

**ROCK HILL STREET EXTENSION
ENVIRONMENTAL IMPACT ASSESSMENT STUDY**

Final Report

Executive Summary

**HIGHWAYS DEPARTMENT
HIGHWAYS (HONG KONG) REGION**

November 1993

INTRODUCTION

1. The Western District Traffic Study carried out in 1988 recommended the construction of an additional link between Pokfulam Road and Connaught Road West to cater for future traffic demand. The link, scheduled for completion by 1996, comprises Belcher Bay link, Rock Hill Street Extension and Smithfield Extension. The proposed Rock Hill Street Extension involves constructing a ground level link between Sands Street and Smithfield as shown on Figure 1 so that future traffic travelling from Belcher Bay Link to Pokfulam Road via Smithfield Extension can avoid using the busy Belcher's Street. Rock Hill Street Extension Project is included under Item 412TH of the Public Works Programme and scheduled for commencement in May 1994 and will take approximately 24 months to complete.

2. This Environmental Impact Assessment Study for the proposed Rock Hill Street Extension project has been undertaken by Highways (Hong Kong) Region of Highways Department following an earlier environmental review on the project in which the Environmental Protection Department concluded that the project is likely to cause noise impact to the nearby premises. This Study attempts to identify the extent of the impact and recommend on the best practicable mitigation measures including consideration of indirect technical remedies for the residual impact when all practicable direct technical remedies have been considered and implemented. The extent of road subject to the Study includes the sections of Sands Street and North Street from Belcher's Street to and including the proposed Rock Hill Street Extension which links up Sands Street with Smithfield.

3. The Western District Traffic Study has conducted a study for the proposed works and concluded that air pollution would be insignificant. In the construction stage, the contractor will be required to exercise care to minimise the generation of construction dust and carry out necessary dust suppression measures. Relevant clauses for construction dust control will be included under the contract documents. It is also found that the proposed roadworks would not cause any water quality impact to the area affected by the project.

THE SITE

4. Both Sands Street and Smithfield are perpendicular to Belcher's Street and are separated by about 250 m. Accessible from Sands Street, the existing Rock Hill Street is a 50 m long cul-de-sac behind and parallel to Belcher's Street. Along the existing Rock Hill Street and the proposed extension are a children playground, a rock/soil slope with mature vegetation on top, leased and unleased government lands, a Police store, a latrine and a refuse collection point. Alongside the proposed road are mixed industrial and residential developments, a proposed Urban Council Complex and a reserved government office site.

PROPOSED WORKS

5. It is proposed to construct a one-way two-lane westbound carriageway with footpath on both sides to link Sands Street/ North Street and Smithfield. To construct the proposed extension, it is necessary to resume and demolish 3 buildings at the junction of Sands Street and Rock Hill Street, to cut into the slope at the end of Rock Hill Street and to demolish all the temporary structures lying on Rock Hill Street and the proposed extension.

NOISE IMPACT ASSESSMENT

I Operation Stage

6. The traffic noise impact assessment was carried out based on the peak hour traffic at year 2006 which is estimated to be 1153 veh/hr at Rock Hill Street Extension. The predicted traffic noise levels at 1993 and 2006 are presented in Figures 2 and 3. It is noted that following the construction and opening of the proposed Rock Hill Street Extension, some of the premises along Rock Hill Street Extension and sections of Sands Street and North Street to the south of Belcher's Street will be subject to traffic noise levels exceeding the criteria as set out under the Hong Kong Planning Standards & Guidelines. To ameliorate the noise impact, it is recommended that the roads be surfaced with friction course, which, because of its honeycomb like structural property, reduces noise from tyres on the road. Other possible measures to mitigate noise propagation include the erection of noise barriers or total enclosures but were considered impractical in view of the following site constraints :

- (i) erection of enclosure/barrier will reduce the footpath width at some locations to less than 1m which is not acceptable;
- (ii) enclosure/barrier will obstruct kerbside access, street lighting, traffic signage and maintenance access to utilities services;
- (iii) enclosure/barrier will obstruct emergency access to buildings. Provision of openings fronting building access will defeat the original intent of the enclosure/barrier;
- (iv) upper part of the barrier will encroach into the first floor of some buildings; and
- (v) barrier will lead to sight line problem near road junctions endangering the road users.

