

Territory Development Department

Planning & Development Study of  
Potential Housing Site in Area 54  
Tuen Mun : *EIA - Final Assessment  
Report*

22 June 1999

**Environmental Resources Management**

6/F Hecny Tower  
9 Chatham Road, Tsimshatsui  
Kowloon, Hong Kong  
Telephone (852) 2271 3000  
Facsimile (852) 2723 5660

Territory Development Department

Agreement No. CE 21/97

Planning & Development Study of  
Potential Housing Site in Area 54  
Tuen Mun : *EIA - Final Assessment  
Report*

22 June 1999

Reference C1707/113701

For and on behalf of Environmental Resources Management
Approved by: <u>RICHARD KWAN</u>
Signed: <u>R. Kwan</u>
Position: <u>TECHNICAL DIRECTOR</u>
Date: <u>22 JUNE 1999</u>

This report has been prepared by Environmental Resources Management, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and other in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

## CONTENTS:

1	<b>INTRODUCTION</b>	1 - 1
1.1	<b>PREAMBLE</b>	1 - 1
1.2	<b>OBJECTIVES OF THE ENVIRONMENTAL IMPACT ASSESSMENT</b>	1 - 1
1.3	<b>PURPOSE OF THIS REPORT</b>	1 - 3
1.4	<b>STRUCTURE OF THE EIA FINAL ASSESSMENT REPORT</b>	1 - 3
2	<b>PROJECT DESCRIPTION</b>	2 - 1
2.1	<b>INTRODUCTION</b>	2 - 1
2.2	<b>CONSTRUCTION PHASE</b>	2 - 1
2.3	<b>OPERATIONAL PHASE</b>	2 - 2
2.4	<b>TRAFFIC DATA</b>	2 - 8
2.5	<b>DESIGNATED PROJECTS</b>	2 - 8
3	<b>NOISE</b>	3 - 1
3.1	<b>INTRODUCTION</b>	3 - 1
3.2	<b>ENVIRONMENTAL LEGISLATION AND CRITERIA</b>	3 - 1
3.3	<b>DESCRIPTION OF THE ENVIRONMENT</b>	3 - 4
3.4	<b>IDENTIFICATION OF SENSITIVE RECEIVERS</b>	3 - 5
3.5	<b>IDENTIFICATION OF IMPACTS</b>	3 - 7
3.6	<b>ASSESSMENT METHODOLOGY</b>	3 - 11
3.7	<b>EVALUATION OF IMPACTS</b>	3 - 15
3.8	<b>MITIGATION OF ADVERSE IMPACT</b>	3 - 27
3.9	<b>INDIRECT TECHNICAL REMEDIES</b>	3 - 46
3.10	<b>ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS</b>	3 - 49
3.11	<b>CONCLUSIONS</b>	3 - 50
4	<b>AIR QUALITY</b>	4 - 1
4.1	<b>INTRODUCTION</b>	4 - 1
4.2	<b>RELEVANT LEGISLATION AND CRITERIA</b>	4 - 1
4.3	<b>BASELINE AND FUTURE CONDITIONS</b>	4 - 2
4.4	<b>AIR SENSITIVE RECEIVERS</b>	4 - 3
4.5	<b>IDENTIFICATION OF IMPACTS</b>	4 - 4
4.6	<b>ASSESSMENT METHODOLOGY</b>	4 - 7
4.7	<b>EVALUATION OF IMPACTS</b>	4 - 9
4.8	<b>MITIGATION MEASURES</b>	4 - 16
4.9	<b>ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS</b>	4 - 18
4.10	<b>CONCLUSIONS</b>	4 - 19
5	<b>WATER QUALITY</b>	5 - 1
5.1	<b>INTRODUCTION</b>	5 - 1
5.2	<b>ENVIRONMENTAL LEGISLATION AND CRITERIA</b>	5 - 1
5.3	<b>DESCRIPTION OF THE ENVIRONMENT</b>	5 - 2
5.4	<b>IDENTIFICATION OF SENSITIVE RECEIVERS</b>	5 - 9
5.5	<b>ASSESSMENT METHODOLOGY</b>	5 - 10

