

**Route 9 between Cheung Sha Wan and Sha Tin – Entrusted Portion  
Enabling Works – Advanced Construction Works Entrusted to KCRC**

**Environmental Monitoring and Audit Report  
for  
December 2002**

(Revision A)

30 December 2002

	<b>Name</b>	<b>Signature</b>	<b>Designation</b>	<b>Date</b>
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## **1 Executive Summary**

The construction work of the Enabling Works of the Route 9 between Cheung Sha Wan and Sha Tin entrusted to KCRC commenced on 14 January 2002. This monthly Environmental Monitoring and Audit (EM&A) Report highlights the works undertaken as required in the Route 16 Investigation Assignment – Environmental Monitoring & Audit Manual (January 1998) and the Route 16 Investigation Assignment – Alternative Alignment Environmental Monitoring & Audit Manual (August 1999) in the period between 1<sup>st</sup> December 2002 and 31<sup>st</sup> December 2002.

Major construction works during normal working hours in this reporting month include pile cap construction and construction of temporary embankment during daytime.

### **1.1 Environmental Monitoring**

As approved by EPD, construction dust and noise monitoring need not to be carried out in this Enabling Works.

### **1.2 Site Environmental Inspection**

Weekly site environmental inspections by Environmental Team were conducted on 4, 11, 20 and 27 December in this reporting month. No observations were recorded.

An IEC audit was conducted on 20 December in this reporting month. No adverse comments were given with regard to the environmental performance of the construction activities of the project.

Site inspection by representatives from EPD was not registered in this reporting month.

### **1.3 Environmental Complaint**

No environmental related complaints were registered in this reporting month.

### **1.4 Notification of Environmental Related Summons and Successful Prosecutions**

Neither summons nor prosecution was recorded in this reporting month.

### **1.5 Waste Monitoring and Audit**

Record keeping of each category of waste generated was well maintained. No adverse comments were recorded in this reporting month.

In this reporting period, 0 m<sup>3</sup> of excavated soil was generated from the construction works and disposed of to the government approved public filling area in Kai Tak. None of this excavated soil could be reused on site.

Apart from excavated soil, 0 m<sup>3</sup> of inert construction and demolition material was generated in this reporting month and disposed of to the government approved public

filling areas in Kai Tak. Also, 0 m<sup>3</sup> of non-inert construction and demolition waste was generated in this reporting month and disposed of to the SENT Landfill.

As for general refuse, 22.38 m<sup>3</sup> was generated in this reporting month and disposed of to the SENT Landfill.

For chemical waste, no chemical waste was produced in this reporting month.

## 1.6 Future Key Issue

The major construction works in the forthcoming three months and the associated environmental control measures are tabulated as follows:

<b>Construction Activity</b>	<b>Impact Prediction</b>	<b>Control Measure</b>
Excavation, pile cap and pier construction	<ul style="list-style-type: none"> <li>• Generation of fugitive dust from soil and material handling and concrete breaking</li> <li>• Dark smoke emission from plant equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Water spraying during dusty material handling and concrete breaking</li> <li>• Proper maintenance of plant</li> </ul>
General	<ul style="list-style-type: none"> <li>• Silty runoff</li> <li>• Housekeeping</li> </ul>	<ul style="list-style-type: none"> <li>• Routine maintenance of internal drainage systems</li> <li>• Diversion of site runoff to desilting facilities</li> <li>• Deployment of sandbags for desilting onto U-channels leading to discharge points</li> <li>• Pump away stagnant water for discharge via sedimentation tank</li> <li>• Remove stockpiling of refuse timely.</li> <li>• Deploy drip trays for diesel drums and during refuelling</li> </ul>

## **2 Background**

### **2.1 Scope of Construction Works**

The section of the Che Kung Miu Road Slip Roads in the Route 9 between Cheung Sha Wan and Sha Tin – Entrusted Portion will cross over the existing Kowloon-Canton Railway Corporation (KCRC) East Rail tracks, the future railway tracks as well as the Tai Wai Maintenance Centre of the Tai Wai to Ma On Shan railway project in the form of two viaducts. Ten of the supporting piers to the viaducts and their associated foundations locate within the works site boundary of the Tai Wai Maintenance Centre. The construction of these structural elements, termed "Enabling Works", is to be administered by KCRC and carried out by Gammon Skanska Limited (GSL).

The commencement date of construction of the Enabling Works is tentatively scheduled on 14 January 2002 and the construction work is anticipated to complete in February 2003.

The major construction work comprises the substructure construction of 36 numbers of bored-piles, 7 numbers of pile caps and 10 numbers of piers. Site Plans of the Enabling Works is enclosed in [Figure 2.1a](#) and [Figure 2.1b](#).

### **2.2 Project Organisation**

The project organisation, lines of communication and contact details with respect to environmental protection works are shown in [Figure 2.2a](#), [2.2b](#) and [2.2c](#) respectively.

### **2.3 Construction Programme**

Major construction works in this reporting month include column construction during the daytime.

## **3 Summary of Environmental Monitoring and Audit (EM&A) Requirements**

### **3.1 Environmental Monitoring**

As approved by EPD, construction dust and noise monitoring need not to be carried out in this Enabling Works.

### **3.2 Environmental Mitigation Measures and Contract Requirements**

The EIA Study Final Report recommended environmental mitigation measures and the contract requirement with respect to environmental management are summarised in the updated implementation schedule as shown in [Appendix I](#).