7. Subject to further detailed investigation, it may be necessary to provide indirect technical remedies in the form of insulation and air-conditioners to some flats within the following premises as shown on Figure 4 in order to keep the noise levels there within acceptable range. This will however require approval from the Executive Council.

(i) Sands Street

Man Fat Building, Sun's Building, House Nos. 1E, 1F, 1G, 1H & 1J.

(ii) Rock Hill Street Extension

Po Fat Building, Kin Yu Mansion, Kam Po Mansion, Kin Liong Mansion and Pit Fat Building

(iii) North Street

Kam Po Mansion and Kin Liong Mansion.

8. It is further recommended that the exact extent of premises eligible for the provision of indirect technical remedies should be subject to further detailed investigation.

II CONSTRUCTION STAGE

9. During the construction of the Rock Hill Street Extension project, excessive noise levels exceeding the planning criterion of 75 dB(A) will be generated in the immediate vicinity of operations which are at close proximity to the nearby residential premises. In order to mitigate excessive construction noise, the following practical measures could be considered :

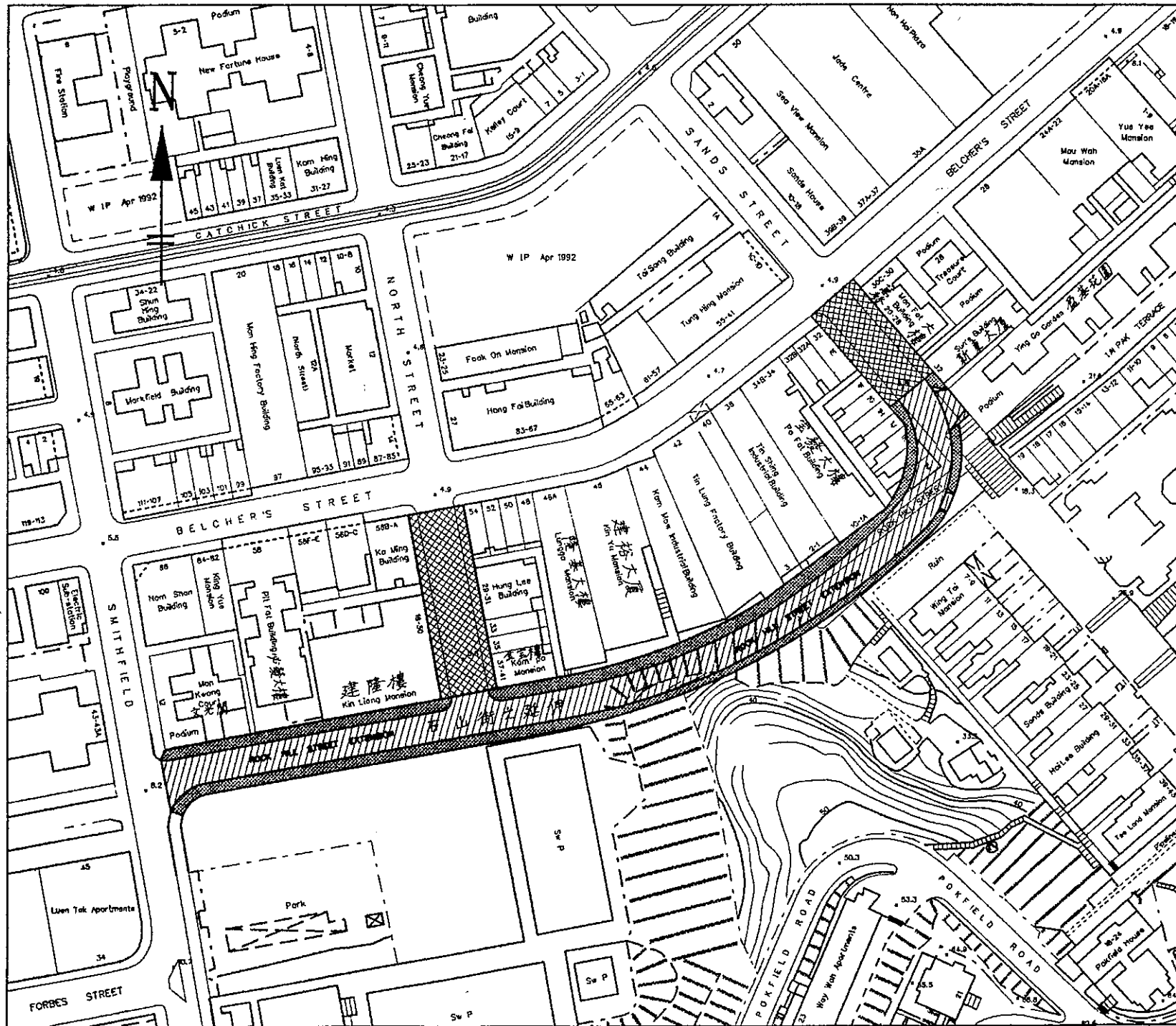
- (a) re-scheduling of construction activities to avoid parallel operations of several sets of equipment;
- (b) adequate and appropriate maintenance of construction plants;
- (c) programming the noisy operations to be carried out during periods having high background noise;
- (d) reduction of operations items of powered mechanical equipment;
- (e) turning off powered mechanical equipment whenever possible;
- (f) re-arrangement of equipment such that the noisy construction equipment to be located at a reasonable distance from noise sensitive receivers;
- (g) application of silenced equipment;
- (h) screening of specific receivers by the application of temporary noise barriers, acoustic sheds or earth bunds; and

