manager	Barging point	Construction stage	Adequate clearance to seabed as appropriate	

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 5
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
6	During the handling of contaminated/uncontaminated alluvial/marine sediment and before moving the vessels that are used for transporting dredged material, clean excess material from the decks and exposed fittings of vessels and the excess material shall never be dumped into the sea except at the approved locations Allocate labour to clean using brush, shovel or similar and place excess material back onboard of vessels	Prevention of dredged material from releasing into the water column	Project Manager	Barging point	Construction stage	No visible excess material on deck and exposed fittings of vessels
7	During the handling of contaminated/uncontaminated alluvial/marine sediment, maintain adequate freeboard to ensure that decks are not washed by wave action Ensure vessels are not overloaded at all time	Prevention of uncontrolled release of waste material	Project Manager	Barging point / sediment handling	Construction stage	Adequate freeboard as appropriate

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
8	During the handling of contaminated/uncontaminated alluvial/marine sediment, monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. Logs and other records shall be kept and produced to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the Engineer  Establish a global positioning system on board all vessels transporting material for disposal, monitor position of all vessels during transportation	Prevention of uncontrolled waste disposal  (Legal compliance)	Project Manager	Barging point / sediment handling	Construction stage	Logs and records of all vessels movement transporting material for disposal
9	During the handling of contaminated/uncontaminated alluvial/marine sediment, comply with the conditions in the Dumping Licence	Prevention of uncontrolled waste disposal  (Legal compliance)	Project Manager	Barging point / sediment handling	Construction stage	No breach of license condition
10	During the handling of contaminated/uncontaminated alluvial/marine sediment, fit all bottom-dumping vessels (hopper barges) with tight fittings seals to their bottom openings to prevent leakage of material	Prevention of uncontrolled release of waste material	Project Manager	Barging point / sediment handling	Construction stage	Tightness checked in accordance with maintenance schedule

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
11	During the handling of contaminated/uncontaminated alluvial/marine sediment, place the material into the disposal pit by bottom dumping.	Prevention of uncontrolled release of waste material	Project Manager	Barging point / sediment handling	Construction stage	No adverse impacts or complaints
12	During the handling of contaminated/uncontaminated alluvial/marine sediment, transport contaminated marine mud by split barge of not less than 750 m <sup>3</sup> capacity and capable of rapid opening and discharge at the disposal site	Prevention of uncontrolled release of waste material	Project Manager	Barging point	Construction stage	Barge-type approved
13	During the handling of contaminated/uncontaminated alluvial/marine sediment, discharge shall be undertaken rapidly and the hoppers shall be closed immediately	Prevention of uncontrolled release of waste material	Project Manager	Dumping pit	Construction stage	No adverse impacts or complaints
14	During the handling of contaminated/uncontaminated alluvial/marine sediment, material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site Clean using brush, shovel or similar and place material back onboard of vessels	Prevention of uncontrolled release of waste material	Project Manager	Barging point	Construction stage	No adverse impacts or complaints



Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 5</b>
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
<b>Construction and Demolition Material</b>						
1	Opportunity for re-using of fill material for back-filling should be optimized Investigate opportunity to re-use fill material at Contract KDB200 and other projects at Contract start and review proposal periodically. Temporarily stockpile re-usable fill material on-site with appropriate protective measures (eg, cover with impervious sheeting)	Waste management, minimize disposal of material	Project Manager	All construction sites	Construction stage	Quantities of fill material re-used exceed original anticipation
2	Transport excavated material that cannot be recycled to public filling areas Engage licensed waste collectors, incorporate trip-ticket system	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	All construction sites	Construction stage	Record of signed and chopped trip tickets
3	Careful design, planning and good site management to minimize over-ordering and waste material such as concrete, mortar and cement grout	Prevention of generation of waste	Project Manager / Quantity Surveyor	All construction sites	Construction stage	Minimize wastage
4	The design of formwork shall maximize the use of standard wooden panels so that high re-use levels can be achieved. Alternatives such as steel formwork or plastic fencing shall be considered to increase the potential for re-use	Prevention of generation of waste by using recyclable material	Project Manager / Design Engineer	All construction sites	Construction stage	Approved design by KCR Corporation

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
5	Recycle as much as possible of the construction waste on-site. Proper segregation of waste on site to increase the feasibility of recycling certain components of the waste stream by recycling contractors (eg, concrete and masonry can be used as general fill and steel reinforcement bars can be used by scrap-steel mills). Different areas shall be designated for such segregation and storage wherever site conditions permit	Waste management (Unnecessary landfill use)	Project Manager	All construction sites	Construction stage	Minimize construction waste requiring disposal, recycle steel and metals
6	Maintain temporary stockpiles and re-use excavated fill material for back-filling and reinstatement  Temporarily stockpile re-usable fill material on-site with appropriate protective measures (eg, cover with impervious material)	Waste management	Project Manager	All construction sites	Construction stage	No unprotected excavated fill material on-site
7	Stockpile excavated construction and demolition material adjacent for re-use once the tunnel section is completed  Temporarily stockpile excavated material with appropriate protective measures (eg, cover with impervious material) to prevent indirect impacts	Waste management (Unnecessary waste disposal)	Project Manager	All construction sites	Construction stage	All excavated construction and demolition material stockpiled on-site, no unprotected stockpile on-site

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 5
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
8	Deliver surplus artificial hard material to Tuen Mun Area 38 recycling plant or similar for recycling into subsequent useful products  Establish waste flow table at contract start and liaise with recycling plant, engage licensed waste collectors for transportation, incorporate trip-ticket system	Waste management (Unnecessary waste disposal)	Project Manager	All construction sites	Construction stage	Record of signed and chopped trip tickets
9	Use existing bituminous pavement for paving construction access and temporary holding/parking areas  Re-use, as much as practicable, excavated bituminous material	Waste management (Unnecessary disposal)	Project Manager	All construction sites	Construction stage	Minimize disposal of bituminous material
10	Implement on-site sorting and segregation facility for all type of waste generated  Establish a designated waste-handling, collection and sorting area to suit current activities and record location on site-layout plan, segregate main waste streams, eg, steel, inert material, general waste, plastics	Waste management (Unnecessary disposal)	Project Manager	All construction sites	Construction stage	Site layout plan up-to-date and posted on notice board, minimize waste disposed of at landfill

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
11	Dispose the sorted public fill and construction and demolition waste to public filling areas and landfills, respectively Engage licensed waste collectors, incorporate trip-ticket system	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	All construction sites	Construction stage	Record of signed and chopped trip tickets
12	The handling and disposal of bentonite slurries shall be undertaken in accordance with ProPECC PN 1/94. Engage licensed waste collectors, incorporate trip ticket system	Prevention of uncontrolled waste disposal	Project Manager	All construction sites	Construction stage	In accordance with ProPECC PN 1/94, record of signed and chopped trip tickets
13	Recycled aggregates shall be used when appropriate Investigate use of recycled aggregates for use in temporary and permanent works, eg, lower grade concrete	Waste management	Project Manager	All construction sites	Construction stage	In accordance with designer/ Engineer's recommendations
14	Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, when practicable Carefully plan the demolition sequence during the planning phase	Waste management	Project Manager	All construction sites	Construction stage	Maximize broken concrete for recycling purpose

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
15	Implement a trip-ticket system to ensure that the disposal of construction and demolition material is properly documented and verified  Set up a trip-ticket system in accordance with the requirements set out in ETWB TC (W)31/2004, issue trip ticket for each truck load of waste being transported off site and maintain records	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager / Project Environmental Manager	All construction sites	Construction stage	In accordance with Waste Management Plan, record of signed and chopped trip tickets
16	Implement an enhanced Waste Management Plan similar to ETWB TC(W) 15/2003 – “Waste Management on Construction Sites” to encourage on-siting sorting of construction and demolition material and to minimize its generation during the course of construction  Establish a Waste Management Plan at Contract start and have it reviewed periodically throughout the duration of Contract	Waste management (Effective environmental management system)	Project Manager / Project Environmental Manager	All construction sites	Construction stage	Content in accordance with requirements set out in ETWC TC 15/2003

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 5</b>
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
17	Avoid disposal of construction and demolition material onto any sensitive locations (eg, agricultural lands). The Link 200 Joint Venture shall propose the final disposal sites to the Engineer and get his approval before implementation  Define waste disposal locations in the Waste Management Plan. Engage licensed waste collectors, incorporate-trip ticket system	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager / Project Environmental Manager	All construction sites	Construction stage	In accordance with Waste Management Plan, record of signed and chopped trip tickets
<b>Chemical Waste</b>						
1	Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, shall be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes  Establish chemical waste storage facility(s) on the site at Contract start in accordance with regulations	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	Chemical waste storage area	Construction stage	Comply with the Code of Practice on packaging, labelling and storage of chemical waste

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
2	Containers used for the storage of chemical wastes shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 ℓ unless the specification has been approved by the Environmental Protection Department; and display a label in English and traditional Chinese characters in accordance with instructions prescribed in Schedule 2 of the regulation  Incorporate items on routine environmental checklist to check chemical-waste containers are available, in use, labelled and suitably stored	Waste management (Legal compliance)	Project Manager	Chemical waste storage area	Construction stage	Comply with the Code of Practice on packaging, labelling and storage of chemical waste, checked during routine environmental inspection

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 5</b>
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
3	<p>The storage area for chemical waste shall be clearly labelled and used solely for the storage of chemical waste; enclosed on at least three sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible material is adequately separated</p> <p>Label storage areas on the site-layout plan, incorporate items on routine environmental checklist to check chemical waste storage area is available, in use and maintained in good condition</p>	Waste management (Legal compliance)	Project Manager	Chemical waste storage area	Construction stage	Comply with the Code of Practice on packaging, labelling and storage of chemical waste, checked during routine environmental inspection, site layout plan up-to-date and posted on notice board.



Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 5</b>
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
4	Disposal of chemical waste shall be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical-waste collection service and can supply the necessary storage containers; or be to an approved re-user of the waste, under approval from the Environmental Protection Department  Engage licensed waste collectors, incorporate trip-ticket system	Prevention of uncontrolled waste disposal (Legal compliance)	Project Manager	Chemical waste storage area	Construction stage	Record of signed and chopped trip tickets
<b>Sewage</b>						
1	Adequate numbers of portable toilets shall be provided for the workers. The portable toilets shall be maintained in a state that will not deter workers from using them. Night soil shall be collected by licensed collectors regularly  Install and utilize chemical toilets at locations where regular toilets are not accessible to the workforce, number to suite number of workers and stage of construction, establish maintenance schedule	Waste management (Legal compliance, complaints)	Project Managers	All construction sites	Construction stage	Chemical toilets provided by licensed contractor, maintained in accordance with maintenance schedule

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 5
Environmental Aspect: Waste and Chemical Management					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
<b>General Refuse</b>						
1	General refuse generated on-site shall be stored in enclosed bins or compaction units separately from construction and chemical waste  Establish separate waste skips for collecting general refuse on-site, label locations on the site-layout plan	Waste management (Legal compliance, complaints)	Project Manager	All construction sites	Construction stage	In accordance with the site-layout plan; site-layout plan up-to-date and posted on notice board, located away from construction and chemical waste
2	A reputable waste collector shall be employed by the Link 200 Joint Venture to remove general refuse from the site, separately from construction and chemical waste, on a daily basis to minimize odour, pest and litter impacts  Establish waste collection schedule, only engage reputable waste collectors	Waste management (Legal compliance, complaints)	Project Manager	All construction sites	Construction stage	No over loaded waste skips, maintained in accordance with maintenance schedule
3	Prohibit open burning of refuse on-site  Include this requirement in site induction training material and tool-box meetings	Waste management (Legal and contract compliance and air pollution)	Project Manager	All construction sites	Construction stage	No open burning on-site throughout the Contract duration.

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
4	<p>Recover aluminium cans from the waste stream. Provide separate labelled bins for their deposit if feasible</p> <p>Establish recycling bins on-site, label locations on the site-layout plan, engage reputable recyclers for collection.</p> <p>Include this requirement in site induction training material and tool-box meetings</p>	<p>Waste management (Improve worker awareness and visual impact)</p>	Project Manager	All construction sites	Construction stage	Site-layout plan up-to-date and posted on notice board, improved awareness of workforce
5	<p>Office waste can be reduced through the recycling of paper if volumes are large enough to warrant collection. The Link 200 Joint Venture should consider participation in a local collection scheme. In addition, waste separation facilities for paper, aluminium cans and plastic bottles should be provided.</p> <p>Establish separate recycling bins for paper, plastic and cans on site, label locations on the site-layout plan, engage reputable recyclers for collection.</p> <p>Include this requirement in site induction training material and tool-box meetings</p>	<p>Waste management (Improve worker awareness and visual impact)</p>	Project Manager	All construction sites	Construction stage	Site-layout plan up-to-date and posted on notice board, improved awareness of workforce

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 5</b>
<b>Environmental Aspect:</b> Waste and Chemical Management					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
6	Provide training to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, re-use and recycling of waste Establish training schedule	Waste management, health and hygiene (Improve worker awareness and visual impact)	Project Environmental Manager / Safety Officer	All construction sites	Construction stage	In accordance with training schedule, improved awareness of workers, 100% workers trained

## **Appendix 11**

### **Not Used**

## **Appendix 12**

### **Environmental Control Plan ECP 7 – Ecological Resources**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 7</b>
<b>Environmental Aspect:</b> Ecological Resources					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
1	No ecological impact was identified for the Canton Road Scheme according to Table 3.6 of the EIA report.	N/A	N/A	N/A	N/A	N/A	

## **Appendix 13**

### **Environmental Control Plan ECP 8 – Landscape Preservation and Visual**



Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 8</b>
Environmental Aspect: Landscape Preservation and Visual					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
1	The construction area and temporary works areas shall be minimized to avoid impacts on adjacent landscape Reduce space that is required to carry out the construction, define boundary of construction area and temporary works areas on site layout plan	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Works carried out within boundary defined on site-layout plan
2	Existing trees within temporary works areas should be retained and protected when practical Erect fence around existing trees for protection or transplant trees that are unavoidably affected by the construction works	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	No damage to existing trees, no tree cutting Protection maintained
3	Carry out checks regularly to ensure that the work site boundaries are not transgressed, hoardings are properly maintained and that no damage is being caused to the surrounding landscape areas Incorporate items on routine environmental monitoring checklist	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	In accordance with site-layout plan, site-layout plan up-to-date and posted on notice board, items checked during each routine environmental inspection

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 8
Environmental Aspect: Landscape Preservation and Visual					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
4	<p>Topsoil, when identified, shall be stripped and stored for re-use in the construction of the soft-landscape works, when practical. The Link 200 Joint Venture shall identify at the start of the Contract any existing topsoil for preservation, storage and re-use, for review by the Engineer</p> <p>Label areas where topsoil is to be preserved on drawings, store stripped topsoil at area away from other excavated material and with appropriate protective measure (eg, covered with impervious sheeting)</p>	Prevent adverse impact on the environment	Project Manager	All construction Sites	Construction stage	In accordance with drawings and preservation, storage and re-use requirements agreed by the Engineer
5	Reduce the potential of soil erosion by minimizing the extent of vegetation disturbance on-site and by providing a protective cover (eg, plastic sheeting or a grass cover established by hydroseeding) over newly exposed soil	Prevention of landscape and visual impacts (Soil erosion control)	Project Manager	All construction Sites	Construction stage	No unprotected exposed slope

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 8</b>
<b>Environmental Aspect:</b> Landscape Preservation and Visual					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
6	All works shall be carefully designed to minimize impacts on existing trees Investigate the locations of all trees in the vicinity of any permanent work to be carried out and take the information collected into account during any design works	Prevention of landscape and visual impacts	Project Manager / Design Engineer	All construction Sites	Construction stage	Evidence of consideration taken during design activities
7	All retained trees, including the Champion Trees along Hoiphong Road, shall be recorded photographically at the start of the Contract, and carefully protected during construction by fencing them off from the rest of the works Assign staff to take photographs of all retained trees at Contract start, erect fence around trees for protection and take photographs for record keeping	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Photographs of all trees prior to any protection work and with protective measures
8	Locations for transplants shall be identified by and agreed with relevant government departments and private landowners Prepare drawings to define locations for transplantation	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 8</b>
<b>Environmental Aspect:</b> Landscape Preservation and Visual					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
9	Submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in the Link 200 Joint Venture's works areas	Prevention of damage to retained trees	Project Manager	All construction Sites	Construction stage	Works adjacent to all retained trees are carried out in accordance with approved method statement
10	Trees unavoidably affected by the works shall be transplanted where practical. Sufficient time for necessary tree root and crown preparation periods prior to moving the trees shall be allowed in the project programme. Numbers of trees to be retained, transplanted and felled shall be determined and agreed separately with the relevant government departments during the Tree Felling Application process  Apply for tree felling/transplantation from relevant government department. Establish tree transplantation schedule	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Transplanted in accordance with ETWB TC 14/2002 and transplantation schedule

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. ECP 8
Environmental Aspect: Landscape Preservation and Visual					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
11	If potential destination locations cannot be found by the time the trees are removed from site, they will be located to a holding nursery until destination locations are found. If no locations outside the project area can be found, they will be stored in the holding nursery for the duration of the Contract and transplanted back into the project area at the end of the project	Prevention of landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Trees maintained in good and healthy condition during uprooting and transportation
12	Cover large temporary stockpiles of excavated material, with visually unobtrusive sheeting (in subdued camouflage colour tone) when practicable, to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance  All stockpiles securely covered, establish and implement site tidiness and cleanliness checklist	Prevention of dust, landscape and visual impacts	Project Manager	All construction Sites	Construction stage	No unprotected stockpiles, inspection carried out in accordance with site tidiness and cleanliness checklist
13	Control night lighting and prevent glare to surrounding sensitive receivers by directing all security lighting downward into works sites and works areas	Prevention of visual impacts such as glare	Project Manager	All construction Sites	Construction stage	No visible glare to surrounding visual-sensitive receivers

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 8</b>
<b>Environmental Aspect:</b> Landscape Preservation and Visual					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
14	Provide clean and tidy hoardings. Adopt good site practice to ensure that the conditions of the hoardings are properly maintained throughout the construction period  Establish routine environmental checklist, allocate labour to clean and tidy hoardings	Prevention of visual impacts	Project Manager	All construction Sites	Construction stage	No visible dirt and damages on hoardings, cleanliness and tidiness of hoardings checked in accordance with routine environmental checklist and maintained accordingly
15	Design temporary noise barriers to minimize adverse visual impacts on to surrounding sensitive receivers  Incorporate camouflaged colour tone in temporary noise-barrier design when practicable	Prevention of visual impacts	Project Manager	All construction Sites	Construction stage	No significant visual impacts on adjacent visual-sensitive receivers
16	Maximize the preservation of trees of high-amenity value  No more than 105 trees of high-amenity value out of the 1,200 trees to be felled or transplanted	Minimize landscape and visual impacts	Project Manager	All construction Sites	Construction stage	In accordance with the Environmental Impact Assessment Ordinance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 8</b>
<b>Environmental Aspect:</b> Landscape Preservation and Visual					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
17	Transplant a minimum of 80% of the affected trees of high-amenity value Establish Tree Transplantation Schedule	Minimize landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Transplanted in accordance with ETWB TC 14/2002 and transplantation schedule
18	Destination locations for the transplants and agreement for transplantation shall be resolved and agreed with relevant department in advance. Potential destination locations include: - roadside landscape areas in West Kowloon; - vacant lots in West Kowloon coned for development as public open space, and - existing public open spaces Apply for tree felling/transplantation from relevant government department	Minimize landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Transplanted in accordance with ETWB TC 14/2002 and transplantation schedule

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>	
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b>	<b>ECP 8</b>
<b>Environmental Aspect:</b> Landscape Preservation and Visual					<b>Contract No:</b> KDB200 (H2298)		
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>	
19	Incorporate compensatory tree planting along all roadside amenity areas and into any public open spaces affected by the construction works. Determine and agree with government the required numbers and locations, as well as the maintenance responsibility of compensatory trees during the Tree Felling Application Apply for tree felling/transplantation from relevant government department Establish Tree Transplantation Schedule	Minimize landscape and visual impacts	Project Manager	All construction Sites	Construction stage	Transplanted in accordance with ETWB TC 14/2002 and transplantation schedule	



