



## Tseung Kwan O Development

### Improvements To Ying Yip Road And Silverstrand Beach Road At Junctions With Hang Hau Road And Clear Water Bay Road

Contract No. TK 40/94

# Environmental Impact Assessment

## Executive Summary

DECEMBER 1995

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## EXECUTIVE SUMMARY

### Background

Improvements to the junctions of Clear Water Bay Road, Hang Hau Road, Ying Yip Road, Silverstrand Beach Road and associated roads under Contract No. TK 40/94 form part of a general scheme of improvements to the road network for Tseung Kwan O New Town. The improvement scheme involves the realignment of two roads which join Clear Water Bay Road and the construction of a four prong roundabout.

The greatest impact will happen in the vicinity of the proposed roundabout on Clear Water Bay Road where several properties are located within close proximity to the improvements. Other dwellings are located on roads which connect to Clear Water Bay Road and overlook the improved roads at a sufficiently far distance. Any impacts from the new roads are expected to be diminished over distance.

The primary environmental impact in the area will arise from traffic using the road network and during construction stage. Environmental assessments have therefore been carried out to examine the noise and air quality aspects of the proposed scheme.

### Impact of Road Traffic Noise

The roundabout does not, in general, result in roads being located closer to properties adversely affected by road traffic noise except at Villa Placida. Increased traffic noise impact in the study year 2011 will be expected as a result of the road improvement scheme. Predicted noise levels vary from 67 to 82 dB(A)L<sub>10</sub> (1-hour). The traffic noise standard stipulated in HKPSG for dwelling is 70dB(A)L<sub>10</sub> (1-hour).

Different methods such as noise canopy, barrier or noise reducing road surfacing materials to mitigate the impact of high traffic noise were considered. Vertical noise barriers with height up to 9 metres were examined. After taking into consideration of the visibility splay at this roundabout and road safety, 1 metre and 2 metres high vertical barriers are considered the only practical and appropriate measures for the buildings of Villa Pine and PIME House respectively.

Other direct mitigatory measures mentioned above cannot be practically installed. As it is not possible to further reduce the noise levels by providing direct mitigation measures, indirect technical remedies in the form of window insulation and air conditioning are recommended to redress the residual impact of the proposed roadwork.

For the purpose of determining which dwelling will be eligible for indirect technical remedies, reference is made to the set of criteria being used in Hong Kong as follows:-

- (i) the relevant noise level, from the new or altered highway together with other traffic in the vicinity must be above 70dB(A)L<sub>10</sub> 1hr.

- (ii) the relevant noise level must be at least 1.0dB(A) $L_{10}$  (1-hour) more than the total traffic noise level existing prior to the works to construct or improve the highway;
- (iii) the contribution to the increase in the relevant noise level from the new or altered highway must be at least 1.0dB(A) $L_{10}$  (1-hour).

Subject to ExCo's approval, it is estimated that 6 dwellings will be eligible for indirect technical remedies. Only PIME House does not meet the criteria for indirect technical remedies but the affected facade will be protected by the recommended 2 metres high concrete barrier along Clear Water Bay Road.

The number of dwellings at which noise levels exceed the HKPSG criteria after the completion of the improvement works with and without any direct noise mitigatory measures and those eligible for indirect mitigatory measures are listed as follows:

Dwellings	Exceeding HKPSG without Direct Mitigatory measures	Exceeding HKPSG with Recommended direct mitigatory measures	Eligible for indirect mitigatory measures
Lot 351SA	x	x	x
Lot 360	x	x	x
PIME House	x	x	-
Villa Pine	x	-	-
Villa Placida	x	x	x
Clear View	x	x	x
Haven View	x	x	x
Lot 351 R.P.	x	x	x
<b>Total</b>	<b>8</b>	<b>7</b>	<b>6</b>

### Impact of Construction Noise

The close proximity of the improvements to the properties will require construction noise levels to be minimised to avoid noise levels at properties exceeding the standard of 75 dB(A)  $L_{eq}$  (30 min) for residential development. Equipment with sound proof insulation combined with quiet methods of working will be required. Construction noise monitoring will be performed regularly to reduce possible noise levels below the limits required by the contract.