- (i) reducing the number of mechanical equipment to be employed and operated in each construction activity to a bare minimum.

10. Roadwork and building demolition works are found to be the construction activities causing the most severe noise impact which can however be minimised by adopting the mitigation measures as recommended in para. 9. It is further recommended that the following clauses be included in the contract document to ensure the noise levels arising from these activities are minimised :





- (i) The Contractor shall ensure that all plant and equipment to be used on site shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means to avoid disturbance to any nearby noise sensitive receivers.
- (ii) The Contractor shall provide acoustic sheds or screens whenever applicable to shelter noisy construction works including the cutting of slope/knoll and road/rock breaking unless acoustically equivalent noise reduction measures are proposed and implemented to the satisfaction of the Engineer.
- (iii) For building demolition work the Contractor shall use hydraulic concrete crusher whenever applicable.


11. Adopting the mitigation measures as recommended above will result in a reduction in received noise levels to meet the planning criterion. Moreover, regular monitoring of the construction noise level is strongly recommended to control the noise impact. It is recommended that relevant clauses for the noise mitigation measures and monitoring procedure be included under the contract documents requiring the Contractor to ensure that the noise levels arising from his site activities are controlled to the minimum.



NOTES

LEGEND :

-  Existing footway and carriageway to be reconstructed
-  Proposed carriageway
-  Proposed footway
-  Proposed run-in

no.	date	description	initial
REVISION			
drawn	W. F. LOOK	8-93	
checked	K. H. TONG		
approved			10/93
	Senior Engineer/CV2		Date