**Appendix 14**  
**Environmental Control Plan ECP 9 – Archaeological and Historical**  
**Resources**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 9</b>
<b>Environmental Aspect:</b> Archaeological and Historical Resources					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
1	Before the start of the construction work, consult the Antiquities and Monuments Office on any other mitigation measures that would be required administratively or under the Antiquities and Monuments Ordinance and implement those requirements during the construction period  Consult the Antiquities and Monuments Office at Contract start and incorporate additional mitigation measures, when identified, in environmental control plans	Prevention of impacts on antiques and monuments	Project Manager	All construction Sites	Construction stage	Environmental control plans updated accordingly
2	Precautions shall be taken during the bored tunnelling to prevent any damage to the historic buildings. Structural monitoring system shall be designed and supervised by a registered structural engineer from the Link 200 Joint Venture during the period for bored tunnelling	Prevention of impacts on historical buildings	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	In accordance with requirement set out in the Building Ordinance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 9</b>
<b>Environmental Aspect:</b> Archaeological and Historical Resources					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
3	Conduct structural monitoring on the Former Marine Police Headquarters Liaise with the Former Marine Police Headquarters developer to coordinate monitoring, engage an environmental team for structural monitoring, procure and provide environmental monitoring equipment for the Engineer	Prevention of impacts on historical buildings	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	In accordance with requirement set out in the Building Ordinance
4	Details of the monitoring system, including the coordination with the Former Marine Police Headquarters developer, shall be submitted to the Antiquities and Monuments Office for approval before the bored tunnelling starts	Submission	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	Proposal approved by the Antiquities and Monuments Office
5	Any proposed site works (including ground investigation and tunnelling work) and structural monitoring measures within the boundary of the declared monument needs to comply with the requirements under Section 6 of the Antiquities and Monument Ordinance	Prevention of impacts on monuments	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	Works carried out in accordance with the requirements set out in Section 6 of Section 6 of the Antiquities and Monument Ordinance

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 9</b>
<b>Environmental Aspect:</b> Archaeological and Historical Resources					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
6	Conduct structural monitoring on the Old Fire Station Building Coordinate monitoring, engage an environmental team for structural monitoring, procure and provide environmental monitoring equipment for the Engineer	Prevention of impacts on historical buildings	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	In accordance with requirement set out in the Building Ordinance
7	To make available five (5) sets of as-built drawing(s) within 1 month after the completion of the tunnelling works underneath the Former Marine Police Headquarters (FMPHQ) to confirm the vertical separation of 6-16m between the tunnels and the heritage elements in the FMPHQ compound is maintained. There shall be no physical contact with the Old Fire Station Buildings (OFSB) during construction. For the tunnel section underneath FMPHQ, a clear separation of about 6m between the tunnels and the OFSB, and 16m from the FMPHQ Main Building shall be maintained.	Prevention of impacts on historical buildings	Project Manager	Former Marine Police Headquarters, old fire-station buildings and tunnel	Construction stage	In accordance with requirement set out in the EP and FEP

## **Appendix 15**

### **Environmental Control Plan ECP 10 – Land Contamination**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 10</b>
<b>Environmental Aspect:</b> Land Contamination					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
1	The Link 200 Joint Venture shall follow the requirements for remediation works as specified in the Environmental Impact Assessment Report. The Link 200 Joint Venture shall, at its own cost, implement those remediation works, carry out additional assessments, if required, and liaise with the relevant authorities	Compliance with Environmental Impact Assessment and avoidance of adverse impacts	Project Manager	Contaminated area	Construction stage	Compliance with Environmental Impact Assessment
2	Excavated contaminated soils shall not be stockpiled on site, but shall immediately be loaded onto trucks and taken to the chosen landfill site Have trucks standby by during excavation and load skip with contaminated soil directly, engage licensed waste collectors, incorporate trip ticket system	Prevention of contamination of land	Project Manager	Contaminated area	Construction stage	No stockpile of contaminated soil on-site, records of signed and stamped trip ticket

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 10</b>
<b>Environmental Aspect:</b> Land Contamination					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
3	Adequately cover all trucks carrying contaminated material with sheet to prevent dispersion of contaminants on the way to the landfill site  Cover all truck with impervious sheeting, tarpaulin or similar, ensure tail gate is securely locked; check each trucks prior to leaving site	Prevention of public road contamination	Project Manager	Contaminated area	Construction stage	Visual check by gate attendant or other assigned personnel
4	The Link 200 Joint Venture shall obtain a valid Water Pollution Control Ordinance discharge license from the Environmental Protection Department when applicable  Refer to Environmental Control Plan – Water Quality for details	Prevention of water pollution (Legal compliance)	Project Manager	Contaminated area	Construction stage	Discharge license issued by the Environmental Protection Department
5	Carry out the remediation works under the supervision of a 7-years' experienced on-site decontamination specialist. All relevant method statements prepared shall be reviewed and approved by the decontamination specialist before proceeding with the works	Prevention of contamination of land	Project Manager	Contaminated area	Construction stage	In accordance with the procedure set out in Section 7.2 of the Environmental Protection Department's Guidance Note and other ordinances relevant to the works

Environmental Control Plan						Link 200 Joint Venture
Contract Name: West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						Plan No. <b>ECP 10</b>
Environmental Aspect: Land Contamination					Contract No: KDB200 (H2298)	
Item	Required Mitigation Measures and Operational Controls	Objectives of Measures (concerns to address)	Action by	Location and Activity	Frequency or Duration	Performance Standard to be Achieved
6	Should the soil contamination following excavation be more extensive than envisaged, a confirmatory test shall be carried out following excavation at each location, in order to confirm that all contaminated material has been removed	Prevention of contamination of land	Project Manager	Contaminated area	Construction stage	The confirmatory test will consist of five samples in each location, situated immediately to the north, south, east and west of each location, and at the base of the excavation
7	If the concentrations of contaminants exceed the Dutch B Level, the area of excavation shall be extended, and further confirmatory testing shall be carried out following that excavation. The area of excavation should be extended by a further 5-m radius in the quadrant where the contaminated sample is encountered or by a further 0.5-m depth if the contaminated sample is from the base of the excavation	Prevention of contamination of land	Project Manager	Contaminated area	Construction stage	This procedure shall be followed until no further contamination is encountered



## **Appendix 16**

### **Environmental Control Plan ECP 11 – Miscellaneous Controls**

<b>Environmental Control Plan</b>						<b>Link 200 Joint Venture</b>
<b>Contract Name:</b> West Kowloon Station and Tunnels, Jordan Road to East Tsim Sha Tsui Station						<b>Plan No.</b> <b>ECP 11</b>
<b>Environmental Aspect:</b> Miscellaneous Controls					<b>Contract No:</b> KDB200 (H2298)	
<b>Item</b>	<b>Required Mitigation Measures and Operational Controls</b>	<b>Objectives of Measures (concerns to address)</b>	<b>Action by</b>	<b>Location and Activity</b>	<b>Frequency or Duration</b>	<b>Performance Standard to be Achieved</b>
1	Make sure that appropriate Contract conditions regarding environmental management are included in subcontracts and purchase orders	Subcontractor/supplier aware of requirements (Non-performance of subcontractor/supplier)	Project Manager / Quantity surveyor	All construction sites	Construction stage	Procurement documents include necessary requirements
2	Carry out tree condition survey and identify and protect trees when necessary	Flora management (Contractual requirement)	Project Manager	All construction sites	Construction stage	Mitigation measures implemented, no damage to retained trees
3	Carry out routine monitoring of site and perimeter to check tidiness and visual impact	Site maintained in a clean and tidy condition	Project Manager	All construction sites	Construction stage	Weekly inspection conducted and recorded

## **Appendix 17**

### **Environmental Monitoring Checklist**

**Link 200 JV**  
**KCRC Kowloon Southern Link**  
**Contract KDB200**  
**WEEKLY SITE INSPECTION CHECKLIST**

Inspection Date	<input style="width: 100%;" type="text"/>	Time	<input style="width: 100%;" type="text"/>	Inspected By	<input style="width: 100%;" type="text"/>
Site Location	<input style="width: 100%;" type="text"/>				

**Weather**

Condition	<input type="checkbox"/> Sunny	<input type="checkbox"/> Fine	<input type="checkbox"/> Overcast	<input type="checkbox"/> Drizzle	<input type="checkbox"/> Rain	<input type="checkbox"/> Storm	<input type="checkbox"/> Hazy
Temperature	<input style="width: 100%;" type="text"/>		Humidity	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Wind	<input type="checkbox"/> Calm	<input type="checkbox"/> Light	<input type="checkbox"/> Breeze	<input type="checkbox"/> Strong	<input type="checkbox"/> Direction	<input style="width: 100%;" type="text"/>	

		N/A or not observed	Yes	No	Photo/Remarks
<b>Construction Methodologies – Operation of TBM</b>					
S4.3.3	• Is the spoil transfer system enclosed to suppress dust emission?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are spoil transfer points and hopper discharge areas enclosed to control dust emission?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• At the fixed transfer point, a three-sided roofed enclosure with a flexible curtain and exhaust fans provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
S4.3.3	Valid Construction Noise Permit (CNP) for bored tunneling works during restricted hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Construction Dust</b>					
S5.6	• Is exposed spoil watered				
	- at least four times a day for WKN during excavation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	- at least twice a day for other sections?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are excavated or stockpiled dusty materials covered or sprayed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Does any stockpile of dusty materials extend beyond pedestrian barriers, fencing or traffic cones?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are dusty material loads on vehicles covered before leaving site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are vehicle washing facilities with high pressure water jet provided at every discernible or designated vehicle exit point?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are hoardings of not less than 2.4m high provided along the site boundary with provision for public crossing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

		N/A or not observed	Yes	No	Photo/Remarks
	• Are main haul roads paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Is the portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Are surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place sprayed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Are areas involving demolition activities sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Where a scaffolding is erected around the perimeter of a building under construction are effective dust screens, sheeting or netting provided to enclose the scaffolding from the ground floor level of the building, or a canopy from the first floor level up to the highest level of the scaffolding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Are skip hoists for material transport totally enclosed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Are bags of cement or dry pulverised fuel ash (PFA) (>20bags) covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Is cement or dry PFA delivered in bulk stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Is loading, unloading, transfer, handling or storage of bulk cement or dry PFA carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S4.4.2, S5.3 & S5.6	For the barging facility are the following features implemented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• All road surfaces within the barging facility paved?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Dust enclosures provided along the loading ramps to avoid dust dispersion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Vehicles pass through designated wheel washing facilities before leaving the barging facility?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• All exposed areas within barging point wetted with water twice a day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Construction Noise</b>					
S6.1.2.7	Are following measures for the operation of launching shaft near WKN being implemented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Ventilation fan shall be installed with an sound attenuator to reduce noise impacts by 15dB(A)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Enclosures with 10dB(A) reduction shall be installed for spoil conveyance system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Motor of the gantry shall be screened to provide a noise reduction of 5dB(A)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• Use of quieter plant to alleviate the noise impacts at the launching shaft?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		N/A or not observed	Yes	No	Photo/Remarks
	• Noise insulating cover (with 22dB(A) noise reduction) for launching shaft shall be closed during night time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	2) Are the following good site practices to limit noise emissions being considered:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• mobile plant should be sited as far away from NSRs as possible and practicable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	• material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	3) Are temporary hoardings of 2.4m high installed between noisy construction activities and NSRs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	4) Are movable noise barriers installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	5) Is liaison with the school representative(s) including, but not limited to Lai Chak Middle, Canton Road Government, Yau Ma Tei Catholic Primary, HKMA David Li Kwok Po College, and the planned schools that would receive student intake during the construction of the KSL (e.g. secondary school at junction of Hoi Wang Road and post secondary college at junction of Hoi Ting Road and Hoi Wang Road), taking place to obtain the examination schedule and avoid noisy construction activities during school examination period?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	6) Is "quiet plant" which complies with the BS 5228 Part 1, TM standards or EP condition 3.5 selected ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.4	7) Is sequencing of operation of construction plant being implemented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.6	8) Are temporary noise barriers for specific plant items including dump truck/lorries, concrete lorry mixers, concrete pump trucks, etc. (see Figure A14-2) installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.6	9) Has any ground treatment for the section along Canton Road, been undertaken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.6	10) Has consultation with the school representatives re rescheduling school vacations been undertaken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S6.1.2.7 & S6.1.9	12) Is a noise insulating cover installed at the launching shaft?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Construction Groundborne Noise</b>					
S7.2.6	1) Has the hotline between the HKCC and HKSM operator been established?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

