



07-Nov-2016

Your Ref: (5) in EP2/H4/S3/15 Pt. 41
Our Ref: H2613-LJV-EN-LE-4296

The EIA Ordinance Register Office
Environmental Protection Department
27/F, Southorn Centre
130 Hennessy Road
Wan Chai, Hong Kong

Dear Sir,

Contract No. HY/2011/08
Central-Wan Chai Bypass – Tunnel Buildings, Systems and Fittings, and Works
Associated with Tunnel Commissioning
Construction Noise Management Plan (Rev. 4)

We refer to our previous letter ref. H2613-LJV-EN-LE-4006 dated 22-Sep-16 for the captioned and find deficiencies after review. Pursuant to Condition 2.9 of the Environmental Permit no. FEP-11/364/2009/B, we enclose revised four hard copies and one electronic copy with ET's certification letter and IEC's verification letter for superseding the previous one.

Should you have any query, please do not hesitate to contact our Mr. Malcolm Leung at 6323 9478, or malcolm.leung@leightonasia.com.

Yours faithfully
For and on behalf of
Leighton Joint Venture

Colman Wong
Project Director

CW / PT / ML / CTS

Encl.

c.c.	AECOM	- Mr. David Kwan, CRE	(CD only)
	LAM	- Mr. Raymond Dai, ETL	(CD only)
	ENVIRON	- Mr. David Yeung, IEC	(CD only)

LEIGHTON



Contract No. HY/2011/08
Central-Wan Chai Bypass – Tunnel Building,
Systems and Fittings, and Works Associated with
Tunnel Commissioning

Construction Noise Management Plan

Prepared by:

A handwritten signature in blue ink, appearing to read 'Malcolm Leung', written over a horizontal line.

Malcolm Leung
Environmental Officer

Approved by:

A handwritten signature in blue ink, appearing to read 'Colman Wong', written over a horizontal line.

Colman Wong
Site Agent



Lam Geotechnics Limited

Ground Investigation & Instrumentation Professionals

華益
土力
有限
公司

Ref : G1125/CS/L264/LJV
Date : 04 November 2016

Leighton Joint Venture
39/F Sun Hung Kai Centre
30 Harbour Road
Wan Chai Hong Kong

Attn: Site Agent, Mr. Colman Wong

Dear Mr. Wong,

Contract No. HY/2011/08
Central – WanChai Bypass Tunnel –Tunnel Buildings, Systems and Fittings, and
Works Associated with Tunnel Commissioning
Noise Management Plan (Rev. 4)

Referring to the captioned submission dated 28 October 2016 received through email on 01 November 2016, we have reviewed your submitted details and hereby certified this submission in accordance with Condition 2.9 of FEP-11/364/2009/B.

Should you have any enquiry, please feel free to contact the undersigned at 2839 5666.

Yours faithfully,

Raymond Dai
Environmental Team Leader

C.C.

HyD	- Mr. Eddie Wu	(By Fax: 2714 5289)
AECOM	- Mr. Peter Poon	(By Fax: 3153 5812)
AECOM	- Mr. Frankie Fan	(By Fax: 2587 1877)
Ramboll Environ	- Mr. David Yeung	(By Fax: 3548 6988)



Ref.: AACWBIECEM00_0_8709L.16

4 November 2016

By E-mail

Leighton Joint Venture
39/F, Sun Hung Kai Centre
30 Harbour Road
Hong Kong

Attention: Site Agent, Mr. Colman Wong

Dear Mr. Wong,

**Re: Contract No. HY/2011/08
Central – Wan Chai Bypass – Tunnel Buildings, Systems and Fittings,
and Works Associated with Tunnel Commissioning
Construction Noise Management Plan (Revision 4)**

Reference is made to the captioned submission received on 1 November 2016.

Please be informed that we have no comments on the captioned submission. We write to verify it in accordance with Condition 2.9 of FEP-11/364/2009/B.

Thank you for your kind attention.

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	HyD	Mr. Eddy Wu	by fax: 2714 5289
	AECOM	Mr. Peter Poon	by fax: 3912 3010
	AECOM	Mr. Frankie Fan	by fax: 2587 1877
	LAM	Mr. Raymond Dai (ETL)	by fax: 2882 3331

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Construction Noise Management Plan

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Appendices

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Appendix 2B	Tentative Construction Programme
Appendix 3	Representative Noise Sensitive Receivers
Appendix 4	Typical Details of the Noise Barrier

Revision	Date	Section/Description	Prepared	Reviewed	Authorised by
00	17.07.2014	Issue for Construction	Donald Ip	Donald Ip	Colman Wong
01	19.12.2014	Addressed comments from EPD	Penny Yiu	Chris Chan	Colman Wong
02	25.06.2015	Responses to Comments	Malcolm Leung	Malcolm Leung	Colman Wong
03	19.01.2016	Responses to Comments	Malcolm Leung	Malcolm Leung	Colman Wong
04	28.10.2016	Responses to Comments	Malcolm Leung	Malcolm Leung	Colman Wong

Construction Noise Management Plan

1. INTRODUCTION

- 1.1.1 To comply with the Condition 2.9 under Environmental Permit number: FEP-11/364/2009/B, a Construction Noise Management Plan (hereinafter referred to as “this plan”) is prepared to show the noise mitigation measures to include: (a) the use of movable / temporary noise barriers, the use of quiet powered mechanical equipment and the adoption of multiple-phase construction schedules, where appropriate.
- 1.1.2 This plan also provides the project descriptions, the layout plans and the construction programme from the construction of the Central - Wan Chai Bypass - Tunnel Building, Systems and Fittings and Works Associated with Tunnel Commissioning (Contract No. HY/2011/08, hereinafter referred to as “the CWB-CC” and the contract was awarded to Leighton Joint Venture “LJV”).
- 1.1.3 LJV has reviewed the possibilities to use movable / temporary noise barriers, quiet powered mechanical equipment and the adoption of multiple-phase construction schedules.