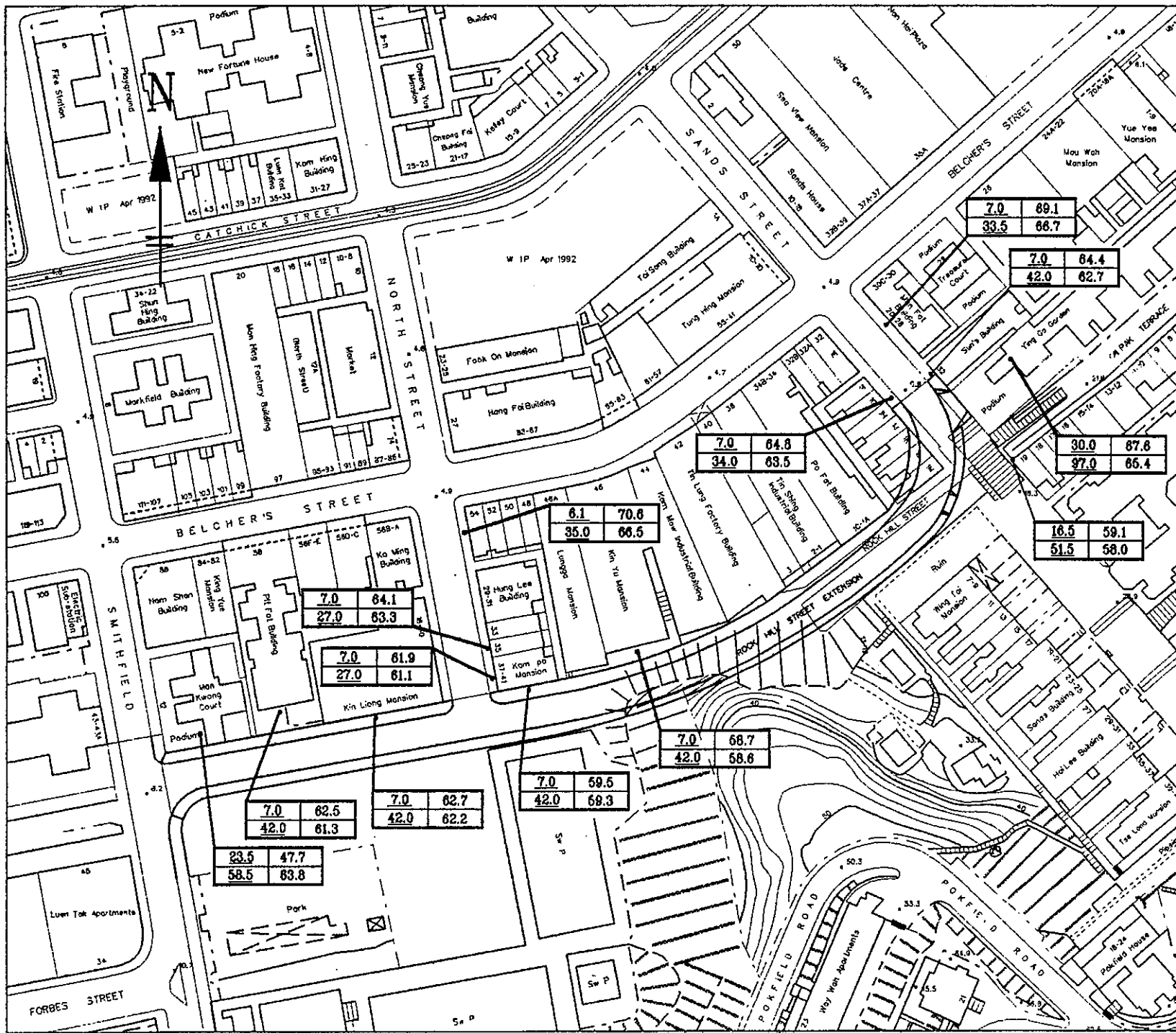
contract no.
file no.
project no.
contract
ROCK HILL STREET EXTENSION