		N/A or not observed	Yes	No	Photo/Remarks
	2) Is groundborne noise monitoring at HKCC and HKSM for rock breaking activities being undertaken in front of HKCC and HKSM?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Construction Water</b>					
S8.4.2	1) Are site practices outlined in ProPECC PN 1/94 being observed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Construction Runoff and Site Drainage</b>					
S8.4.2	• Are perimeter cut-off drains to direct off-site water around the site constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers provided on site to direct stormwater to silt removal facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are dikes or embankments for flood protection implemented around the boundaries of earthwork areas. Are sediment/silt traps incorporated in the permanent drainage channels to enhance deposition rates?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are silt removal facilities provided with retention time for silt/sand traps of 5 minutes under maximum flow conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are construction works programmed to minimize surface excavation works during the rainy seasons (April to September)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are slopes minimised and erosion potential reduced?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Is deposited silt and grit removed regularly and disposed of by spreading evenly over stable, vegetated areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are measures taken to minimise the ingress of site drainage into excavations? Is water pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50 m3 covered with tarpaulin or similar fabric during rainstorms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are manholes (including newly constructed ones) adequately covered and temporarily sealed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are precautions taken before rainstorms?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are all vehicles and plant cleaned before leaving site? Is sand/silt settled out and removed from wheel washing facility on a weekly basis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are oil interceptors provided in the site drainage system downstream of any oil/fuel pollution sources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Is solid waste, debris and rubbish on site appropriately collected, handled and disposed of properly to avoid water quality impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are all fuel tanks and storage areas provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Tunnelling Works</b>					
_____					

		N/A or not observed	Yes	No	Photo/Remarks
S8.4.2	<ul style="list-style-type: none"> <li>Are cut and cover tunnelling works conducted incrementally to limit the amount of construction runoff generated from exposed areas during the wet season (April to September)?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Are pumped discharge, including groundwater seepage pumped out of tunnels, passing through settlement tanks prior to off-site discharge?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Is wastewater from tunnelling work treatment before discharge? Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Is bentonite slurry reconditioned and reused wherever practicable? Are temporary storage locations (typically a properly closed warehouse) provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Is sufficient space provided for treatment of wastewater, including settlement of suspended solids and grease removal, prior discharge?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<b>Sewage Effluent</b>				
S8.4.2	1) Are portable chemical toilets and sewage holding tanks provided? Is handling the construction sewage generated for collection and disposal of this waste? Is a licensed contractor employed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<b>Groundwater from Contaminated Areas</b>				
S8.4.2	<ul style="list-style-type: none"> <li>Contaminated groundwater from dewatering process should be recharged back into the ground at the discharge wells</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Free products shall be removed by installing the petrol interceptor prior to recharge</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Are the groundwater recharging wells selected at those places where groundwater quality will not be affected by the recharge operation?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Are groundwater monitoring wells installed to monitor the effectiveness of the recharge wells?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>During the recharge period, is the groundwater level at the monitoring well monitored to ensure that there is no likelihood of locally risen groundwater level and transfer of pollutants beyond the site boundary?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Is the groundwater treated to the baseline level or lower if the pollutants of the recharging groundwater (after petrol interceptor) exceed the baseline limit?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Is the discharge license under the WPCO for groundwater recharge operation in place?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<b>Waste Management (Construction Waste)</b>				
S9.2.10	Is the WMP in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
S9.2.10	2) Are the following waste management criteria being applied?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Avoidance and minimisation (not generating waste through changing or improving practices and design);</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____



		N/A or not observed	Yes	No	Photo/Remarks
	• Reuse of materials, thus avoiding disposal (generally with only limited reprocessing);	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Recovery and recycling, thus avoiding disposal (although reprocessing may be required); and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Treatment and disposal, according to relevant regulations, guidelines and good practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
S9.2.10	3) Storage, Collection and Transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are wastes stored and handled in a manner which ensures that they are held securely without loss or leakage, thereby minimising the potential for pollution?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are wastes removed in a timely manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are waste storage areas clean and well maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in an enclosed container;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and the Land (Miscellaneous Provisions) Ordinance (Cap 28) in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are trip tickets for disposal available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Are records of the quantities of wastes generated, recycled and disposed maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Contaminated Soil and Marine Deposit</b>					
S9.2.10 & S9.2.3.4	• Is contaminated soil disposed in landfill site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Is non-contaminated alluvial and marine deposits being transported by leak proof covered trucks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	• Contaminated marine deposit shall be disposed in confined mud pits. Possible mitigation measures to handle the contaminated / uncontaminated alluvial / marine sediment are summarized as follows:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	- All construction plant and equipment shall be designed and maintained to minimise the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	- All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	- Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	- Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

	N/A or not observed	Yes	No	Photo/Remarks
- The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the Engineers.				
- The Contractors shall comply with the conditions in the dumping licence.				
- All bottom dumping vessels (hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material.				
- The material shall be placed into the disposal pit by bottom dumping.				
- Contaminated marine mud shall be transported by split barge of not less than 750m3 capacity and capable of rapid opening and discharge at the disposal site.				
- Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.				
<b>Construction and Demolition Material</b>				
• Is fill material for back filling being reused?				
• Are excavated materials that cannot be recycled should be transported to public filling areas?				
• Are materials separated and recycled?				
• Are temporary stockpiles and excavated fill material re-used for backfilling and reinstatement?				
• Is excavated C&D material stockpiled adjacent to its source for immediate backfill once the cut and cover tunnel section is completed?				
• Are surplus artificial hard materials delivered to Tuen Mun Area 38 recycling plant?				
• Is existing bituminous pavement used for paving construction access and temporary holding / parking areas?				
• Is on-site sorting and segregation being practiced?				
• Is a trip-ticket system implemented for the disposal of C&D materials.				
<b>Chemical Waste</b>				
S9.2.10 • Is chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, being handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes?				

		N/A or not observed	Yes	No	Photo/Remarks
	<ul style="list-style-type: none"> <li>Are containers used for the storage of chemical wastes suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation?</li> </ul>				
	<ul style="list-style-type: none"> <li>Is the storage area for chemical wastes clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated?</li> </ul>				
	<ul style="list-style-type: none"> <li>Is disposal of chemical waste via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD?</li> </ul>				
<b>Sewage</b>					
S9.2.10	<ul style="list-style-type: none"> <li>Are adequate numbers of portable toilets provided for the workers? The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.</li> </ul>				
<b>General Refuse</b>					
S9.2.10	<ul style="list-style-type: none"> <li>Is general refuse generated on-site stored in enclosed bins or compaction units separately from construction and chemical wastes?</li> </ul>				
	<ul style="list-style-type: none"> <li>Is a reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law?</li> </ul>				
	<ul style="list-style-type: none"> <li>Are aluminium cans recovered from the waste stream and collected separate labelled bins?</li> </ul>				
	<ul style="list-style-type: none"> <li>Are office wastes reduced through the recycling of paper?</li> </ul>				
	<ul style="list-style-type: none"> <li>Are training provided to workers on site cleanliness &amp; waste management procedure?</li> </ul>				
<b><u>Landscape &amp; Visual (Construction Phase)</u></b>					
S11.5.4 & S11.6.2 & S11.8.1	1) Ref. CM1 -The construction area and contractor's temporary works areas shall be minimised to avoid impacts on adjacent landscape. Existing trees within contractor's temporary works areas should be retained and protected where practical (see also CM5 and CM6).				
S11.5.4 & S11.6.2 & S11.8.1	2) Ref. CM2 - Regular checks shall be carried out to ensure that the work site boundaries are not transgressed, hoardings are properly maintained and that no damage is being caused to the surrounding landscape areas.				

		N/A or not observed	Yes	No	Photo/Remarks
S11.5.4 & S11.8.1	3) Ref. CM3 - Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical. The Contract Specifications shall include for identification, storage and reuse of topsoil as appropriate. Under the Specification, the Contractor shall be required to identify at the commencement of the contract any existing topsoil for preservation, storage and re-use, for comment and approval by the Engineer.				
S11.5.4 & S11.6.2 & S11.7.1	4) Ref. CM4 -The potential for soil erosion shall be reduced by minimising the extent of vegetation disturbance on site and by providing a protective cover (e.g. plastic sheeting or a grass cover established by hydroseeding) over newly exposed soil.				
S11.5.4 & S11.7.1	5) Ref. CM5 - All works shall be carefully designed to minimise impacts on existing trees. All retained trees shall be recorded photographically at the commencement of the contract, and carefully protected during construction by fencing them off from the rest of the works. A detailed Tree Protection Specification shall be provided in the Contract Specifications. Under this pecification, the Contractor shall be required to submit, for approval, a detailed Working Method Statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. The project proponent shall review the site works in order to maximize the preservation of the trees of high amenity value in situ. A total of no more than 1200 trees shall be affected (i.e. felled or transplanted) by the works, of which no more than 105 shall be of high amenity value.				
S11.5.4 & S11.7.1	6) Ref. CM6 -The project proponent shall maximize the transplantation of trees of high amenity value if preservation in situ is not feasible. A detailed Tree Transplanting Specification shall be provided in the Contract Specifications, if applicable. Sufficient time for necessary tree root and crown preparation periods prior to moving the trees shall be allowed in the project programme. Precise numbers of trees to be retained, transplanted and felled shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 14/2002. (See also OM2 and OM3). However, a minimum of 80% of the affected trees of high amenity value shall be transplanted. Destination locations for the transplants and arrangement for transplantation shall be resolved and agreed with relevant department in advance. Potential destination locations include:				
	<ul style="list-style-type: none"> <li>Roadside landscape areas in West Kowloon;</li> </ul>				
	<ul style="list-style-type: none"> <li>Vacant lots in West Kowloon zoned120</li> <li>for development as public open space; and</li> </ul>				
	<ul style="list-style-type: none"> <li>Existing public open spaces.</li> </ul>				
	If potential destination locations cannot be found by the time the trees are removed from site, they will be located to a holding nursery until destination locations are found. If no locations outside the project area can be found, they will be stored in the holding nursery for the duration of the contract and transplanted back into the project area at the end of the project.				
S11.5.4 & S11.6.2 & S11.7.1	7) Ref CM7 - Large temporary stockpiles of excavated material shall be covered with visually unobtrusive sheeting (in subdued 'camouflage' colour tone) to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.				