2. PROJECT BACKGROUND (CONTRACT NO. HY/2011/08)

- 2.1.1 The CWB-CC is one of the Central - Wan Chai Bypass (CWB) contracts for the CWB project. The extent of the CWB-CC alignment is extensive from Sheung Wan, via Central - Wan Chai - Causeway Bay - Tin Hau, to North Point, as shown in **Appendix 2A**. The tentative construction programme is presented in **Appendix 2B**.
- 2.1.2 The scope of the CWB-CC’s works mainly includes:
- construction of the tunnel control buildings and ventilation buildings including Administration Building (ADB), West Ventilation Building (WVB), Central Ventilation Building (CVB) [i.e. namely Middle Ventilation Building (MVB) in the CWB-CC contract], East Ventilation Building (EVB) and East Vent Shaft (EVS);
 - associated road lighting, road signing, traffic control and surveillance system; and
 - other associated works.

3. CONCERNS REGARDING CONSTRUCTION NOISE

- 3.1.1 Construction noise impacts had been assessed in the CWB&IECL EIA Report (Register No. AEIAR-041/2001) and the WDII&CWB EIA Report (Register No. AEIAR-125/2008).

3.2 Noise Sensitive Receivers (NSRs)

- 3.2.1 **Table 3.1** shows the representative NSRs identified in the CWB&IECL EIA Report and the WDII&CWB EIA Report. The photographs of the representative NSRs are shown in **Appendix 3**.

Construction Noise Management Plan

Table 3.1 Representative Existing and Planned NSRs identified in the WDII&CWB EIA Report and the CWB&IECL EIA Report.

NSR	Area	Location	Use	Ground elevation (mPD)	No. of Floors
N1	Wan Chai	The Hong Kong Academy for Performing Arts (HKAPA) (with central air-conditioning)	Performing Arts Centre	5.0	G/F
N2	Wan Chai	Causeway Centre	Residential	4.0	42
N3	Wan Chai	169 – 170 Gloucester Road	Residential	3.7	12
N4	Wan Chai	Kam Kwok Building	Residential	3.7	18
N5	Wan Chai	Hyde Centre	Residential	3.7	22
N6	Causeway Bay	Elizabeth House	Residential	3.7	21
N7	Causeway Bay	Riviera Mansion	Residential	4.3	15
N8	Causeway Bay	Marco Polo Mansion	Residential	4.3	15
N9	Tin Hau	Viking Garden	Residential	4.0	25
N10	Tin Hau	Victoria Court	Residential	4.0	18
N11	Tin Hau	Mayson Garden	Residential	4.0	24
N12	Tin Hau	Gordon Garden	Residential	4.0	15
N13	Tin Hau	Belle House	Residential	3.6	24
N14	Tin Hau	Hoi Tao Building	Residential	4.0	30
N15	Tin Hau	Staff Quarters of FEHD	Residential	4.0	4
N16	Tin Hau	Victoria Centre	Residential	4.0	30
N17	Tin Hau	Harbour Heights	Residential	4.3	44
N17-A	Tin Hau	Harbour Heights – A	Residential	4.3	44
N18	North Point	City Garden, Block 10	Residential	4.0	27
N18-A	North Point	City Garden, Block 11	Residential	4.0	27
N18-B	North Point	City Garden, Block 10 – B	Residential	4.0	27
N19	North Point	City Garden, Block 7	Residential	4.0	27
N19-A	North Point	City Garden, Block 7 – A	Residential	4.0	27
N20	North Point	Hong Kong Baptist Church Henrietta Secondary School	Educational Institution	4.0	6
N21	North Point	Provident Centre, Block 1	Residential	4.0	25
N22	North Point	Provident Centre, Block 6	Residential	4.0	25
N23	North Point	Provident Centre, Block 17	Residential	4.0	25
N24	Sheung Wan	Korea Centre	Residential	4.0	13
N25	Central	City Hall	Performing Arts Centre	4.0	5
N26	Central	PLA Headquarters	Others (Military)	-	-
P1-A	Tin Hau	Planned location for Re-provisioned Tin Hau Temple (West Facing Façade)	Temple	3.6	1
P1-B	Tin Hau	Planned location for Re-provisioned Tin Hau Temple (South Facing Façade)	Temple	3.6	1
P2	North Point	A land zoned as “CDA(1)” near Oil Street	CDA(1)	4.0	53 ⁽¹⁾
P3	North Point	A land zoned as “CDA” near Oil Street	CDA	4.5	34 ⁽¹⁾
AD1 ⁽²⁾	North Point	Wan Wah Mansion	Residential	4.0	24

Note: (1) The assumed number of floors was based on information provided by Planning Department on the maximum building heights of 165mPD for CDA(1) site and 100mPD for CDA site (within 60m of the northwest boundary) as mentioned in the EIA Report.

(2) Not considered in the approved EIA reports.