## **4 Construction Phase Environmental Site Inspection**

### **4.1 Site Inspection by Environmental Team**

Weekly environmental site inspections were carried out by Environmental Team on 4, 11, 20 and 27 December in this reporting month. No observation was recorded in this reporting month.

#### **4.2 Site Inspection by Independent Environmental Checker**

Site audit by the Independent Environmental Checker (IEC) was conducted on 20 December in this reporting month. No adverse comment was given with regard to the environmental performance of the construction activities of the project.

#### **4.3 Site Inspection by Environmental Protection Department**

Site inspections by representatives from EPD were not registered in this reporting month.

### **5 Waste Monitoring and Audit**

Waste management audits were conducted concurrently during weekly site inspections on 4, 11, 20 and 27 December by the Environmental Team.

Based on the record provided by the Contractor, the wastes generated in this reporting month were mainly general refuse. Such wastes were properly sorted for disposal to public filling area and landfill. Office wastes were reduced through reuse of papers.

The quantities and handling practices for different categories of waste are summarized in [Table 5.1](#).

**Table 5.1 Summary of Different Categories of Waste in December 2002**

	Quantity Produced in this Reporting Month	Handling Practices	Handling Quantity in this Reporting Month	Accumulated Handling Quantity since Commencement of Work
Excavated materials	0 m <sup>3</sup>	Disposed of to government approved public filling areas in Pak Shek Kok	0 m <sup>3</sup>	4156 m <sup>3</sup>
		Disposed of to government approved public filling areas in Tuen Mun Area 38	0 m <sup>3</sup>	300 m <sup>3</sup>
		Disposed of to government approved public filling barging point at Kai Tak	0 m <sup>3</sup>	0 m <sup>3</sup>
		Reused on site	0 m <sup>3</sup>	0 m <sup>3</sup>
Inert C&D material	0 m <sup>3</sup>	Disposed of to government approved public filling areas in Pak Shek Kok	0 m <sup>3</sup>	301 m <sup>3</sup>
		Disposed of to government approved public filling areas in Tuen Mun Area 38	0 m <sup>3</sup>	50 m <sup>3</sup>
		Disposed of to government approved public filling barging point at Tai Tak	0 m <sup>3</sup>	0 m <sup>3</sup>
Non-inert C&D waste	0 tonnes (0 m <sup>3</sup> )	Disposed of to SENT landfill	0 tonnes (0 m <sup>3</sup> )	0 tonnes (0 m <sup>3</sup> )
General refuse	14.92 tonnes (22.38 m <sup>3</sup> )	Collected by licensed waste collector for disposal offsite	14.92 tonnes (22.38 m <sup>3</sup> )	60.88 tonnes (91.32 m <sup>3</sup> )
Chemical waste	0 L	Collected by licensed waste collector	0 L	300 L

## 6 Review of Complaint, Notification of Summons and Prosecutions

### 6.1 Complaint

No environmental related complaints were registered in this reporting month.

The Complaint Response Procedure is shown in [Figure 6.1](#). A cumulative log of received complaint is tabulated in [Table 6.1](#).

**Table 6.1 Cumulative Log of Received Complaint**

Date	Complainant	Details of Complaint	Action Taken	Environmental Outcome
Nil	-	-	-	-

### 6.2 Notification of Summons and Prosecutions



There was neither non-compliance, notification of summons nor successful prosecution with respect to environmental issues registered in this reviewing session. A cumulative log of Notification of Summons and Prosecution is tabulated in [Table 6.2](#).

**Table 6.2 Cumulative Log of Notification of Summons and Prosecution**

<b>Date</b>	<b>Details of Notice of Summons or Prosecution</b>	<b>Action Taken</b>	<b>Environmental Outcome</b>
Nil	-	-	-

## 7 Environmental Licenses and Permits

Various environmental related licenses and permits have been applied. A summary of the licenses and permits is tabulated in the following [Table 7.1](#) and [Table 7.2](#).

**Table 7.1 List of Environmental Licenses and Permits**

Item	Licenses / Permits	Date of Application	Status	Permit / License No.
1	Environmental Permit	06/09/01 by TDD	Granted on 04/10/01	EP-104/2001
2	Notification of Works under APCO	09/01/02 by GSL	EPD's acknowledgement was received on 14/01/02	TN20020037
3	Chemical Waste Producer Registration	20/01/01 by GSL	Granted on 28/02/01	5111-759-G2040-33
4	Water Discharge License	20/01/01 by GSL	Granted on 27/04/01	2683
5	Variation of Specified Process License	20/07/01 by GSL	Granted on 10/12/01	L-3-191(1)

**Table 7.2 List of Construction Noise Permits**

Item	Permit No.	From	To	Time Period	Status
Nil					

Note: A copy of the valid Construction Noise Permits is attached in [Appendix II](#) for information.

## 8 Future Key Issues

The major construction works for the forthcoming three months includes pile cap and pier construction. The associated environmental impact prediction and recommended control measures are tabulated in [Table 8.1](#).