		N/A or not observed	Yes	No	Photo/Remarks
S11.6.2 & S11.7.1	8) Ref. CM8 -Control night lighting and prevent glare to surrounding VSRs by directing all security lighting downward into works sites and works areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S11.6.2 & S11.7.1	9) Ref. CM9 – Clean & tidy hoardings shall be provided. Good site practice will be adopted by the contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
S11.6.2 & S11.7.1	10) Ref CM10 -Temporary noise barriers shall be designed to minimise adverse visual impacts on adjacent VSRs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b><u>Cultural Heritage</u></b>					
S12.6.1	1) Has AMO been consulted on any other mitigation measures that would be required administratively or under the Antiquities and Monuments Ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## **Appendix 18**

### **In-house Procedures**

**MP-019 CORRECTIVE ACTION**

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## MP-019 CORRECTIVE ACTION

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### **Purpose**

To describe the method to be used to identify and correct conditions that are adverse to project delivery and service provision.

### **Scope**

Applies to:

- conditions considered adverse to project delivery and service provision including those related to the management and performance of quality, environmental, health and safety aspects;
- conditions that have caused breaches of statutory requirements, and
- conditions that have caused nonconforming product.

The procedure does not apply to conditions requiring corrective action required at the company's head office. Those conditions are identified, evaluated and controlled as part of the management review and auditing procedures.

### **Policy**

- Project staff (including all construction and engineering personnel) are responsible for the identification and recording of adverse conditions requiring corrective action
- Project staff are responsible for determining and recording the action to rectify the nonconformance and the adverse condition to prevent recurrence
- Reporting of corrective action is carried out by completing a corrective action request
- The authorisation of the corrective action request including details of the required action and assignment of responsibilities is carried out by the Project Manager
- Review and where appropriate re-inspection is carried out to verify completion and effectiveness of the corrective action.

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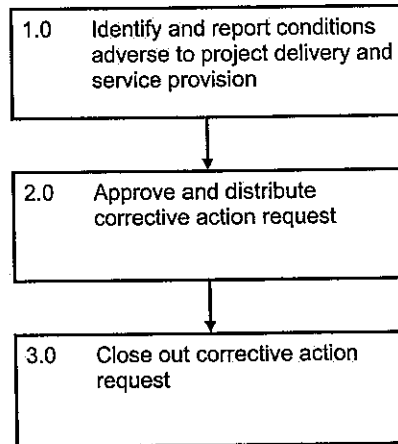


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**Core Task Description**



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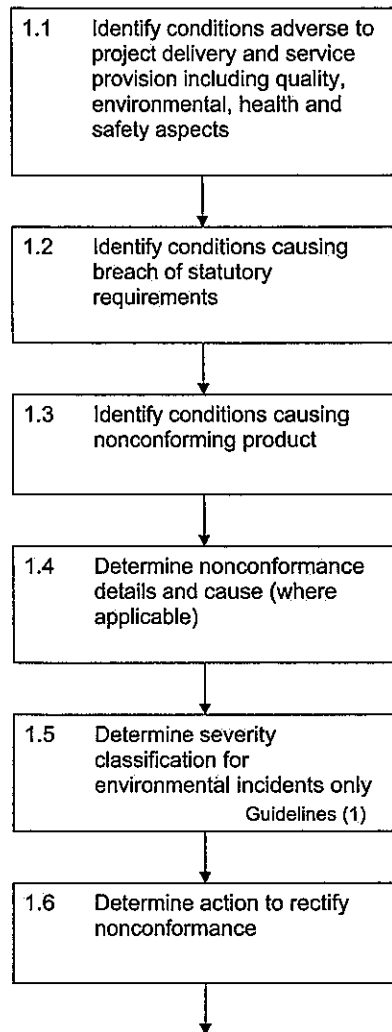
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**Detailed Task Description**

**Identify and Report Adverse Conditions**



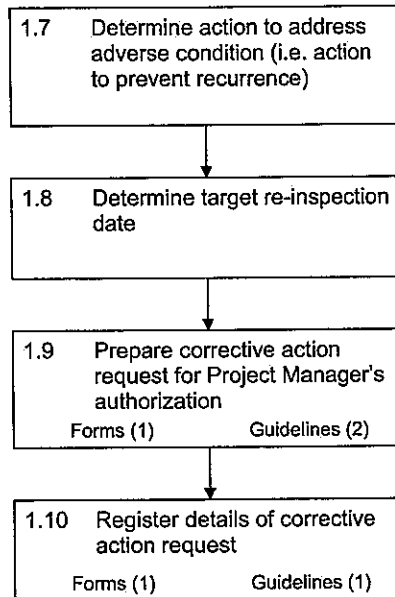
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**CORRECTIVE ACTION**

**Identify and Report Adverse Conditions - continuation**

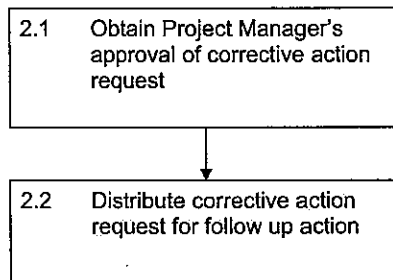


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**Approve and Distribute Corrective Action Request**



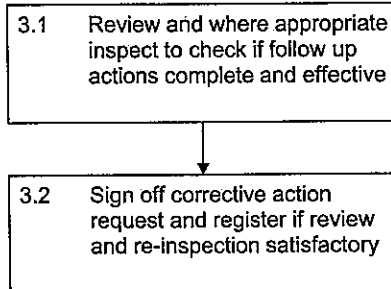
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**Close Out Corrective Action Request**



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**Standard Forms**

**Identify and Report Adverse Conditions**

- Corrective Action Request (1.9) [Word Format | PDF Format]
- Corrective Action Register (1.10) [Word Format | PDF Format]

**Approve and Distribute Corrective Action Request**

Nil

**Close Out Corrective Action Request**

Nil

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**Guideline Documents**

**Identify and Report Adverse Conditions**

- Details of Environmental Impact Classification (1.5) [PDF Format]
- Example of Corrective Action Request –Quality (1.9) [PDF Format]
- Example of Corrective Action Request - Environment (1.9) [PDF Format]
- Example of Corrective Action Register (1.10) [PDF Format]

**Approve and Distribute Corrective Action Request**

Nil

**Close Out Corrective Action Request**

Nil

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**MP-019 CORRECTIVE ACTION**

**Typical Responsibility Allocation**

Item	Activity	Project Manager Administration	Construction Engineering	General Manager Administration	Business Development	Construction Engineering
1.1	Identify conditions adverse to project delivery and service provision including quality, environmental, health and safety aspects	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	
1.3	Identify conditions causing nonconforming product		<input type="radio"/>	<input checked="" type="radio"/>		
1.5	Determine severity classification for environmental incidents only				<input checked="" type="radio"/>	
1.7	Determine action to address adverse condition (i.e. action to prevent recurrence)		<input type="radio"/>	<input checked="" type="radio"/>		
1.9	Prepare corrective action request for Project Manager's authorisation		<input type="radio"/>	<input checked="" type="radio"/>		
2.1	Obtain Project Manager's approval of corrective action request	<input checked="" type="radio"/>		<input type="radio"/>		
3.1	Review and where appropriate inspect to check if follow up actions complete and effective		<input type="radio"/>	<input checked="" type="radio"/>		

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**MP-020            AUDITING**

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## MP-020            AUDITING

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### **Purpose**

To describe the method used to carry out audits to determine the effectiveness of the implemented management system and afford opportunities for improvement.

### **Scope**

Applies to:

- internal audits of company management systems;
- external audits of organisations employed by the company; and
- technical audits conducted at a project site.

Safety and environmental management committee audits (SMC and EMC audits) are not covered by this procedure. For those audit types, refer to the relevant project plan for further details.

### **Terminology**

*Audit:* a systematic and independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled.

*Auditee:* the organisation being audited. For the sake of clarity within the procedure an individual representing the organisation may be referred to as the auditee.

*Auditor:* a person with the competence to conduct an audit.

*External Audit:* an audit carried out by a company to evaluate the performance of an external organisation (in some instances this may be referred to as a second party audit).

*Management representative:* member of management who has responsibility and authority that includes making sure that processes needed for the quality management system are established, implemented and maintained.

*Non-conformance:* non-fulfilment of a requirement.

*Observation:* a statement of fact made as part of the audit process and substantiated by objective evidence.

*Environmental Coordinator:* generic term for the environmental representative at a project. The position title may vary, for example, environmental manager or environmental engineer.

*Quality Coordinator:* generic term for the quality representative at a project. The position title may vary, for example, quality manager or quality engineer.

### **References**

The following standard is relevant to the auditing process and can provide guidance:

- ISO 19011:2002 for guidance on quality and/or environmental management system auditing.

**MP-020            AUDITING**

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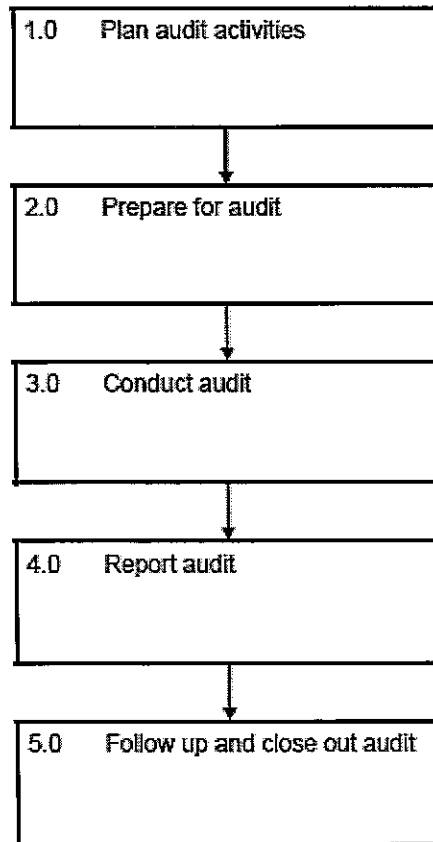
**Policy**

- Internal audits are carried out at head office and at each project to assess the operation and effectiveness of management systems and associated project plans
- External audits are carried out at each project to assess the operation and effectiveness of systems being implemented by design consultants, suppliers and sub-contractors (unless parties are already audited by a recognized third party)
- Audits are carried out to a predetermined programme developed and monitored by the appropriate management representatives
- Audits are carried out by competent personnel who are independent of the area to be audited to ensure objectivity and impartiality
- Audits are performed utilising audit activity checklists which identify the essential characteristics to be audited
- Audit reports are prepared and distributed to auditees
- Resultant corrective action taken to rectify deficiencies is, where necessary, subject to a follow-up audit to verify action and effectiveness. Results of follow-up audits are presented in a written report.