Construction Noise Management Plan

3.3 Noise Impacts

- 3.3.1 Construction noise impact to the NSRs was assessed in Appendix 4.13 / Appendix 4.14 of the WDII&CWB EIA report. The major noise concern is from the works for the construction of the tunnel buildings' superstructures and substructures. (According to the current arrangement, the construction of the tunnel buildings' substructures would be completed by others.)
- 3.3.2 LJV will be responsible for the construction of tunnel buildings' superstructures. Although sole construction of the tunnel buildings' superstructures will not have significant and irreversible noise impacts to nearby residents, it is considered that there will be cumulative construction noise impacts for the CWB project.
- 3.3.3 Hence, to mitigate the cumulative noise impacts to the NSRs, noise mitigation measures shall be considered as far as practicable during construction.

4. NOISE MITIGATION MEASURES

- 4.1.1 To mitigate the noise impacts, LJV has reviewed the site constraint and considered that the following mitigation measures are reasonably practicable. The measures will be implemented when necessary and will be reviewed in relevant method statements via submission to the Engineer's Representative (ER).

Movable / Temporary Noise Barriers

- 4.1.2 To mitigate the noise generated by the stationary noisy equipment, movable acoustic shelter, flexible noise barriers and acoustic blanket will be considered.
- 4.1.3 The barrier and shelter could be made of a sheeting not less than 5kg/m² or baffles which comprise of sound absorbing lining and 1mm thick steel (or 10mm thick plywood) backing.
- 4.1.4 Typical details of the noise barrier are shown in **Appendix 4**.

Quiet Powered Mechanical Equipment (QPME)

- 4.1.5 The following QPME will be considered:
- Excavator
 - Crane, mobile
 - Generator

Multiple-phase Construction Schedule

- 4.1.6 The multiple-phase construction schedule will be adopted as far as practicable during the planning of the construction programme. Moreover, the construction programme will be submitted to the Engineer's Representative (ER) for review.

Construction Noise Management Plan

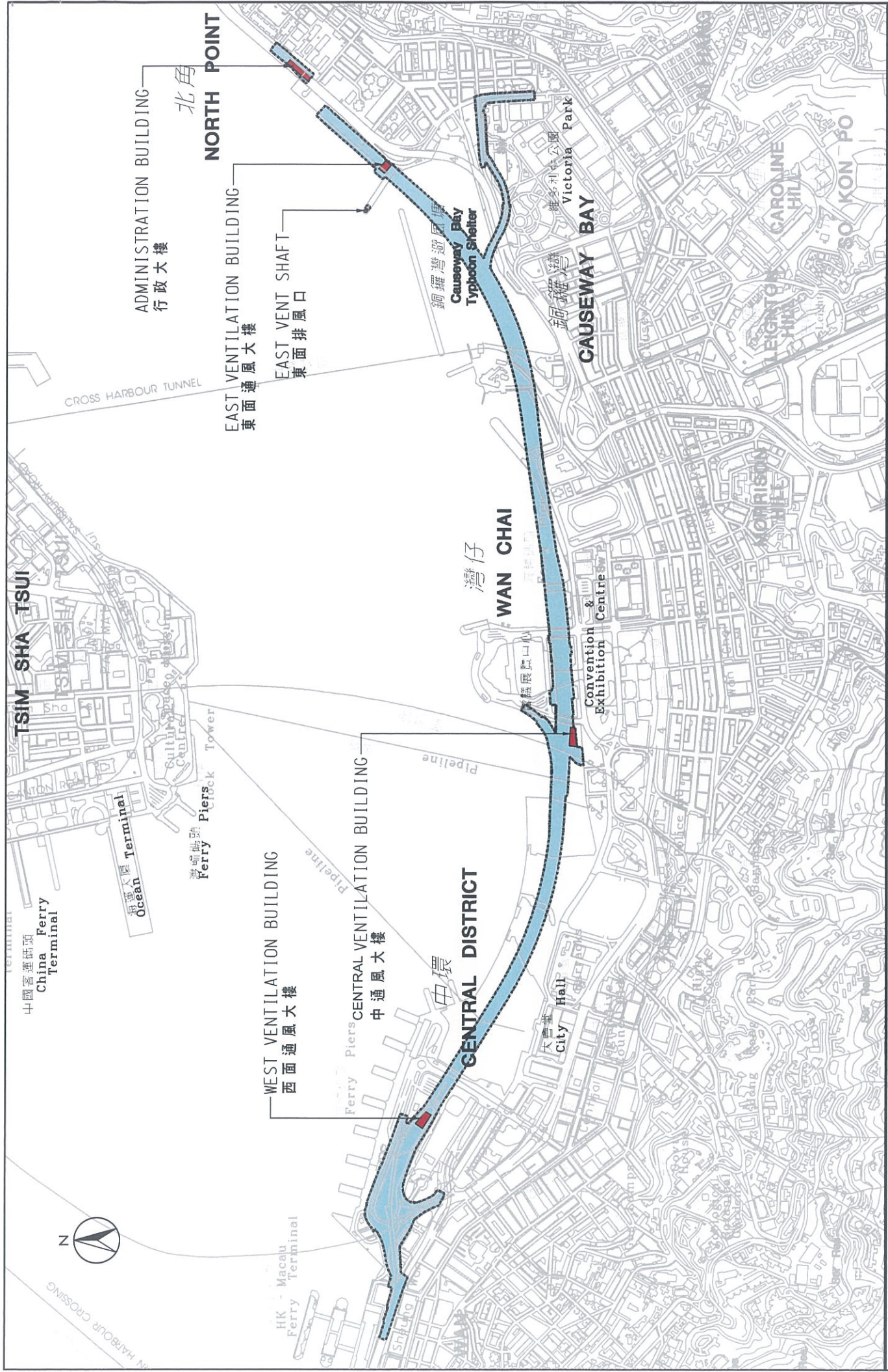
Other Mitigation Measures

- The following good practices will also be adopted when practical to alleviate noise impact:
- All PME to be used on site should be properly maintained;
- Silencers or mufflers on construction equipment should be utilised if possible and should be properly maintained;
- Mobile plant should be sites as far as away from NSRs as possible;
- Starting up the engines of all plant simultaneously should be avoided;
- PME known to emit noise strongly in one direction should, where possible, be orientated so that the noise is directed away from the nearby NSRs; and
- Close liaison and communication with the neighbourhood including HKAPA should be maintained.