Most of the properties adversely affected by construction noise are eligible for indirect technical remedies and it is recommended that the properties should be insulated prior to the commencement of construction if possible.

### **Air Quality Impact**

The impact of road traffic on air quality was found to be minimal. Vehicle emissions are not predicted to cause a deterioration of air quality at any of the buildings to a level which exceeds the Hong Kong Air Quality Objectives (HKAQO).

Dust emissions are not predicted to be a nuisance during construction. The nature of the works and associated construction activities will not lead to significant volumes of dust being generated from construction activities. Good working practices will be capable of limiting any dust emissions to the 1-hour TSP guideline level and TSP HKAQO limits. Dust monitoring exercise will be carried out during the construction period to ensure the compliance of the 1-hour TSP guideline level and TSP HKAQO limits.

### **Conclusion**

It is concluded that the greatest environmental impact of the roads to be constructed under Contract No. TK 40/94 will arise from road traffic noise. Direct mitigation measures recommended are a 2m high noise barrier along Clear Water Bay Road at PIME House and a 1m high profile barrier along the edge of Hang Hau/Ying Yip Road for noise reduction at Villa Pine. It is recommended for the other affected properties to be insulated to mitigate the residual impact within the dwellings. The use of quiet construction methods will be required to ensure that noise from construction activity does not exceed acceptable levels.

The impact of vehicle emissions on air quality will not be significant. Dust emissions during construction can be controlled to within 1-hour TSP guideline level and TSP HKAQO limits and should not have a significant impact on the adjacent properties. Nevertheless, dust monitoring exercise will be carried out during the construction period to ensure the compliance of 1-hour TSP guideline level and TSP HKAQO limits.

將軍澳新市鎮  
連接坑口道及清水灣道交界處的  
影業路及銀線灣道改善工程

合約編號TK40/94

環境影響評估

摘要

## 目 錄

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圖紙編號60293/ES1

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## 摘要

### 背景

將軍澳新市鎮工程合約編號TK40/94為改善新市鎮整體道路工程計劃之一部份。此項改善道路工程涉及更改影業路及銀線灣道之路線及興建一個連接清水灣道、坑口道、影業路和銀線灣道之迴旋處。

接近擬建清水灣道迴旋處之數幢住宅將受到最大之影響。在其他連接清水灣道之道路上，受到新路影響之住宅距離較遠，所受到之衝擊亦相對減少。

而使用此改善道路之車輛及施工期間將引致一定之環境影響，本報告為有關由此項工程所產生之噪音和空氣質素問題之環境評估及建議適合之處理方法。

### 道路交通噪音之影響

除在清水灣道306號地段(DD224)(Villa Placida)外，擬建之迴旋處不至將現有道路移近民居。此項改善工程將會在2011年帶來較現時為高之噪音水平。在十分一個小時內，預計之高峰噪音水平將界符67至82分貝(A聲級)。現時，用作居住用途的交通噪音標準為70分貝(A聲級)。

有關減低交通噪音影響之不同方法，例如：隔音罩、隔音屏障及減低噪音路面之物料已作出一定之考慮。高至9米之垂直隔音屏障亦已被評審。在考慮迴旋處附近之視線及交通安全問題後，在Villa Pine及PIME House可分別使用1米及2米高隔音屏障，作為實際及適當的措施。

以上其他方法均未能實際地安裝起來。由於未能用直接抑壓噪音措施來進一步降低噪音水平，建議採用隔音玻璃和空調設施作為間接措施，以減低此項道路工程之影響。

在香港用來介定是否符合應接受間接抑壓噪音措施之標準如下：

- (i) 新建道路的噪音加上附近其他交通噪音的預測整體噪音聲級必須是在一小時內有10%時間累積統計聲級為70分貝(A)以上。
- (ii) 新建道路的預測噪音聲級須比道路興建前附近原有交通噪音聲級至少高1分貝(A)。
- (iii) 新建道路產生的噪音必須使整體噪音聲級上升至少1分貝(A)。