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**Core Task Description**

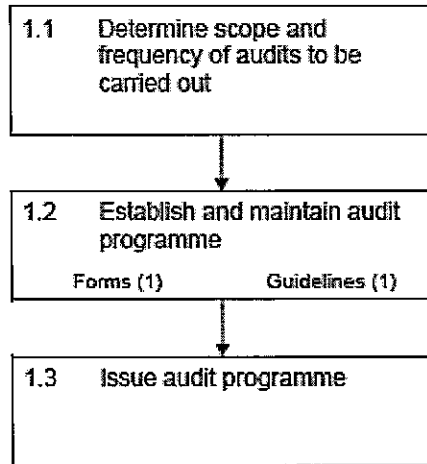


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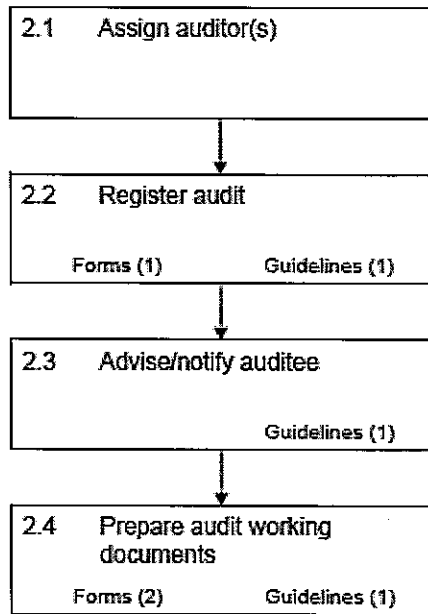
**Detailed Task Description**

**Plan Audit Activities**



**MP-020      AUDITING**

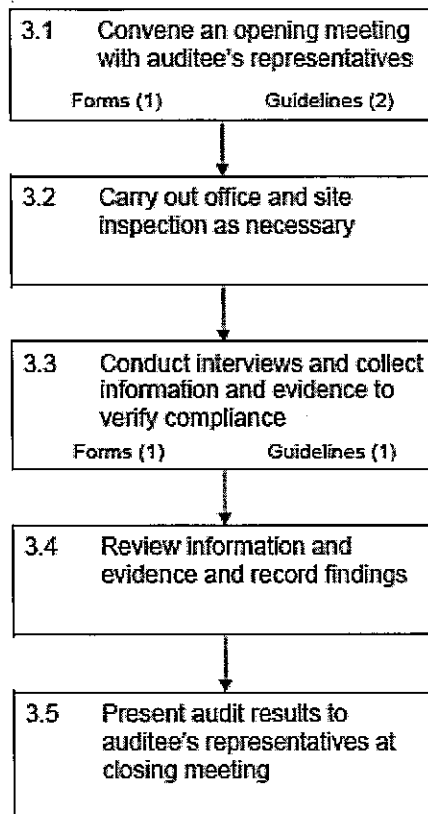
**Prepare for Audit**



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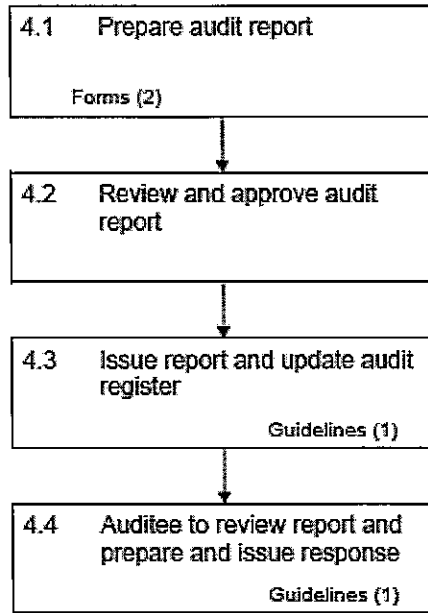
**Conduct Audit**



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**AUDITING**

**Report Audit**

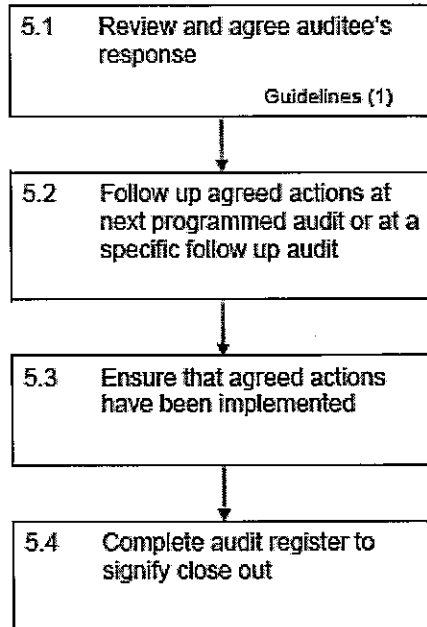




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**Follow up and Close out audit**



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**Standard Forms**

**Plan Audit Activities**

- Audit Programme – F051 (1.2) [Excel Format | PDF Format]

**Prepare for Audit**

- Audit Register – F052 (2.2) [Excel Format | PDF Format]
- Audit Checklist – General – F053 (2.4) [Excel Format | PDF Format]
- Audit Checklist – Control Plan – F184 (2.4) [Word Format | PDF Format]

**Conduct Audit**

- Meeting Attendance Record – Audit – F227 (3.1) [Word Format | PDF Format]
- Audit Worksheet – F135 (3.3) [Word Format | PDF Format]

**Report Audit**

- Audit Report - Quality (Template) – F228 (4.1) [Word Format | PDF Format]
- Audit Report - Environment (Template) – F229 (4.1) [Word Format | PDF Format]

**Follow up and Close out Audit**

Nil

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**Guideline Documents**

**Plan Audit Activities**

- Example of Audit Programme (1.2) [PDF Format]

**Prepare for Audit**

- Example of Audit Register (2.2) [PDF Format]
- Example of notification memorandum to auditee (2.3) [PDF Format]
- Example of Audit Checklist (2.4) [PDF Format]

**Conduct Audit**

- Agenda for internal audit opening and closing meeting (3.1) [PDF Format]
- Agenda for external audit opening and closing meeting (3.1) [PDF Format]
- Example of Audit Worksheet (3.3) [PDF Format]

**Report Audit**

- Example of Audit Report with Corrective Action Table and list of other observations (4.3) [PDF Format]

- Example of Corrective Action Table and list of other observations showing auditee's response (4.4) [PDF Format]

**Follow up and Close out Audit**

- Example of Corrective Action Table and list of other observations endorsed to signify auditor's agreement (5.1) [PDF Format]

MP-020 AUDITING

Typical Responsibility Allocation – Internal Audits

Item	Activity	Project Function				Head Office Function				Other Key Roles		
		Project Manager	Administration	Construction	Engineering	General Manager	Administration	Business Development	Construction	Engineering	Management Representative	Auditor
1.1	Determine scope and frequency of audits to be carried out					○	○	○	○	○		
1.2	Establish and maintain audit programme										⊗	
1.3	Issue audit programme										⊗	
2.1	Assign auditor(s)										⊗	
2.2	Register audit										⊗	
2.3	Advise on audit										⊗	
2.4	Prepare audit working documents										⊗	
3.1	Convene an opening meeting with auditee's representatives										⊗	○
3.2	Carry out office and site inspection as necessary										⊗	○
3.3	Conduct interviews and collect information and evidence to verify compliance										⊗	○
3.4	Review information and evidence and record findings										⊗	
3.5	Present audit results to auditee's representatives at closing meeting										⊗	○
4.1	Prepare audit report										⊗	
4.2	Review and approve audit report										⊗	
4.3	Issue report and update audit register										⊗	
4.4	Auditee to review audit report and prepare and issue response										⊗	○
5.1	Review and agree auditee's response										⊗	○
5.2	Follow up agreed actions at next programmed audit or at a specific follow up audit										⊗	
5.3	Ensure that agreed actions have been implemented										⊗	
5.4	Complete audit register to signify close out										⊗	

Key: Primary Responsibility ⊗ Participation ○

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Typical Responsibility Allocation – External Audits

Item	Activity	Project Function			Head Office Function			Other Key Roles					
		Project Manager	Administration	Construction	Engineering	General Manager	Administration	Business Development	Construction	Engineering	Management Representative	Auditor	Auditee's Representative
1.1	Determine scope and frequency of audits to be carried out	○	○	○							○		
1.2	Establish and maintain audit programme										○		
1.3	Issue audit programme										○		
2.1	Assign auditor(s)	○	○	○									
2.2	Register audit										○		
2.3	Advise/notify auditee	○										○	
2.4	Prepare audit working documents											○	
3.1	Convene an opening meeting with auditee's representatives										○	○	
3.2	Carry out office and site inspection as necessary										○	○	
3.3	Conduct interviews and collect information and evidence to verify compliance										○	○	
3.4	Review information and evidence and record findings										○		
3.5	Present audit results to auditee's representatives at closing meeting										○	○	
4.1	Prepare audit report											○	
4.2	Review and approve audit report	○										○	○
4.3	Issue report and update audit register											○	
4.4	Auditee to review audit report and prepare and issue response											○	
5.1	Review and agree auditee's response	○	○	○							○	○	
5.2	Follow up agreed actions at next programmed audit or a specific follow up audit											○	
5.3	Ensure that agreed actions have been implemented											○	
5.4	Complete audit register to signify close out											○	
Key:		Primary Responsibility ○			Participation ○								

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## Appendix 19 Forms

<b>CORRECTIVE ACTION REQUEST</b>	<b>LEIGHTON</b>	
	Form No:	F003
	Rev. No:	6
		Date: 13.6.03

Contract:	Contract Number:	Request No: (circle type)	E	
Contractor/Supplier/Subcontractor:				