5. CONCLUSION

- 5.1.1 Although sole construction of tunnel buildings' superstructures will not have significant and irreversible noise impacts to nearby residents, it is considered that there will be cumulative construction noise impacts for the CWB project.
- 5.1.2 Hence, LJV will implement appropriate noise mitigation measures when necessary, which could minimize the potential nuisance to the public.
- 5.1.3 LJV considered that use movable / temporary noise barriers, quiet powered mechanical equipment and the adoption of multiple-phase construction schedules are practicable and will be adopted when necessary.

Appendix 2A Project Layout Plan



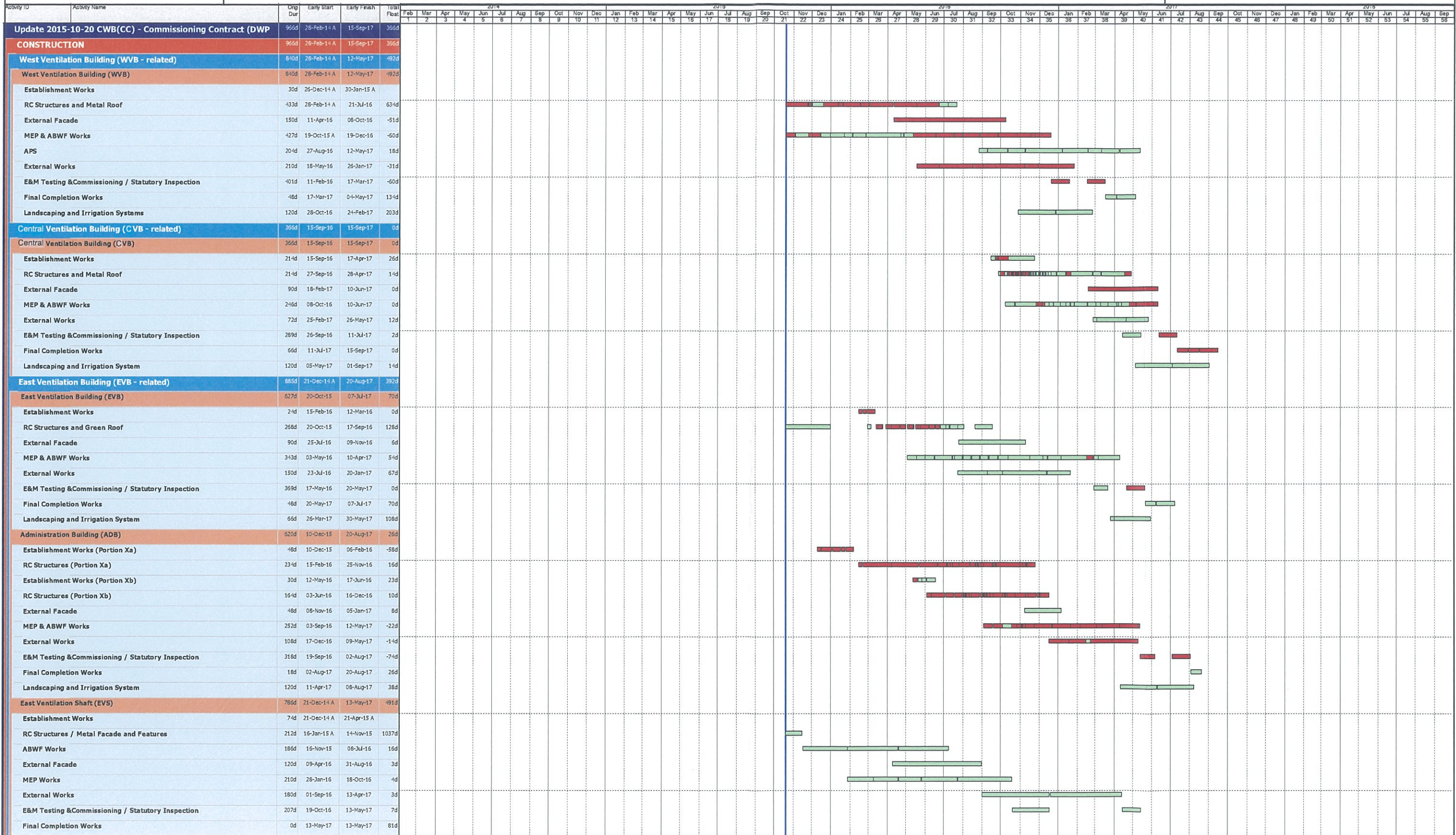
合約編號 HY/2011/08 中環灣仔繞道 - 隊道大樓、系統設備及隧道啟用相關工程

CONTRACT NO. HY/2011/08 - CENTRAL - WAN CHAI BYPASS - TUNNEL BUILDINGS, SYSTEMS AND FITTINGS, AND WORKS ASSOCIATED WITH TUNNEL COMMISSIONING