若行政局通過，有六間住宅將可接受間接抑壓措施。而只有一間居所PIME House不符合用來介定應接受間接抑壓措施的準則，但將受到2米高隔音屏障之保護。

在有或沒有直接抑壓噪音措施之情況下，而音量超出香港規劃標準指引所釐定之準則，及符合接受間接抑壓措施樓宇如下：

居所	沒有直接抑壓措施而超出規劃標準指引之準則	有直接抑壓措施而超出規則標準指引之準則	符合接受間接抑壓措施
Lot351SA	x	x	x
Lot360	x	x	x
VILLA PINE	x	-	-
PIME HOUSE	x	x	-
Villa Placida	x	x	x
Clear View	x	x	x
Haven View	x	x	x
Lot351RP	x	x	x
總數	8	7	6

### 建築噪音之影響

由於工程非常接近民居，建築施工所產生之噪音將會盡量減低，以達到不超出75分貝(30分鐘等效A聲級)水平的目的。施工期間須採用裝有隔音設備之機械及寧靜的施工方法。所產生之建築噪音將受到經常施工之監察以達到指定之標準。

大部份受到將來工程噪音影響的建築物都符合接受間接抑壓措施的標準，提議應在工程開始前將此等設施安裝在有關建築物上。

### 空氣質素之影響

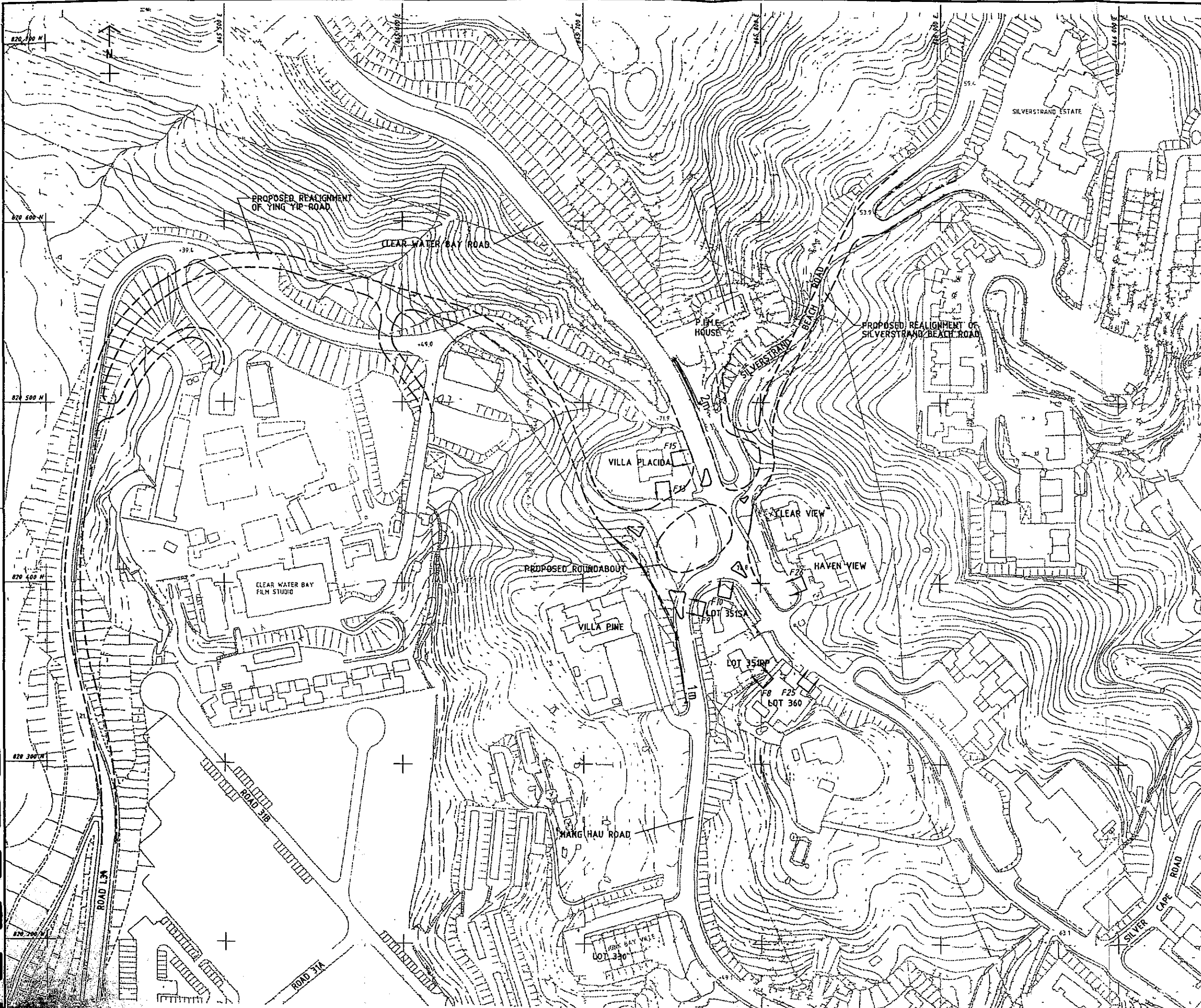
道路交通影響空氣質素之情況估計輕微，汽車排放之廢氣將不會導致附近建築物之空氣質素差於標準。