Location of works:  
(if applicable)

Reference Document(s):  
(e.g. ECP and Iism numbers)

**\*Nonconformance**

Details:

Cause:

For environmental incident, PEC to indicate severity classification: Level:  1  2  3  NA

Originated by:

Date:

**\*Action to rectify nonconformance:**

Action party: (optional)

Target completion:

**Action to prevent recurrence**

Action party: (optional)

Target completion:

Actions Proposed by:

Date:

Actions Approved by:

Date:

Follow-up: (Remarks)

Sign off: (sign and print name)

Date:

*\*This entry is not to be used for nonconformances relating to work defects - refer to Defective Works Control procedure  
Fields in bold typeface are mandatory  
Continue on separate sheet if space is insufficient*

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<b>PREVENTIVE ACTION REQUEST</b>		<b>LEIGHTON</b>	
		Form No:	F158
		Rev. No:	1
		Date:	24.11.01
Contract:		Request No: (circle type)	E
Contract Number:			Q
Contractor/Supplier/Subcontractor:			
Location of works: (# applicable)			
Reference Document(s): (e.g. ECP and Item numbers)			
Description of conditions that could cause nonconformance:			
Originated by:		Date:	
Action to eliminate the conditions that could cause nonconformance:			
Action party: (optional)		Target completion:	
Actions Proposed by:		Date:	
Actions Approved by:		Date:	
Follow-up: (Remarks)			
Sign off: (sign and print name)		Date:	

Fields in bold typeface are mandatory  
Continue on separate sheet if space is insufficient

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<b>LEIGHTON</b>		<b>QUARTERLY PROJECT STATUS REPORT</b>	Quarter:	Year:
Contract:		Contract No.:		
Form No:	F516			
Rev. No:	1			
Date:	01.12.02			
Environmental Objective / Target	Measured Performance This Quarter	Remarks/Action Taken (difficulties encountered, delay, reasons for good performance, action taken)		

<b>MONTHLY ENVIRONMENTAL REPORT</b>	<b>LEIGHTON</b>
	Form No: F517
	Rev. No: 4
	Date: 24.03.05
Sheet: 1 of 2	

Contract:

Contract No:

Reporting period:

**PART A – Provide Brief Details of Progress and Overall Environmental Performance**

**PART B - Performance Statistics For The Period**

**1 Environmental Impacts (attach Corrective Action Register covering reporting period)**

	Level 1 <sup>1</sup> High	Level 2 <sup>1</sup> Medium	Level 3 <sup>1</sup> Low	Total this period	Total to date
Number of reports (CAR)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**2 Environmental Preventive Action (attach Preventive Action Register covering reporting period)**

	Total this period	Total to date
Number of reports (PAR)	<input type="text"/>	<input type="text"/>

**PART C - Legal compliance and environmental complaints**

	Complaints	EPD written notices <sup>2</sup>	Summons	Conviction
Number this period	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Have there been any concerns raised by Government Agencies (eg EPD) or other concerned parties relating to environmental issues, including noise? Yes  No

If yes, please provide further details in PART G and copy the report to the General Manager.

**PART D - Material / resource use and disposal for this period**

Prepare and attach waste flow table and energy usage register covering reporting period.

**1 Chemical waste**

Please provide further detailed breakdown of chemical waste disposed of this month as appropriate (eg liquid chemical waste: spent lubricating oil - 500 litres; solid chemical waste: spent batteries - 200kg, contaminated soil - 500kg.)

**2 Waste recycling**

Please provide further detailed breakdown of waste recycled this month (eg metals: rebar - 500kg, sheet piles - 2000kg, aluminium can 50kg; others: computer monitor - 80kg, rubber tyres - 200kg.)

**3 Water Consumption**

Consumption this month  m<sup>3</sup>

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<b>MONTHLY ENVIRONMENTAL REPORT</b>	<b>LEIGHTON</b>
	Form No: FS17
	Rev. No: 4
	Date: 24.03.05
Sheet: 2 of 2	

**PART E – Project Environmental Review Committee and review of construction activities**

Has the quarterly Project Environmental Review Committee been held this month? Yes  No   
If yes, please provide details in Part G of any key issues and new environmental aspects identified.

**PART F – Audits (Environmental)**

**1 Audit status**

	LCAL Internal Environmental Audit	EMC Audit	Client/Client Representative Audit	HKQAA Audit
Date of last audit (where applicable) <sup>3</sup>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Required actions complete (where applicable)	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

If no, provide details of status/progress <sup>4</sup>

**PART G – Further Information**

**Explanatory Comments:**

1. Refer to Environmental Management Reference Volume (EMRV 14.2) for definition and further details of severity levels 1, 2 and 3
2. Attach any written notice(s) received from EPD, together with CAR where appropriate.
3. If there have been no previous audits or the contract is not subject to auditing, insert NA (not applicable).
4. If the actions arising from any of the audits are not complete, please provide details of status; for example, response to report in progress, awaiting concurrence from auditor, corrective action in progress or similar.

**Attachment Check:**

Corrective Action Register	Yes / No / Not applicable
Preventive Action Register	Yes / No / Not applicable
Waste Flow Table	Yes / No / Not applicable
Energy Usage Register	Yes / No / Not applicable
Quarterly Project Status Report (Environmental)	Yes / No / Not applicable

**PART H – Report Approval**

Prepared by:

Signature/date

Approved by Manager in Charge of the Project:

Signature/date

Distribution: Manager in Charge of Project; Project Director/Construction Manager; Manager, Group Systems (Head Office); General Manager (if concerns described in PART C have been raised); Project File

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EMC Audit Team	 <b>ENVIRONMENTAL MANAGEMENT COMMITTEE AUDIT REPORT</b>	Project No.  Project Name:  EMC Auditor:  Date of EMC Audit:
----------------	---	--

ITEM	COMMENTS	SCORE
(1) Physical Inspection	_____	Max 40
	_____	
	_____	
	_____	
(2) Self Audit (including incident and conviction assessment)	_____	Max 40
	_____	
	_____	
	_____	
(3) Site Team Approach Company policy requires the personal attendance of both the manager in charge and the field manager / superintendent at both the EMC and self audits	_____	Max 20
	_____	
	_____	
	_____	

Marks should reflect the relative difficulty of the project with respect to environmental performance.

<b>Overall Impression / Recommendations / Any Specific Additional Action Points</b>

<b>EMC RATING</b>	Signature of EMC Auditor:	%
	Signature of Person in Charge of the Project:	

<b>*Scoring guide for each item:</b>					
Excellent	100%	Above Average	60%	Poor	20%
Good	80%	Below Average	40%	Unacceptable	0%

Distribution (by the Project team): Manager, Group Systems / Manager in Charge of the Project / Project Environmental Coordinator / Parties Responsible for Action

Self Audit Team
-----------------



SELF AUDIT REPORT

Project No.	Score (%)
Project Name:	
Date of Self Audit:	

The self audit is the key component of the Environmental Audit process and is to be completed by the Project's audit team in advance of the arranged EMC audit date. As a minimum the Project's self audit team is to include the person in charge of the project, superintendent (or equivalent) and the project environmental coordinator.

For clarity, please complete the form by hand using black ink.

SECTION A		ADMINISTRATION / PLANNING / RECORDS			SCORE 150	
ITEM		RESULT/COMMENTS			SCORE	
<b>(1) Legal Compliance</b> Has a summons for a breach of environmental legislation been received by the project since the last audit? 40 marks for no summons 0 marks if one or more summons		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		_____			Max 40	
<b>(2) Follow-up action from previous EMC Audit Report</b> Either: All actions have been completed, or any outstanding actions are to be repeated in Section F 20 marks pro-rated, e.g. 3 out of 6 complete = 10 marks		( ___ out of ___ action items outstanding)			Self	EMC
		_____			Max 20	
<b>(3) All EMS Documentation available and up to date?</b> Are all EMS documents including Company and Project Environmental Policy, Environmental Objectives and Targets, Project Environmental Plan and Environmental Control Plans available and up to date? 5 marks		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		_____			Max 5	
<b>(4) All relevant environmental licences and permits obtained?</b>  <b>Noise Control Ordinance</b> Construction Noise Permit (for all restricted hours work) Noise Emission Label (for all air compressors >=300 kPa and hand-held breakers >10kg)		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
<b>Air Pollution Control Ordinance</b> Specified process licence (e.g. for batching plant) Notification "Form NA or NB" submitted (construction dust)		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
<b>Water Pollution Control Ordinance</b> Discharge Licence application submitted (Form A) DSD consent to discharge foul water to communal sewers		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
<b>Waste Disposal Ordinance</b> Chemical Waste Producer Registration Dumping Licence/Permit (for trucks dumping at Public Filling Area)		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
<b>Others</b> Marine Dumping Permit Dangerous Goods (DG) Licences (Typically Cat 2 and Cat 5) 1 mark to be allocated for each applicable item Maximum 10 marks		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC
		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
		_____			Max 10	

SECTION A		ADMINISTRATION / PLANNING / RECORDS			SCORE 150	
ITEM		RESULT/COMMENTS			SCORE	
<p>(5) <b>Planning activities</b> Are site layout plans on display showing all relevant environmental facilities (including locations of site discharge points, chemical waste stores, wheel washes, holding tanks, treatment facilities, spill kits)? <i>5 marks</i></p> <p>Are all site layout plans up to date? <i>5 marks</i></p> <p>Have all subcontractors been notified of their contractual and legal environmental obligations (e.g. licences and permits in force) using standard notification letters or similar? <i>5 marks</i></p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>	Self	EMC	
	Max 15					
	<p>(6) <b>Display of Publicity and Notices</b> Are notices prominently displayed in offices and on site? (these include Company and Project Environmental Policy, Objectives and Targets, spill response procedure and Permits and Licences (CNP, NEL, discharge licence)). <i>5 marks</i></p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>			Self	EMC
Max 5						
<p>(7) <b>Corrective Action and Preventive Action Requests</b> Are both corrective and preventive action registers available, in use and up to date? <i>5 marks</i></p> <p>Are the follow-up actions realistic, effective and timely? (e.g. actions carried out promptly, repetitive nonconformances avoided). <i>5 marks</i></p>		<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>		Self	EMC
	Max 10					
	<p>(8) <b>Emergency preparedness &amp; response</b> Is there an up to date list of chemicals used on site and are MSDSs available? <i>5 marks</i></p> <p>Has a spill clean-up team been established in accordance with an emergency response procedure, are appropriate clean-up materials and equipment available and has at least one training drill been conducted in the last 6-months? <i>10 marks</i></p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <hr/> <hr/> <hr/>		Self	EMC
Max 15						