SCALE 1 : 16000 A4

Appendix 2B Tentative Construction Programme

Update 2015-10-20 CWB(CC) - Commissioning Contract (DWP R2d) - Approved



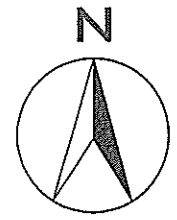
◆ Current Milestone
■ Actual Work
■ Critical Remaining Work
■ Remaining Work
▬ Remaining Level of Effort

Leighton Contractors (Asia) Limited Detail Works Programme Rev.2d (DWP2d)

Project ID: H2613DW2d-3
 Baseline:
 Layout: H2613 - DWP2d
 Filter: TASK filters: building, No Summary_1.
 Page 1 of 1

Date	Revision	Checked	Approved
12-Jun-14	Initial Works Programme (IWPC)	AT	CW
19-Sep-14	Detail Works Programme Rev0 (...)	AT	CW
26-Nov-14	Detail Works Programme Rev1 (...)	AT	CW
19-Jan-15	Detail Works Programme Rev2 (...)	AT	CW
05-Mar-15	Detail Works Programme Rev2a (...)	AT	CW
6-Aug-15	Detail Works Programme Rev2b (...)	AT	CW
02-Oct-15	Detail Works Programme Rev2c (...)	AT	CW

Appendix 3 Representative Noise Sensitive Receivers

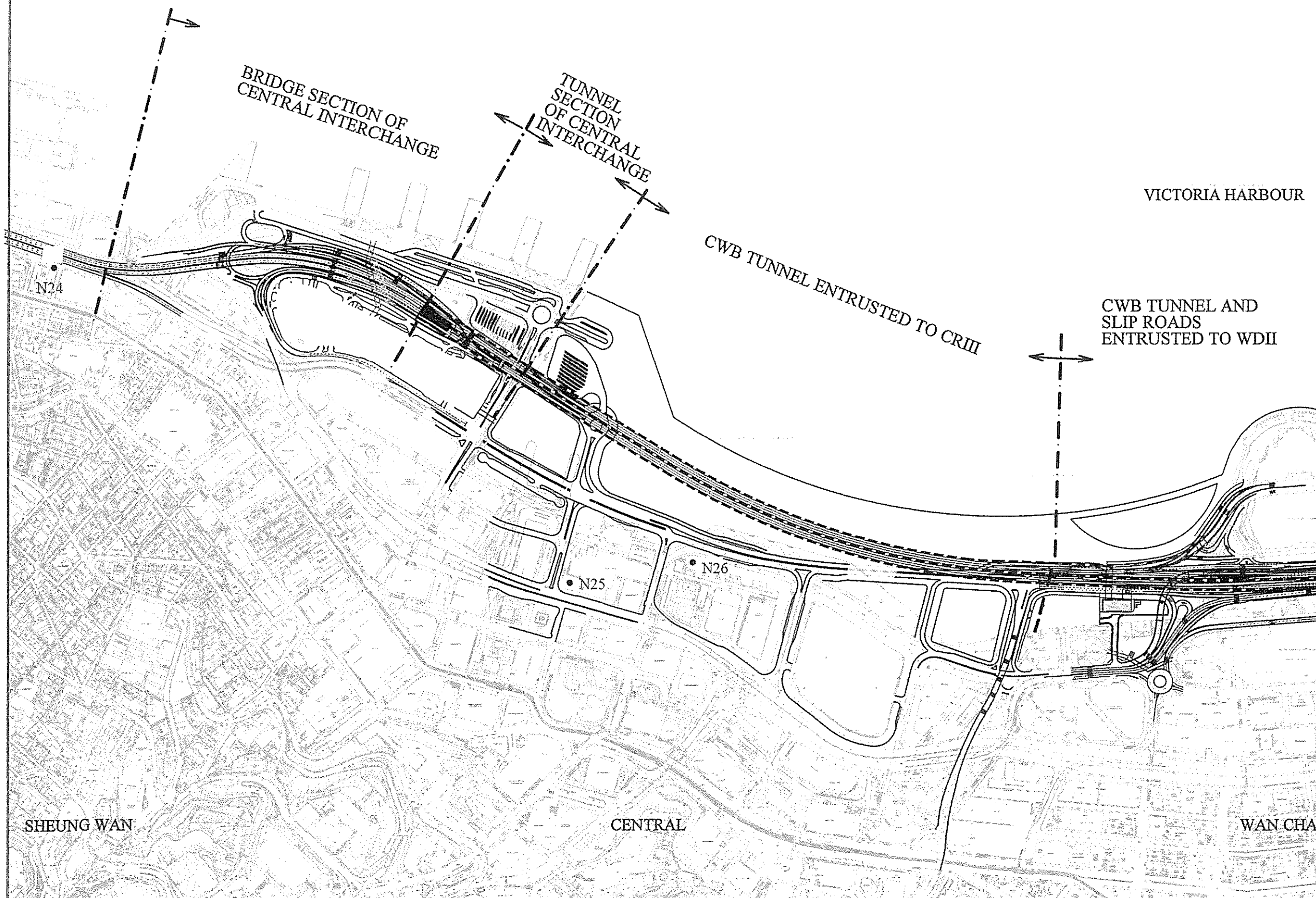


LEGEND:	
● N1-N23, AD1	EXISTING NOISE SENSITIVE RECEIVER
● P1-P3	PLANNED NOISE SENSITIVE RECEIVER
-----	300M STUDY BOUNDARY



Legend :