drawing title
GENERAL LAYOUT

drawing no.	scale
FIGURE 1	1 : 1 500

office
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NOTES

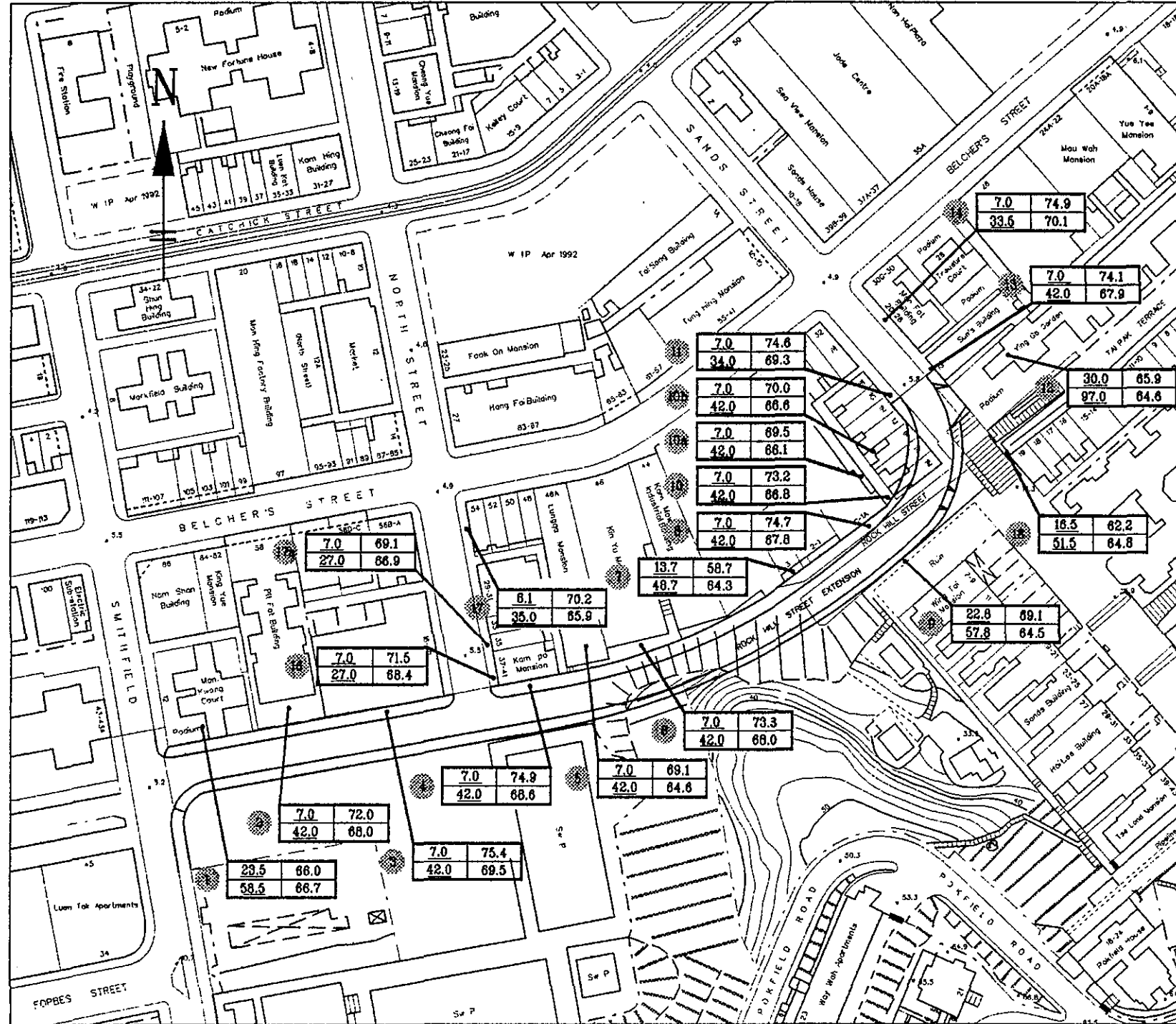
- All predicted noise levels are L_{eq} (1 hour)

LEGEND :

LEVEL (mPD)	Predicted Noise Level db (A)
6.0	72.8
35.0	88.2

no.	date	description	initial
REVISION			
drawn	W. F. LOOK	6-93	
checked	K. H. TONG		
approved	<i>C. Cheng</i>	10/93	
Senior Engineer/CIVIL Date			
contract no.			
file no.			
project no.			
contract			
ROCK HILL STREET EXTENSION			
drawing title			
PREDICTED PEAK HOUR TRAFFIC NOISE LEVEL AT YEAR 1993			
drawing no.		scale	
FIGURE 2		1 : 1500	
office			
HIGHWAYS / HONG KONG REGION			

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NOTES

1. All predicted noise levels are L_{eq} (1 hour)

LEGEND :

NSR NO.	LEVEL (mPD)	Predicted Noise Level (A)
	23.5	67.8
	59.5	67.0

no.	date	description	initial
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REVISION

drawn W. F. LOOK *WFL* 8-93

checked K. H. TONG *KHT*

approved *C. Cheung*
Senior Engineer/CV2 Date

contract no.

file no.

project no.

contract

**ROCK HILL STREET
EXTENSION**

drawing title

**PREDICTED PEAK HOUR
TRAFFIC NOISE LEVEL
AT YEAR 2008**

drawing no.