SECTION A		ADMINISTRATION / PLANNING / RECORDS			SCORE 150	
ITEM		RESULT/COMMENTS			SCORE	
<b>(9) EMS Implementation</b>					Self	EMC
Has there been full attendance by Leighton supervision staff at environmental induction/awareness training? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
Has there been full attendance by the workforce at environmental site induction? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
Has an environmental toolbox meeting or similar been conducted for the workforce since the last EMC Audit? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
Has at least one Project Environmental Review Meeting been held and minuted during the previous 3-months? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
Has an explanatory memo and CAR been issued to the General Manager within 3-days of receipt of any verbal or written environmental complaint from authorities since last EMC audit? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
Have monthly environmental reports been issued within 7 days of the end of the reporting period? <i>5 marks</i>		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		
					Max	
					30	



SECTION B		PHYSICAL CHECK OF IMPLEMENTATION			SCORE 255	
ITEM		COMMENTS			SCORE	
<p><b>(1) Noise &amp; vibration</b> Are all plant items fitted with effective silencers and mufflers? 5 marks</p> <p>Are all plant items maintained in good condition and operated properly? (e.g. well maintained plant, engine doors closed, plant shut down when not in use) 5 marks</p> <p>Are noise barriers being used correctly? (i.e. noise sensitive receivers are effectively shielded from noisy plant or equipment) (item applicable where noise barriers are specified or required for noise mitigation) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 15
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
<p><b>(2) Emission to air and construction dust</b> Is all plant exhaust clean (i.e. no visible black smoke except during plant start-up)? 5 marks</p> <p>Are hoardings (at least 2.4m high) erected where site boundary adjoins a road, street, service lane or other area accessible to the public and are they in good condition? (not required for road opening or resurfacing works) 5 marks</p> <p>Are material hoists and scaffolding screened by sheeting or similar to prevent dust impacts? 5 marks</p> <p>Is a wheel wash in use, maintained and effective? (e.g. no visible dust, mud or debris on road) 5 marks</p> <p>Are all exits between the wheel wash and public roads hard paved to avoid recontamination? 5 marks</p> <p>Are all main haul/access roads watered or hard paved to avoid dust impacts? 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 30
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			

SECTION B		PHYSICAL CHECK OF IMPLEMENTATION			SCORE 255	
ITEM		COMMENTS			SCORE	
<p><b>(2) Emission to air and construction dust (continued)</b></p> <p>Are speed limit signs prominently displayed and the speed limit enforced? (applicable only to larger sites with access/haul roads) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 26
	_____					
	_____					
	_____					
<p>Are all trucks that carry dusty material properly covered before leaving the site? (e.g. by tarpaulin) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 26
	_____					
	_____					
	_____					
<p>Are all stockpiles of dusty material either watered, covered or sheltered to prevent dust? 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 26
	_____					
	_____					
	_____					
<p><b>(3) Water</b></p> <p>Is the temporary site drainage system operating and effective? (e.g. well designed, complete, clear of silt) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					
<p>Are the treatment facilities functioning and effective? (e.g. tanks or ponds of adequate capacity, chemical dosing where necessary and discharged water clean) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					
<p>Is surface water run-off from the site properly managed to prevent it leaving the site boundary? (e.g. by use of channels and ditches and sealing the hoarding) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					
<p>Are water saving / recycling initiatives in place? (e.g. notices, recycling pumps and tanks no evidence of water leakage from supply pipe / hoses / taps) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					
<p>Are exposed slopes / stockpiles protected from erosion during wet season (May to September)? (e.g. tarpaulin and protection to top of slope) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					
<p>Is kitchen-foul water properly discharged? (e.g. via a grease trap to sewer or direct to holding tank) 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	Max 39
	_____					
	_____					
	_____					
	_____					
	_____					

SECTION B		PHYSICAL CHECK OF IMPLEMENTATION			SCORE 255	
ITEM		COMMENTS			SCORE	
<p><b>(3) Water (continued)</b></p> <p>Is foul water discharged from toilet facilities properly controlled? (e.g. discharge to sewer / holding tank / septic tank / proprietary sewage treatment plant) 5 marks</p> <p>Are oil interceptors installed where vehicle maintenance or similar activities are taking place? 5 marks</p> <p>Are silt curtains in place for marine works involving dredging and reclamation? 5 marks</p> <p>Where required, are barge and grab operations designed to minimise material loss? (e.g. close-fitting grabs in use) 5 marks</p> <p>Is dredged material disposed to approved dumping grounds? 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
Max 25						
<p><b>(4) Waste</b></p> <p>Does the method of storage and labeling for chemical waste comply with EPD's CoP requirements? 5 marks</p> <p>Is waste segregation, recycling and reuse practiced on site and effective? (e.g. evidence that waste streams are separated for reuse or recycling) 10 marks</p> <p>Where required, is a tip ticket system implemented for inert material (i.e. inert C&amp;D Material) and waste (i.e. C&amp;D Waste), including subcontractors', that is disposed to public filling facilities and landfill? 10 marks</p> <p>Is all inert C&amp;D material either reused (on-site or elsewhere) or disposed to an approved Public Filling Facility? 5 marks</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	Self	EMC	
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
Max 30						

SECTION B		PHYSICAL CHECK OF IMPLEMENTATION			SCORE 255	
ITEM		COMMENTS			SCORE	
4) <b>Waste (continued)</b> Is material handling and storage well managed? (e.g. no evidence of damage or unnecessary wastage of materials) <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		Self	EMC
	_____					
Are sufficient rubbish bins available and are they effective in preventing littering? <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	_____					
					Max 10	
6) <b>Soil and water contamination</b> Does handling and storage of chemicals comply with legal requirements? (e.g. cages for gas bottles, DGE stores, extinguishers, labels) <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		Self	EMC
	_____					
Are oils, fuels and chemicals stored in drip trays or similar to avoid leakage, spills and ground contamination? <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	_____					
Are all items of plant and equipment maintained so that there is no oil leakage? <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	_____					
Is the refuelling and maintenance of all plant managed so that there is no spillage of fuel / oil? (e.g. buckets available to contain surplus fuel from pump lines, tanks or trays at fuelling points) <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	_____					
					Max 20	
8) <b>Effects on flora, fauna &amp; local eco-systems</b> Is flora (trees, shrubs etc) on site and immediately adjacent to site protected to prevent damage? (e.g. physical barriers around trees) <i>10 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		Self	EMC
	_____					
Are natural habitats of known fauna protected or cordoned off from site activities? <i>10 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>			
	_____					
					Max 20	
7) <b>Monitoring</b> Are water quality monitoring results at discharge points compliant with EPD licence requirements? (e.g. suspended solids by visual comparison with standard solution and pH measurement) <i>5 marks</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>		Self	EMC
	_____					
					Max 5	

SECTION B		PHYSICAL CHECK OF IMPLEMENTATION			SCORE 255		
ITEM		COMMENTS			SCORE		
<p>(7) <b>Monitoring (continued)</b></p> <p>Are CNP conditions strictly followed? (e.g. conditions publicised and LEAL staff on duty during restricted hours works) 5 marks</p> <p>Are the noise levels at sensitive receivers, due to construction activities, within acceptable limits? (Item applicable where measured as part of EM&amp;A or similar monitoring requirements) 5 marks</p> <p>Is weekly routine environmental monitoring up to date and effective? (e.g. PAR, CASR raised as necessary) 5 marks</p> <p>Are the relevant requirements of the (Further) Environmental Permit complied with? (Item applicable for projects that are operating under the EIAO) 5 marks</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p>				Self	EMC	
	Max 20						
	<p>(8) <b>Objectives and Targets</b></p> <p>Is the action plan for achieving environmental objectives and targets available, up to date and communicated to staff? 5 marks</p> <p>Is actual progress towards achieving the objectives on programme? 5 marks</p> <p>Is there evidence of pro-active measures taken, such as initiatives to exceed objective expectations? 5 marks</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p>				Self	EMC
		Max 15					
<p>(9) <b>Complaints received from interested parties since the last audit</b></p> <p>Have there been any valid complaints since last audit 5 marks for no valid complaints 0 marks if one or more valid complaint</p> <p>If there have been valid complaints answer the next questions, otherwise mark as N/A.</p> <p>Are all valid complaint(s) received from client/client representative corrected and closed out within a reasonable time? 5 marks</p> <p>Are all valid complaint(s) received from authorities corrected and closed out within a reasonable time? 5 marks</p>		<p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p>				Self	EMC
	Max 10						

SECTION B		PHYSICAL CHECK OF IMPLEMENTATION	SCORE 255	
ITEM		COMMENTS	SCORE	
(8) Complaints received from interested parties since the last audit (continued) Are all valid complaint(s) received from general public been corrected and closed out within a reasonable time? 5 marks	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>		Self	EMC
	_____			
	_____		Max 5	

SECTION C SELF AUDIT RATING				
(Figure in brackets is total maximum available score)	Section A (150)	Section B (255)	Total (405)	Signature of Manager in charge of Project:
Adjusted total score:				
Self audit score:				Self Audit Rating = ( _____ / _____ ) x 100% %

SECTION D EMC AUDIT RATING				
(Figure in brackets is total maximum available score)	Section A (150)	Section B (255)	Total (405)	
Adjusted total score:				
EMC audit score:				EMC Audit Rating = ( _____ / _____ ) x 100% %
<b>Bonus:</b> Where the project has successfully implemented environmental initiatives beyond legal / contractual compliance or the scope of company environmental objectives and targets, the EMC auditor may award a discretionary bonus up to 5%. (EMC auditor to describe reasons for the bonus award in Section E).				+ %
<b>Deduction:</b> *Percentage deduction for either or both the manager in charge and the field manager / superintendent not attending either or both the EMC audit or the self audit.				- %
<b>FINAL EMC RATING</b>	Signature of EMC Auditor:			%
	Signature of Manager in charge of the Project:			

\*Company policy requires the personal attendance of both the manager in charge and the field manager / superintendent at both audits. However, both audits will continue to be undertaken even if these senior staff are not present. In these circumstances, the EMC auditor may choose to deduct whatever percentage he thinks appropriate for the lack of attendance of the senior staff at these audits taking account of the circumstances causing the absence.







## **Appendix 20**

# **Water Quality Monitoring Record**

Water Quality Monitoring Record								LINK 200 Joint Venture		
Contract: KDB200				Contract No:						
Discharge Point:				Sheet No:						
Date	Sampling Time	Suspended Solids (visual comparison of quality of sample with control standard of xx mg/l)			Odour (none/cement/ other)	Temp (if required by licence) °C	pH Reading (allowable range x - y)	Visible Oil (Yes/No)	Remarks	Initials
		Better	Same	Worse						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						