- N1 Noise Sensitive Receiver



Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LINK

LOCATIONS OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS

SHEET 1 OF 2

MAUNSELL CONSULTANTS ASIA LTD
茂盛亞洲工程顧問有限公司

DRGNO.
圖號

DESIGNED BY AK	CHECKED BY AK	DATE OF ISSUE MAY 2001
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DRAWN BY EH	STATUS REVISION
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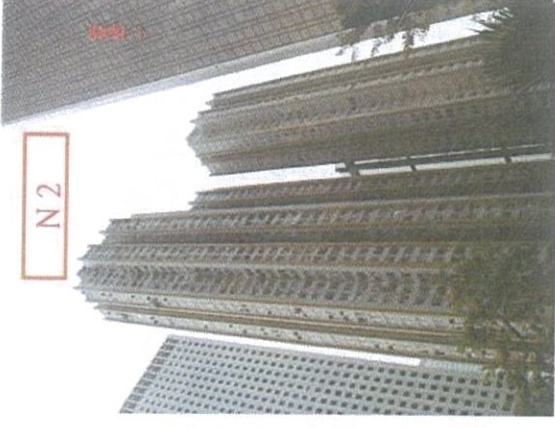
SCALE 1 : 4500	VERTICAL SCALE IN METRES	COPYRIGHT RESERVED 版權所有
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Maunsell