**Table 8.1 Environmental Impact Prediction and Proposed Control Measures for the Forthcoming Three Months**

Construction Activity	Impact Prediction	Control Measure
Excavation and pier construction	<ul style="list-style-type: none"> <li>• Generation of fugitive dust from soil and material handling and concrete breaking</li> <li>• Dark smoke emission from plant equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Water spraying during dusty material handling and concrete breaking</li> <li>• Proper maintenance of plant</li> </ul>
General	<ul style="list-style-type: none"> <li>• Silty runoff</li> <li>• Housekeeping</li> </ul>	<ul style="list-style-type: none"> <li>• Routine maintenance of internal drainage systems</li> <li>• Diversion of site runoff to desilting facilities</li> <li>• Deployment of sandbags for desilting onto U-channels leading to discharge points</li> <li>• Pump away stagnant water for discharge via sedimentation tank</li> <li>• Remove stockpiling of refuse timely.</li> <li>• Deploy drip trays for diesel drums and during refuelling</li> </ul>

## 9 Recommendations and Conclusions

Regular environmental auditing was conducted in this reporting period in accordance with the EM&A requirements.

Construction site environmental inspections were conducted by the Environmental Team and Independent Environmental Checker regularly in this reporting period. No deficiencies in respect of environmental protection measures were identified.

All in all, the environmental management performance of the Contract was deemed satisfactory with respect to EM&A requirements.

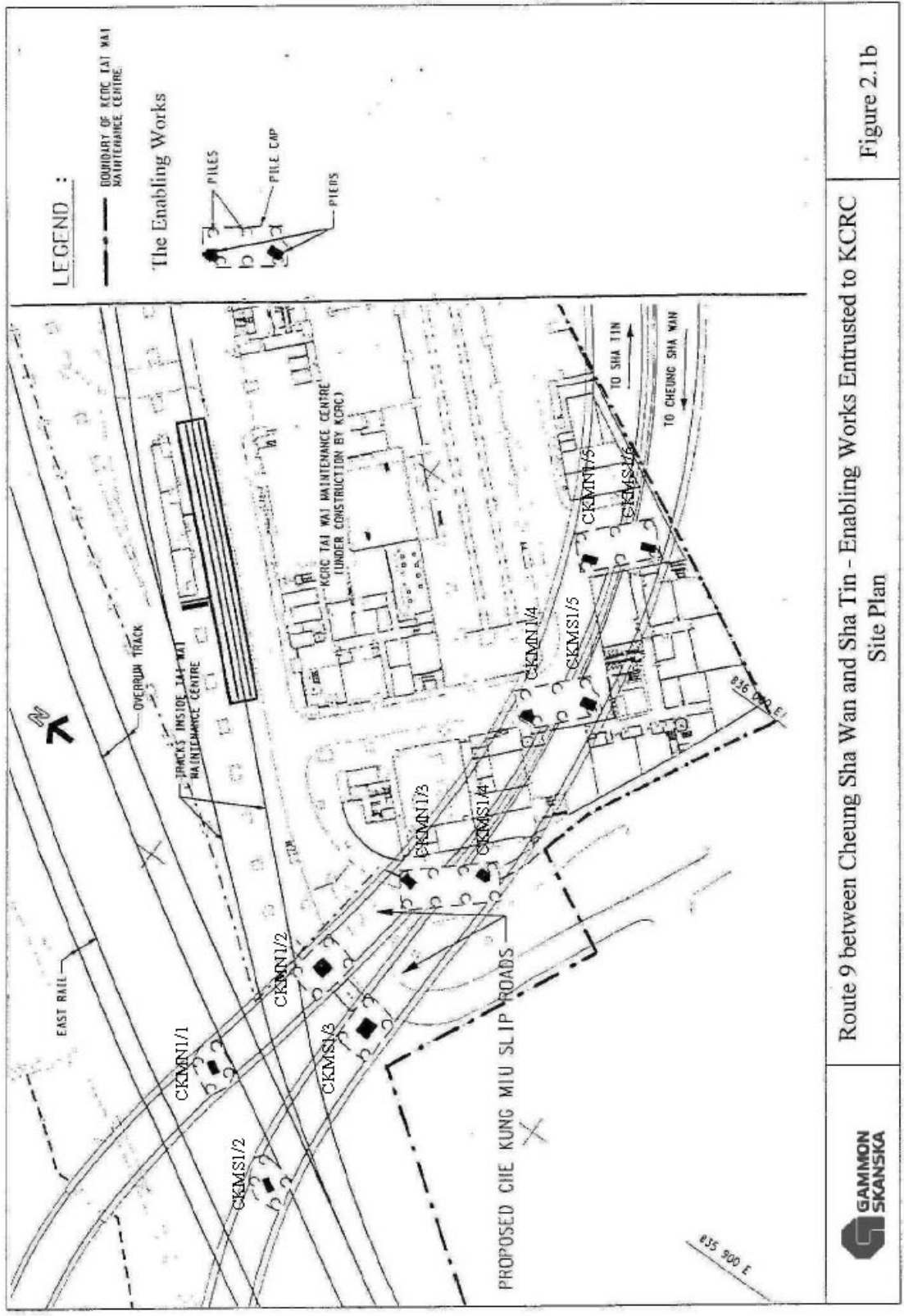
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## FIGURES

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Figure 2.1b Site Plan (2)