5.6	<i>IDENTIFICATION OF IMPACTS</i>	5 - 10
5.7	<i>EVALUATION OF IMPACTS</i>	5 - 12
5.8	<i>MITIGATION OF ADVERSE IMPACTS</i>	5 - 15
5.9	<i>ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS</i>	5 - 19
5.10	<i>CONCLUSIONS</i>	5 - 19
6	<i>WASTE MANAGEMENT</i>	6 - 1
6.1	<i>INTRODUCTION</i>	6 - 1
6.2	<i>ENVIRONMENTAL LEGISLATION AND CRITERIA</i>	6 - 1
6.3	<i>IDENTIFICATION OF IMPACTS</i>	6 - 2
6.4	<i>EVALUATION OF IMPACTS</i>	6 - 4
6.5	<i>MITIGATION OF ADVERSE IMPACTS</i>	6 - 7
6.6	<i>ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS</i>	6 - 11
6.7	<i>CONCLUSIONS</i>	6 - 12
7	<i>TERRESTRIAL ECOLOGY</i>	7 - 1
7.1	<i>INTRODUCTION</i>	7 - 1
7.2	<i>ENVIRONMENTAL LEGISLATION AND CRITERIA</i>	7 - 1
7.3	<i>BASELINE INFORMATION</i>	7 - 2
7.4	<i>ECOLOGICAL IMPORTANCE</i>	7 - 11
7.5	<i>IMPACT ASSESSMENT</i>	7 - 14
7.6	<i>MITIGATION MEASURES</i>	7 - 15
7.7	<i>RESIDUAL IMPACT</i>	7 - 16
7.8	<i>CONCLUSION</i>	7 - 17
8	<i>LANDSCAPE AND VISUAL IMPACT</i>	8 - 1
8.1	<i>INTRODUCTION</i>	8 - 1
8.2	<i>ENVIRONMENTAL LEGISLATION AND CRITERIA</i>	8 - 1
8.3	<i>ASSESSMENT METHODOLOGY</i>	8 - 1
8.4	<i>EXISTING LANDSCAPE AND VISUAL RESOURCES</i>	8 - 3
8.5	<i>IDENTIFICATION OF SENSITIVE RECEIVERS</i>	8 - 5
8.6	<i>DEVELOPMENT CONTEXT</i>	8 - 5
8.7	<i>DESCRIPTION OF PREFERRED DEVELOPMENT OPTION AND LANDSCAPE MASTER PLAN</i>	8 - 5
8.8	<i>IMPACT ASSESSMENT</i>	8 - 8
8.9	<i>FUNDING IMPLEMENTATION, MANAGEMENT AND MAINTENANCE OF LANDSCAPE WORKS</i>	8 - 14
8.10	<i>CONCLUSIONS</i>	8 - 15
9	<i>CULTURAL HERITAGE</i>	9 - 1
9.1	<i>INTRODUCTION</i>	9 - 1
9.2	<i>ENVIRONMENTAL LEGISLATION AND CRITERIA</i>	9 - 1
9.3	<i>CONCLUSION</i>	9 - 7
10	<i>LAND CONTAMINATION</i>	10 - 1
10.1	<i>INTRODUCTION</i>	10 - 1
10.2	<i>ENVIRONMENTAL LEGISLATION AND CRITERIA</i>	10 - 1
10.3	<i>DESCRIPTION OF THE ENVIRONMENT</i>	10 - 2

<b>10.4</b>	<b>IDENTIFICATION OF SENSITIVE RECEIVERS</b>	<b>10 - 3</b>
<b>10.5</b>	<b>ASSESSMENT METHODOLOGY</b>	<b>10 - 3</b>
<b>10.6</b>	<b>IDENTIFICATION OF POTENTIAL IMPACTS</b>	<b>10 - 3</b>
<b>10.7</b>	<b>EVALUATION OF IMPACT</b>	<b>10 - 6</b>
<b>10.8</b>	<b>MITIGATION OF ADVERSE IMPACTS</b>	<b>10 - 7</b>
<b>10.9</b>	<b>ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS</b>	<b>10 - 7</b>
<b>10.10</b>	<b>CONCLUSIONS</b>	<b>10 - 7</b>
<b>11</b>	<b>ENVIRONMENTAL MONITORING AND AUDIT</b>	<b>11 - 1</b>
<b>12</b>	<b>OVERALL CONCLUSIONS</b>	<b>12 - 1</b>
<b>12.1</b>	<b>INTRODUCTION</b>	<b>12 - 1</b>
<b>12.2</b>	<b>NOISE</b>	<b>12 - 1</b>
<b>12.3</b>	<b>AIR QUALITY</b>	<b>12 - 2</b>
<b>12.4</b>	<b>WATER QUALITY</b>	<b>12 - 3</b>
<b>12.5</b>	<b>WASTE MANAGEMENT</b>	<b>12 - 4</b>
<b>12.6</b>	<b>TERRESTRIAL ECOLOGY</b>	<b>12 - 4</b>
<b>12.7</b>	<b>LANDSCAPE AND VISUAL IMPACT</b>	<b>12 - 5</b>
<b>12.8</b>	<b>CULTURAL HERITAGE</b>	<b>12 - 6</b>
<b>12.9</b>	<b>LAND CONTAMINATION</b>	<b>12 - 6</b>
<b>12.10</b>	<b>OVERALL CONCLUSION</b>	<b>12 - 7</b>
	<b>Annex A</b>	<b>LRT Noise Measurement and Assessment</b>
	<b>Annex B</b>	<b>Construction Plant Inventory</b>
	<b>Annex C</b>	<b>Construction Noise Calculations</b>
	<b>Annex D</b>	<b>Breakdown of Noise Levels Traffic Noise Modelling Sample Output</b>
	<b>Annex E</b>	<b>Traffic Noise Modelling Sample Output</b>
	<b>Annex F</b>	<b>Estimation of Dwellings Eligible for Indirect Technical Remedies</b>
	<b>Annex G</b>	<b>Chimney Data</b>
	<b>Annex H</b>	<b>List of Reference for Ecology</b>
	<b>Annex I</b>	<b>Contamination Assessment Plan (CAP)</b>