建築施工所引致之塵埃將不至構成滋擾。工程之性質及其有關建築施工方法將不會產生大量的塵土。良好的施工方法將可以限制塵土產生，以達到低於指定標準。有關塵土污染之程度，將受到一定施工監察，以合乎指定標準。

### 結論

由合約編號TK40/94所包括之道路及其建築工程帶來之環境影響，主要來自道路汽車所產生之噪音。建議在Villa Pine及PIMEHouse分別採用1米及2米高隔音屏障，以作為直接抑壓噪音措施。建議將所有受影響之建築物予以隔音設備，以減低屋內之影響。將採用有關寧靜之施工方法，以確保建築期間之噪音聲浪低於可接受水平。

汽車排出的廢氣將不致嚴重影響空氣質素。建築期間所產生之塵埃受到有效地控制於指定標準以內，而不致影響附近居所。建築期間塵埃水平將受到監察，以確保能合乎指定標準。



**LEGEND:**

□ FACADE WITH NUMBER SHOWN THUS  
F9

1.0m 1.0m  
▲ PROPOSED NOISE BARRIER AND HEIGHT

- NOTES:**
1. FACADE 10 OF LOT 351SA, FACADES 8 AND 25 OF LOT 360, FACADES F13 (2/F ONLY) AND F15 OF VILLA PLACIDA, FACADE F26 OF HAVEN VIEW AND LOT 351RP ARE SUGGESTED TO BE INSULATED WITH TYPE I OPENABLE WELL-GASKETTED WINDOWS
  2. FACADE 9 OF LOT 351SA IS SUGGESTED TO BE INSULATED WITH TYPE II DOUBLE-GLAZED WINDOWS.

REV. NO.	DESCRIPTION	DATE	CHECKED
Territory Development Department 拓展處			
NT EAST DEVELOPMENT OFFICE 新界東拓展處			
<b>TSEUNG KWAN O DEVELOPMENT</b>			
TKO DEVELOPMENT CONTRACT No 40/94 ENVIRONMENTAL IMPACT ASSESSMENT			
<b>RECOMMENDED NOISE MITIGATORY MEASURES</b>			
DESIGNED BY	<b>MAUNSELL</b> CONSULTANTS AND LTD. 馬敏士顧問有限公司		
CHECKED BY			
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