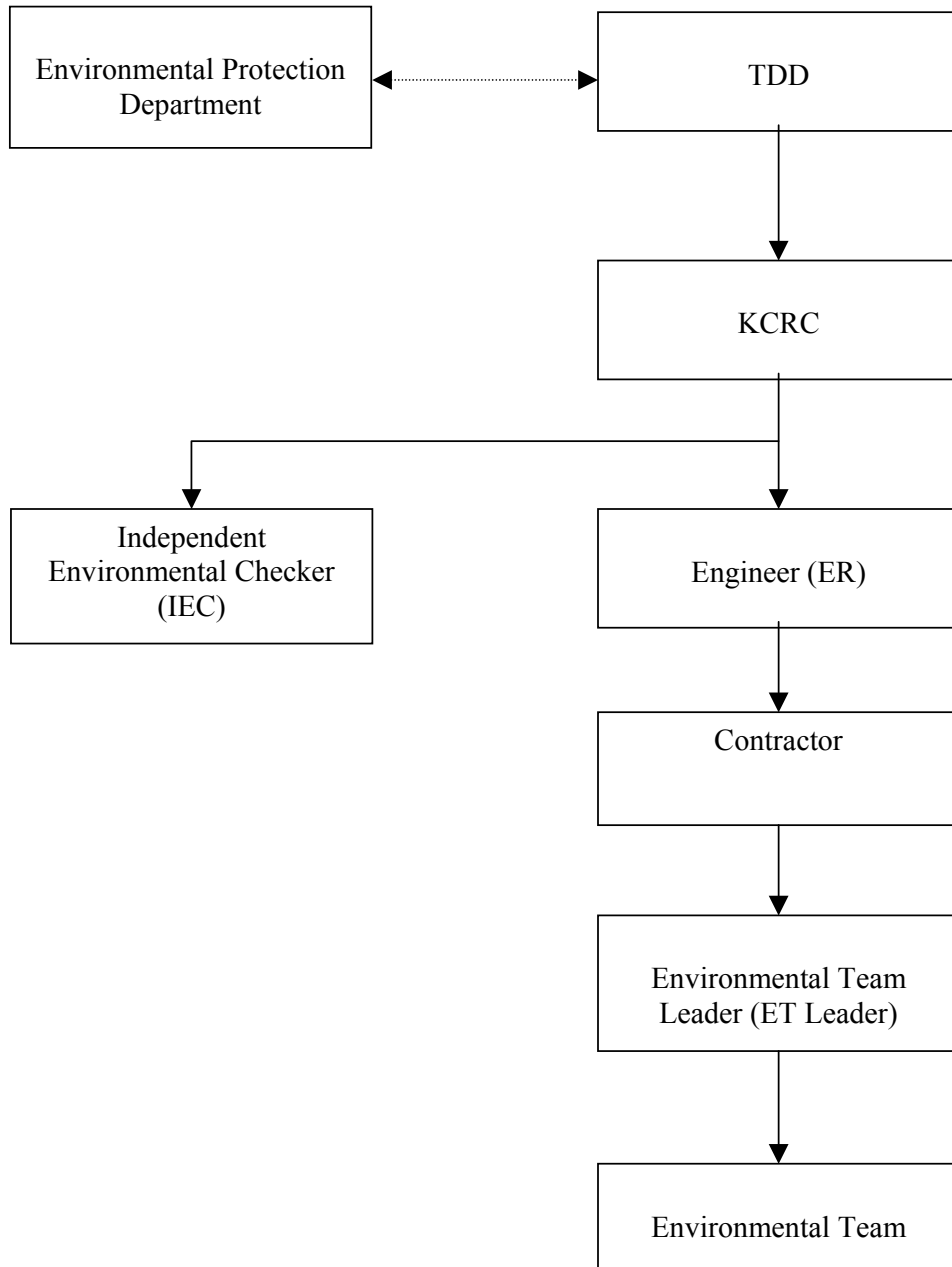


Route 9 between Cheung Sha Wan and Sha Tin - Enabling Works Entrusted to KCRC  
Site Plan