Appendix 3 – Representative NSRs

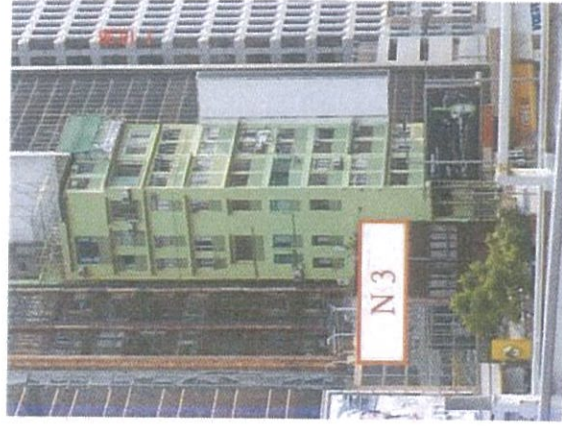


HKAPA



N 2

Causeway Centre



N 3

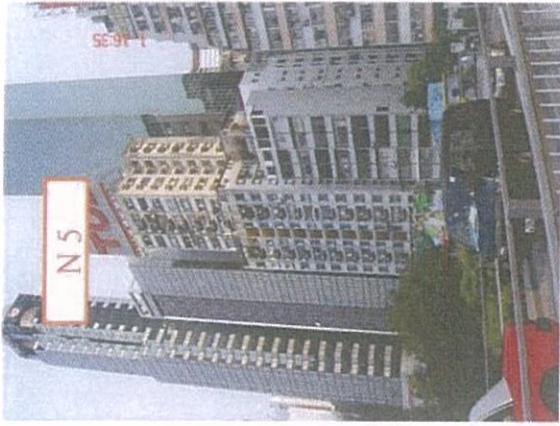
Gloucester Road 169 - 170



N 4

Kam Kok Building

Appendix 3 – Representative NSRs



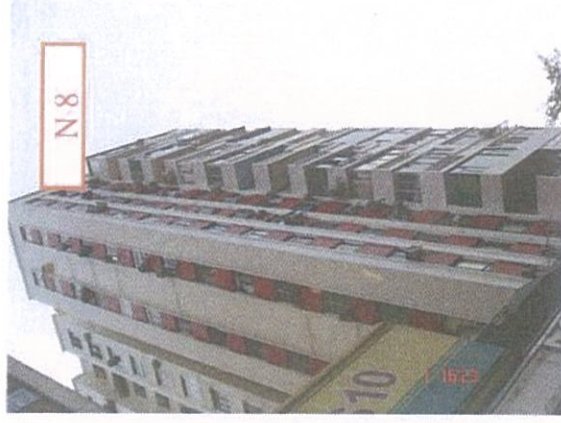
Hyde Centre



Elizabeth House



Riviera Mansion



Macro Polo Mansion

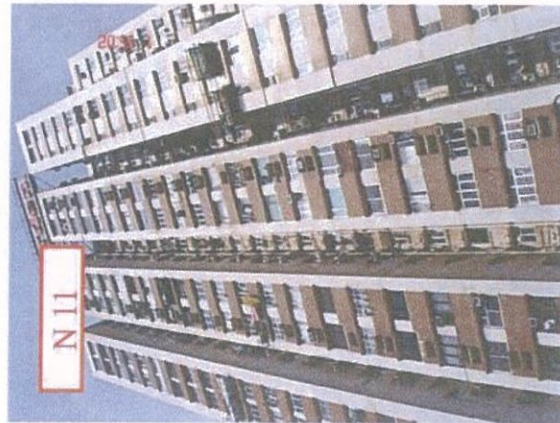
Appendix 3 – Representative NSRs



Viking Garden



Victoria Court



Mayson Garden



Gordon House

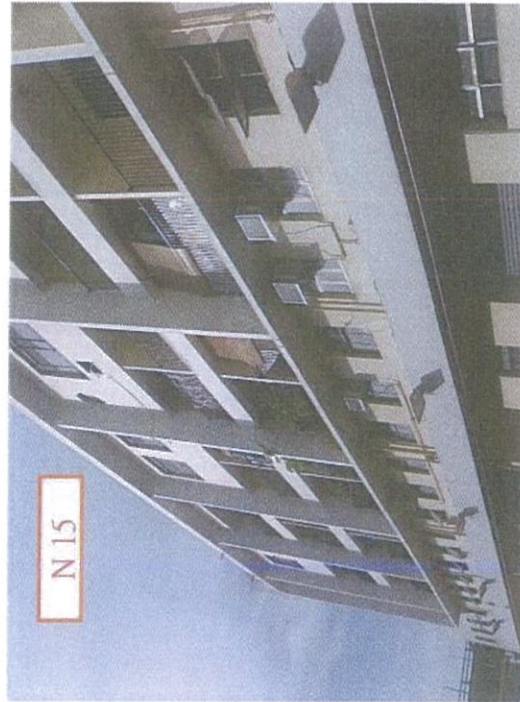
Appendix 3 – Representative NSRs



Belle House



Hoi Tao Building

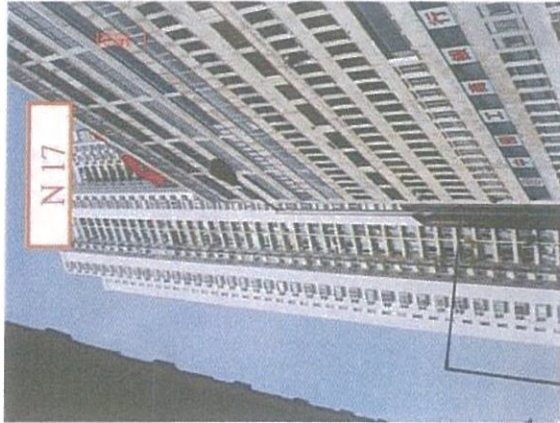