FIGURE 3

scale

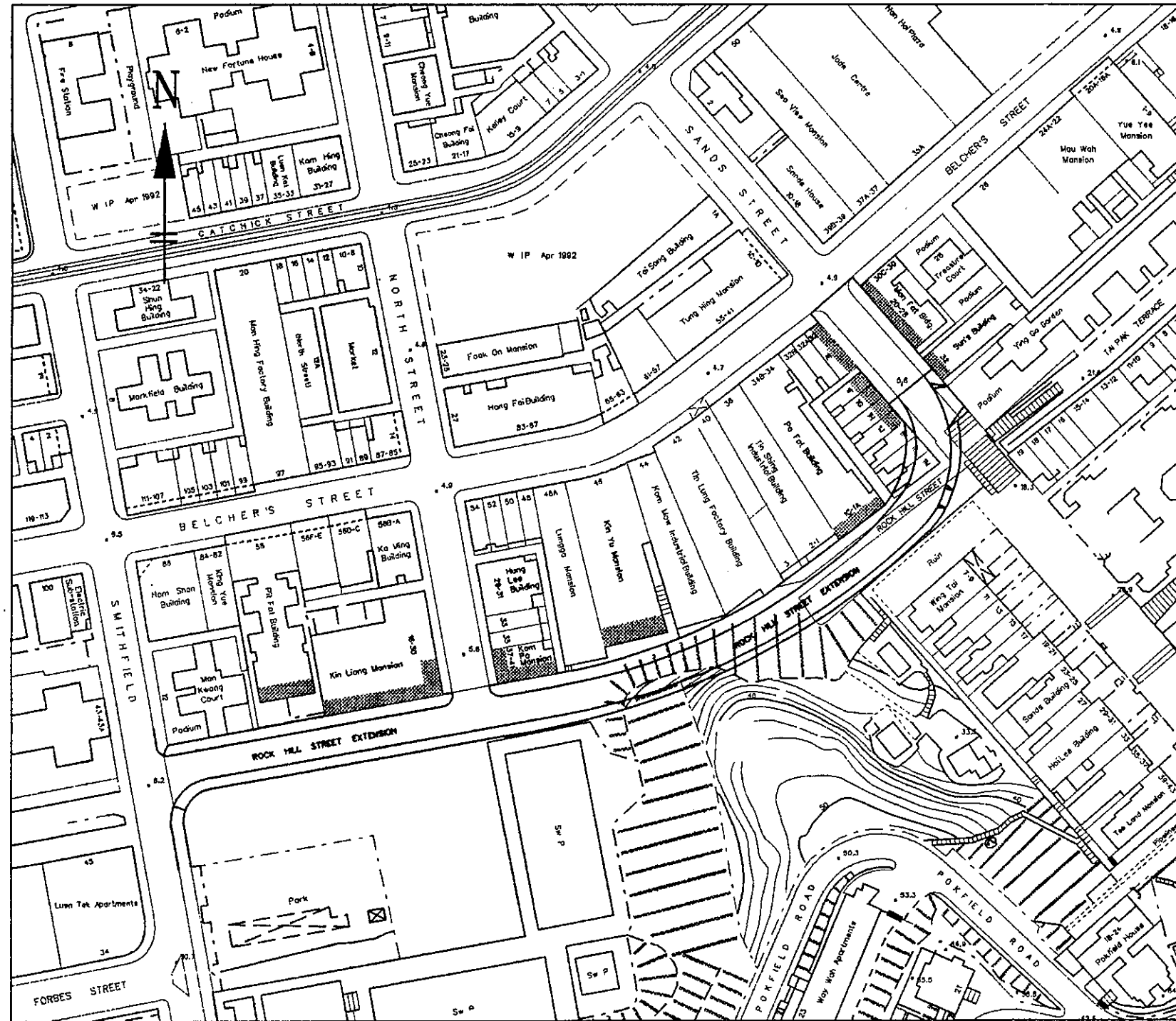
1 : 1 500

office

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DEPARTMENT
HONG KONG**



NOTES

LEGEND :

 Premises to be considered for indirect technical remedies

no.	date	description	initial
REVISION			
drawn		W. F. LOOK	8-93
checked		K. H. TONG	10/93
approved		<i>C. H. Tong</i>	10.93
		Senior Engineer/CW2	Date

contract no.	
file no.	
project no.	
contract	ROCK HILL STREET EXTENSION
drawing title	LOCATION PLAN FOR INDIRECT TECHNICAL REMEDIES
drawing no.	FIGURE 4
scale	1 : 1 500
office	HIGHWAYS / HONG KONG REGION

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