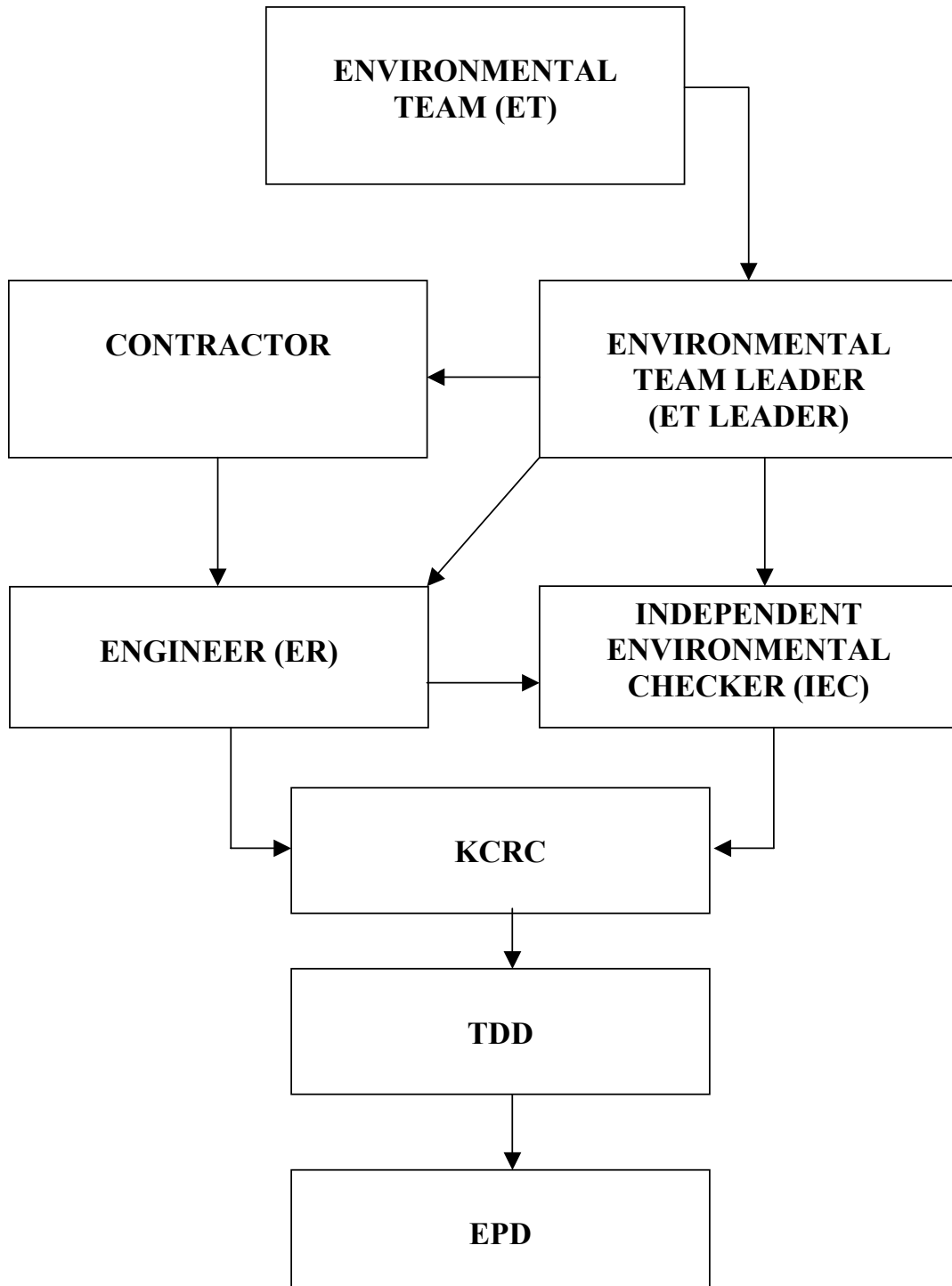


Figure 2.1b

**Figure 2.2a Project Organisation and Lines of Authority for EM&A**



**Figure 2.2 b Line of Communication for Reporting Function for the EM&A**

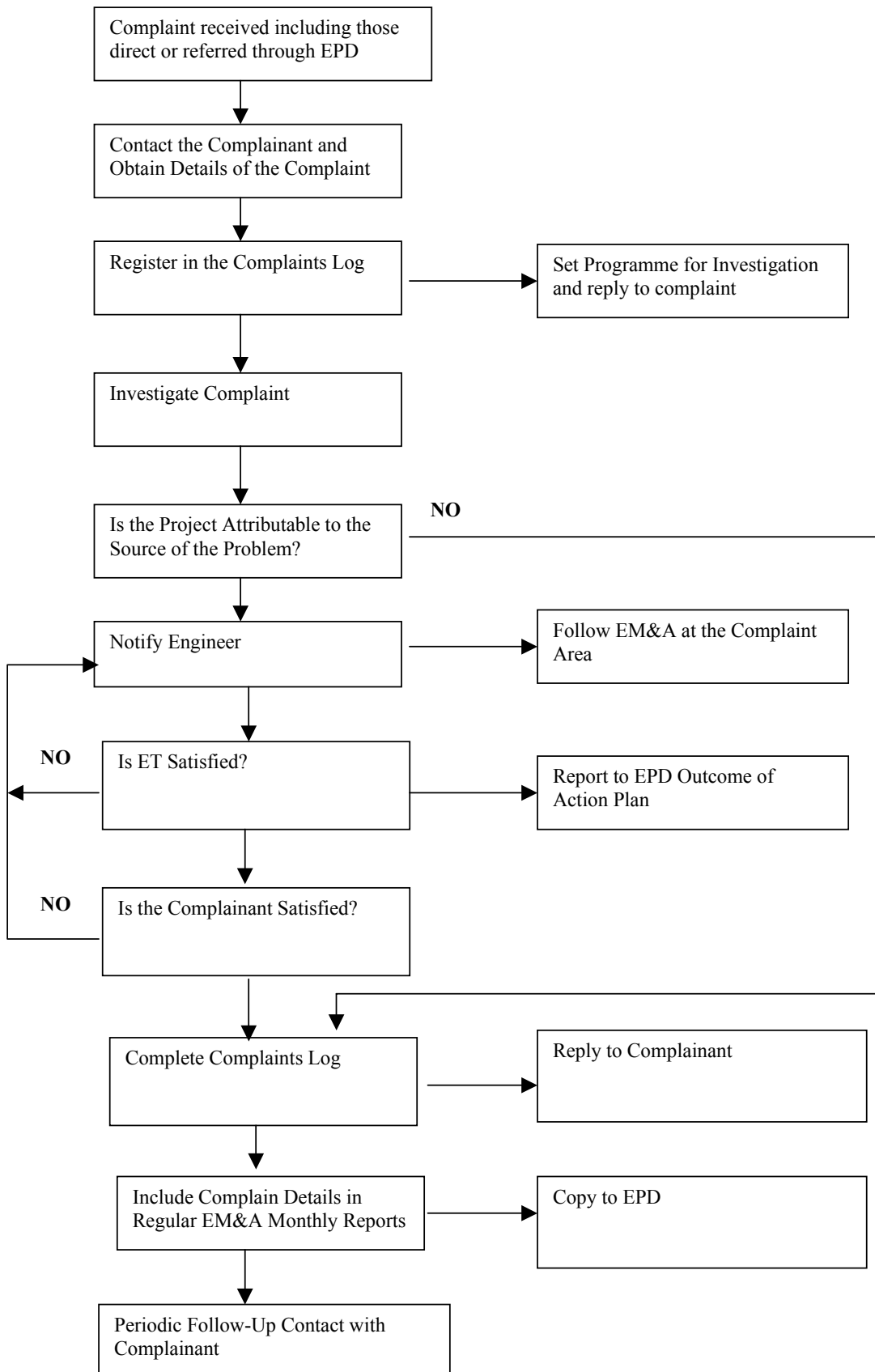




**Figure 2.2c Contact Telephone List (Environmental)**

	<b><u>Name</u></b>	<b><u>Telephone</u></b>	<b><u>Fax</u></b>
<b><u>EPD</u></b>			
Environmental Protection Officer	Jolitta Chan	2835 1112	2591 0558
<b><u>TDD</u></b>			
Chief Engineer	C W Kam	2301 1383	2721 8630
<b><u>KCRC</u></b>			
Senior Environmental Specialist	Lisa Poon	2684 8518	2601 5287
Environmental Specialist	Natalie Ip	2684 8816	2601 5287
<b><u>Ove Arup &amp; Partner Hong Kong (ER)</u></b>			
Chief Resident Engineer	Roger Marechal	2695 6882	2697 6999
Assistant Resident Engineer	Connie Wong	6056 6605	2697 6999
<b><u>Hyder (IEC)</u></b>			
Associated Director	Tom Chapman	2911 2718	2827 2891
Principal Environmental Consultant	Jacquelyn Anderson	2911 2721	2827 2891
<b><u>Gammon Skanska Limited (Contractor)</u></b>			
Contractor's Representative	Kennedy Cheung	2614 2809	2614 5930
Production Manager	K F Tam	2614 2809	2614 5930
Environmental Team Leader	Eddie Tse	2943 9201	2435 3632
Environmental Protection Engineer	Kenneth Chan	2614 2809	2614 5930

**Figure 6.1 Complaint Response Procedures**



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**Appendix I  
Environmental Mitigations  
Implementation Schedule**

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## Air Quality

Item	Environmental Protection Measures	Implementation Agent	Location of Measures	Timing of Measures	Implementation Status	Follow up Actions Recommended	Final Environmental Outcome
AQ1	Any excavated dusty materials or stockpile of dusty material shall be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ2	A stockpile of dusty materials shall not extend beyond the pedestrian barriers, fencing or traffic cones	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ3	Vehicle washing facilities shall be provided at every exit point	PM, Site Agent, Foreman	Entrance or exit of the site	All times	In operation	Nil	Nil
AQ4	The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores	PM, Site Agent, Foreman	Entrance or exit of the site	All times	In operation	Nil	Nil
AQ5	Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m above ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ6	Every main haul road should be sprayed with water or a dust suppressing chemical so as to maintain the entire road surface wet	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ7	The portion of any road leading only to a construction site that is with 30 m of a discernible or designated vehicle entrance or exit shall be kept clear of dusty materials	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ8	Any stockpile of dusty materials shall be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ9	All dusty materials should be sprayed with water or a dust suppressing chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dust materials wet	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
AQ10	Every vehicle shall be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site	Site Agent, Foreman	Entrance or exit of site	All times	In operation	Nil	Nil

<b>Item</b>	<b>Environmental Protection Measures</b>	<b>Implementation Agent</b>	<b>Location of Measures</b>	<b>Timing of Measures</b>	<b>Implementation Status</b>	<b>Follow up Actions Recommended</b>	<b>Final Environmental Outcome</b>
AQ11	The working area of any excavation shall be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet	Site Agent, Foreman	Entrance or exit of site	All times	In operation	Nil	Nil

## Construction Noise

Item	Environmental Protection Measures	Implementation Agent	Location of Measures	Timing of Measures	Implementation Status	Follow up Actions Recommended	Final Environmental Outcome
CN1	Only well-maintained plant shall be operated on-site and plant should be serviced regularly during the construction programme	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN2	Machines and plant that may be intermittent use should be shut down between work periods or throttled down to a minimum	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN3	Plant known to emit noise strongly in one direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN4	Silencers or mufflers on construction equipment should be properly fitted and maintained	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN5	Mobile plant should be sited as far away from NSRs as possible	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN6	Material stockpiles and other structures should be effectively utilized, where practicable, to screen NSRs from noisy on-site construction activities.	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN7	Where available, models of plant that are quieter than those specified in the EPD's technical memorandum (GW-TM) shall be used	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN8	Movable barriers of 3 to 5 m height, located within a few metres of static plant and within about 5 m of mobile equipment shall be considered when noisy activity is carried out	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
CN9	Wherever practicable, the number of items of operating at the same time at the specified location shall be reduced	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil

## Waste Generation

Item	Environmental Protection Measures	Implementation Agent	Location of Measures	Timing of Measures	Implementation Status	Follow up Actions Recommended	Final Environmental Outcome
WG1	Training and instruction shall be given at site to construction staff to increase awareness and draw attention to waste management issues and the need to minimize waste generation. The training requirement shall be included in the site waste management plan	EPE, Foreman	Whole site	All times	In operation	Nil	Nil
WG2	Wastes shall be handled and stored in a manner to ensure that they are held securely without loss or leakage.	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG3	Authorised or licensed waste hauliers shall be used and they shall only collect wastes prescribed by their permits	PM, Site Agent, Foreman	Waste storage area	All times	In operation	Nil	Nil
WG4	Wastes shall be removed on a daily basis	Site Agent, Foreman	Waste storage area	Daily	In operation	Nil	Nil
WG5	Waste storage areas shall be maintained and cleaned on a daily basis	Site Agent, Foreman	Waste storage area	Daily	In operation	Nil	Nil
WG6	Windblown litter and dust during transportation shall be minimised by either covering trucks or transporting wastes in enclosed containers.	Site Agent, Foreman	Waste handling trucks	After waste collection and before trucks leaving the construction site	In operation	Nil	Nil
WG7	Obtain necessary waste disposal permits from the appropriate authorities if they are required.	PM	-	Before the construction of the Project	In operation	Nil	Nil
WG7	Wastes shall be disposed of at licensed waste disposal facilities	Site Agent, Foreman	-	All times	In operation	Nil	Nil
WG7	Develop procedures such as a ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of wastes does not occur	PM, EPE	-	All times	In operation	Nil	Nil
WG7	Maintain records of the quantities of wastes generated, recycled and disposed.	PM,EPE	-	All times	In operation	Nil	Nil

<b>Item</b>	<b>Environmental Protection Measures</b>	<b>Implementation Agent</b>	<b>Location of Measures</b>	<b>Timing of Measures</b>	<b>Implementation Status</b>	<b>Follow up Actions Recommended</b>	<b>Final Environmental Outcome</b>
WG7	Measures to minimise potential dust impacts: <ul style="list-style-type: none"> <li>Wetting the surface of the stockpiled soil with water when necessary especially during the dry season</li> <li>Covering the stockpiled soil with sheets</li> <li>Minimising disturbance of the stockpiled soil</li> <li>Enclosure of the stockpiling area</li> </ul>	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Measures to reduce potential impacts to water quality: <ul style="list-style-type: none"> <li>Separating surface water drainage system for the stockpiling area</li> <li>Installation of silt traps for the surface water drainage system</li> <li>Covering stockpiled material with tarpaulin during heavy rainstorm</li> </ul>	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Due to the high risk of loose material being washed into the existing nullah, stockpile materials should be properly compacted and covered from water erosion and located at least 10 m away from the nullah wall	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Measures to minimise potential dust impacts due to haulage of excavated materials: <ul style="list-style-type: none"> <li>Dropping heights fro excavated materials shall be controlled to a practical height to minimise the fugitive dust arising from unloading</li> <li>Materials shall not be loaded to a level higher than the side and tail boards, and shall be dampened or covered before transport</li> <li>The travelling speed shall be reduced to 10 km per hour to reduce dust dispersion and re-suspension from the operating haul trucks</li> <li>Wheel washing facilities shall also be installed and used by all vehicles leaving the site</li> </ul>	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Careful design, planning and good site management shall be adopted to minimise over-ordering and generation of waste materials such as concrete, mortars and cement gouts	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	The handling and disposal of bentonite slurries shall be undertaken in accordance with ProPECC PN 1/94 on construction site drainage	Site Agent, Foreman	Whole site	All times	No disposal of bentonite	Nil	Nil



<b>Item</b>	<b>Environmental Protection Measures</b>	<b>Implementation Agent</b>	<b>Location of Measures</b>	<b>Timing of Measures</b>	<b>Implementation Status</b>	<b>Follow up Actions Recommended</b>	<b>Final Environmental Outcome</b>
WG7	Construction and demolition material shall be segregated to inert and non-inert parts. The inert portion shall be re-used at areas of reclamation or land formation, or to public filling area shall such allocation is deemed necessary. The non-inert portion shall be disposed of to landfill.	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Chemical waste that is produced during construction shall be handled in accordance with the Code of Practice on the Package, Handling and Storage of Chemical Wastes	Site Agent, Foreman	Chemical waste arising point	All times	In operation	Nil	Nil
WG7	Containers used for the storage of chemical wastes: <ul style="list-style-type: none"> <li>• Shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed</li> <li>• Have a capacity less than 450 litres unless approved by EPD</li> <li>• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste Regulations.</li> </ul>	PM, Site Agent, Foreman	Chemical waste arising point	All times	In operation	Nil	Nil
WG7	The chemical waste storage area should: <ul style="list-style-type: none"> <li>• Be clearly labelled and used solely for the storage of chemical waste</li> <li>• Be enclosed on at least 3 sides</li> <li>• Have an impermeable floor and bunding , of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the largest</li> <li>• Have adequate ventilation</li> <li>• Be covered to prevent rainfall entering</li> <li>• And be arranged so that incompatible materials are adequately separated</li> </ul>	PM, Site Agent, Foreman	Chemical waste arising point	All times	In operation	Nil	Nil
WG7	Disposal of chemical waste shall be via a licensed waste collector; and to a facility licensed to receive chemical waste; or a reuser of the waste (under approval from EPD)	PM, Site Agent, Foreman	-	All times	In operation	Nil	Nil
WG7	General refuse generated on-site shall be stored in enclosed bins or compaction unit separate from C&D and chemical wastes. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. The burning of refuse on construction sites is prohibited by law	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil

<b>Item</b>	<b>Environmental Protection Measures</b>	<b>Implementation Agent</b>	<b>Location of Measures</b>	<b>Timing of Measures</b>	<b>Implementation Status</b>	<b>Follow up Actions Recommended</b>	<b>Final Environmental Outcome</b>
WG7	General refuses shall be generated largely by food service activities on site, so reusable rather than disposable dishware shall be used if feasible. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated or easily accessible; separate, labelled bins for their deposit shall be provided if feasible.	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WG7	Office wastes can be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme shall be considered if one is available	Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil

## Water Quality

Item	Environmental Protection Measures	Implementation Agent	Location of Measures	Timing of Measures	Implementation Status	Follow up Actions Recommended	Final Environmental Outcome
WQ1	Use of sediment traps and the adequate maintenance of drainage systems to prevent flooding and overflow	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WQ2	Boundaries of critical areas of earthworks shall be marked and surrounded by dykes or embankments for flood protection. Temporary ditches shall be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WQ3	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge shall be adequately designed for the controlled release of storm flows. All sediment traps shall be regularly cleaned and maintained. The temporarily diverted drainage shall be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required	PM, Site Agent	Whole site	All times	In operation	Nil	Nil
WQ4	Sand and silt in wash water from the wheel washing facilities, which ensure no earth, mud and debris is deposited on roads, shall be settled out and removed before discharging into storm drains. A section of the road between the wheel washing bay and the public road shall be paved with backfall to prevent wash water or other site runoff from entering public road drains.	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WQ5	Oil interceptor shall be provided in the drainage system downstream of any oil/fuel pollution sources associated with construction. The oil interceptors shall be emptied weekly or when deemed necessary to prevent the release of oil and grease into the storm water drainage system after accidental spillages. The interceptor shall have a bypass to prevent flushing during periods of heavy rain	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil
WQ6	Construction work force sewage discharges from fixed toilet facilities on-site shall be connected to the nearby existing trunk sewer wherever feasible. For areas where existing trunk sewer is not available, appropriate and adequate on-site portable chemical toilets shall be provided by a licensed contractor who will be responsible for appropriate disposal and maintenance of these facilities	PM, Site Agent, Foreman	Whole site	All times	In operation	Nil	Nil

## Landscape and Visual Impact

Item	Environmental Protection Measures	Implementation Agent	Location of Measures	Timing of Measures	Implementation Status	Follow up Actions Recommended	Final Environmental Outcome
LV1	<p>Construction programming and management</p> <p>The construction program for the Project shall be reduced to the shortest possible period, particularly in those locations where severe or high landscape and visual impacts are expected. Additionally, the periphery of the works areas at street level shall be managed so that they do not appear cluttered, untidy and unattractive and inconvenient to pedestrians. For example, all hoarding shall be colorfully designed with interesting motifs. Hoardings with bland colours shall be avoided.</p>	PM, Site Agent	Whole site	All times	In operation	Nil	Nil
LV2	<p>Advance planting and erosion control works</p> <p>Where possible, the transplantation of existing valuable trees, the stockpiling of topsoil, new planting and erosion control works shall be carried out as early as possible in the construction period instead of at the end.</p>	PM, Site Agent	Whole site	All times	Not applicable in this stage	Nil	Nil
LV3	<p>Maximization of amenity planting in road corridor</p> <p>Opportunities to incorporate amenity areas along the alignment shall be maximized to provide visual relief in an otherwise congested urban area.</p>	PM, Site Agent	Whole site	All times	Not applicable in this stage	Nil	Nil
LV4	<p>Design, materials and finishes of engineering structures</p> <p>The quality of the design of all engineering structures, which will include viaducts, parapets, piers, slip roads, noise barriers, noise enclosures and drainage systems are an important consideration.</p>	PM, Site Agent	Whole site	All times	In operation	Nil	Nil
LV5	<p>Planting on rock berms</p> <p>Where rock is exposed by earthworks, planting will be implemented by constructing stone walls on berms and backfilling behind them with topsoil</p>	PM, Site Agent	Road berms	All times	Not applicable in this stage	Nil	Nil

<b>Item</b>	<b>Environmental Protection Measures</b>	<b>Implementation Agent</b>	<b>Location of Measures</b>	<b>Timing of Measures</b>	<b>Implementation Status</b>	<b>Follow up Actions Recommended</b>	<b>Final Environmental Outcome</b>
LV6	<p>Maximization of woodland planting on disturbed land</p> <p>All land disturbed by construction shall be restored to an equivalent standard or higher. All felled mature trees which are considered to be high in environmental amenity, a replacement of a similar size shall be planted where possible. All felled mature trees which are considered to be high in environmental amenity, a replacement of a similar size should be planted. Where except slope or ground conditions prevent the planting of mature trees, other locations as close as possible to the location of the felled tree within the works area should be used. Existing woodland cleared by construction activity will also be replaced at a ratio of at least twenty tree planted for every tree felled. All planting on slopes should be in accordance with Works Branch Technical Circular 25/93</p>	PM, Site Agent	Whole site	All times	Not applicable in this stage	Nil	Nil

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**Appendix II**  
**Copy of Construction Noise Permit**

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No Construction Noise Permit for this reporting month.

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**Appendix III  
Response of Comment on EM&A  
Report for November 2002**

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**Response of Comment on EM&A Report for November 2002**

<b>Item</b>	<b>Comment by</b>	<b>Ref. Section</b>	<b>Comment</b>	<b>Contractor's Response</b>
Nil				