Staff Quarters of FEHD

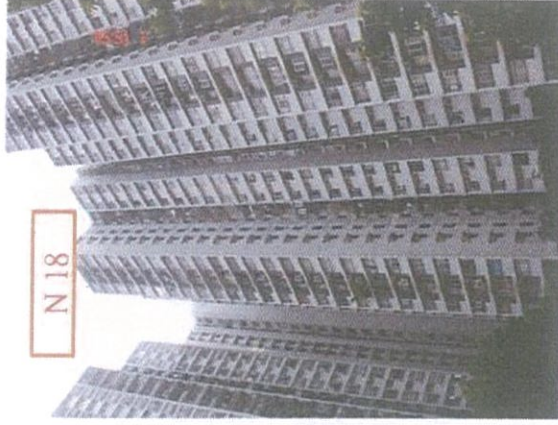


Victoria Centre

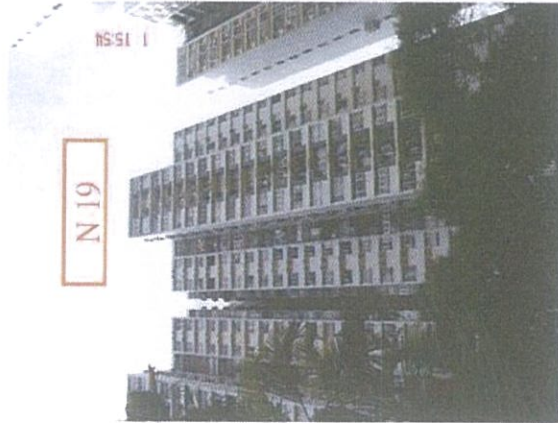
Appendix 3 – Representative NSRs



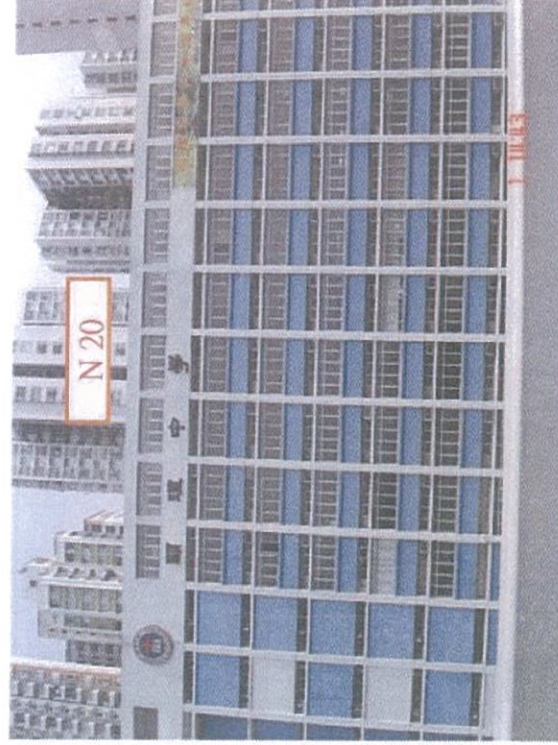
Harbour Heights



City Garden, Block 10

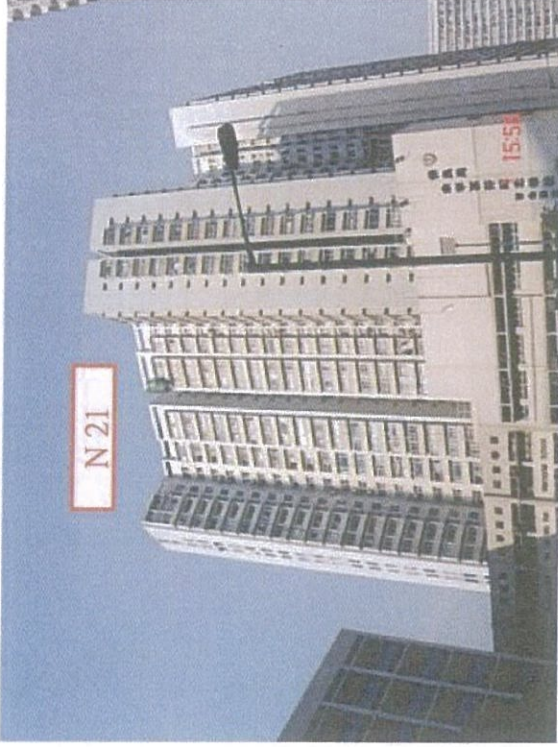


City Garden, Block 7



Hong Kong Baptist Church Henrietta Secondary School

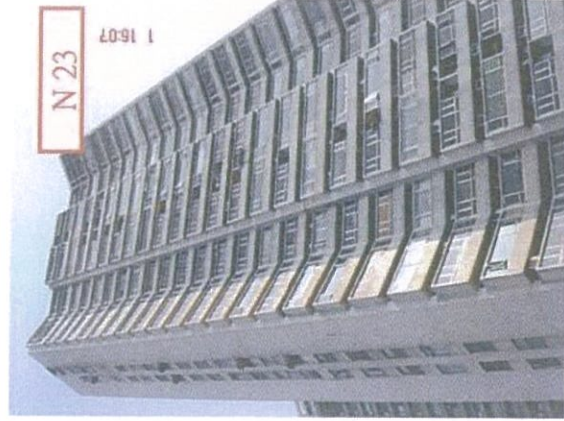
Appendix 3 – Representative NSRs



Provident Centre, Block 1



Provident Centre, Block 6



Provident Centre, Block 17



Korea Centre

Appendix 3 – Representative NSRs



N25 – City Hall

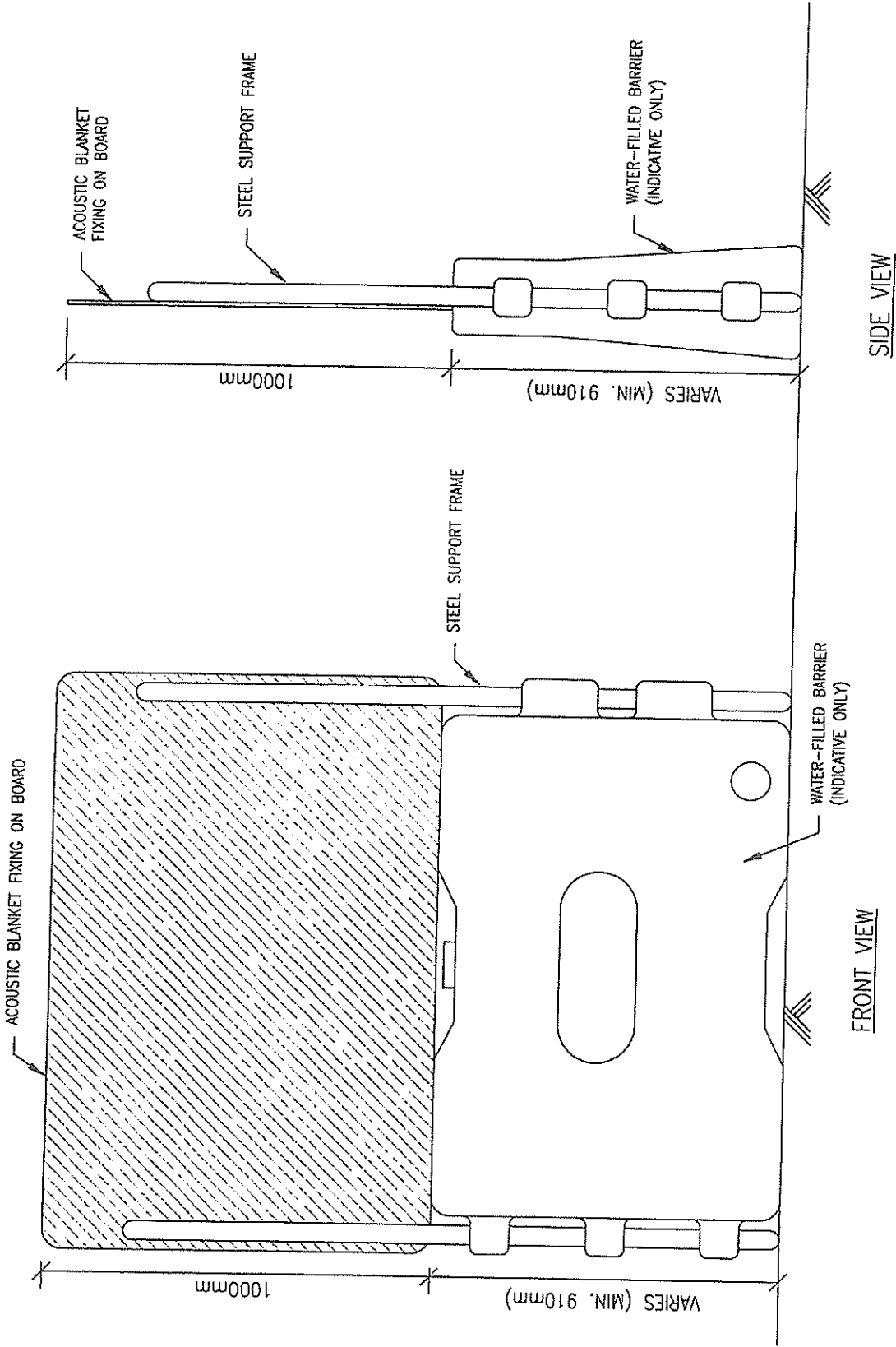


N26 – PLA Headquarters

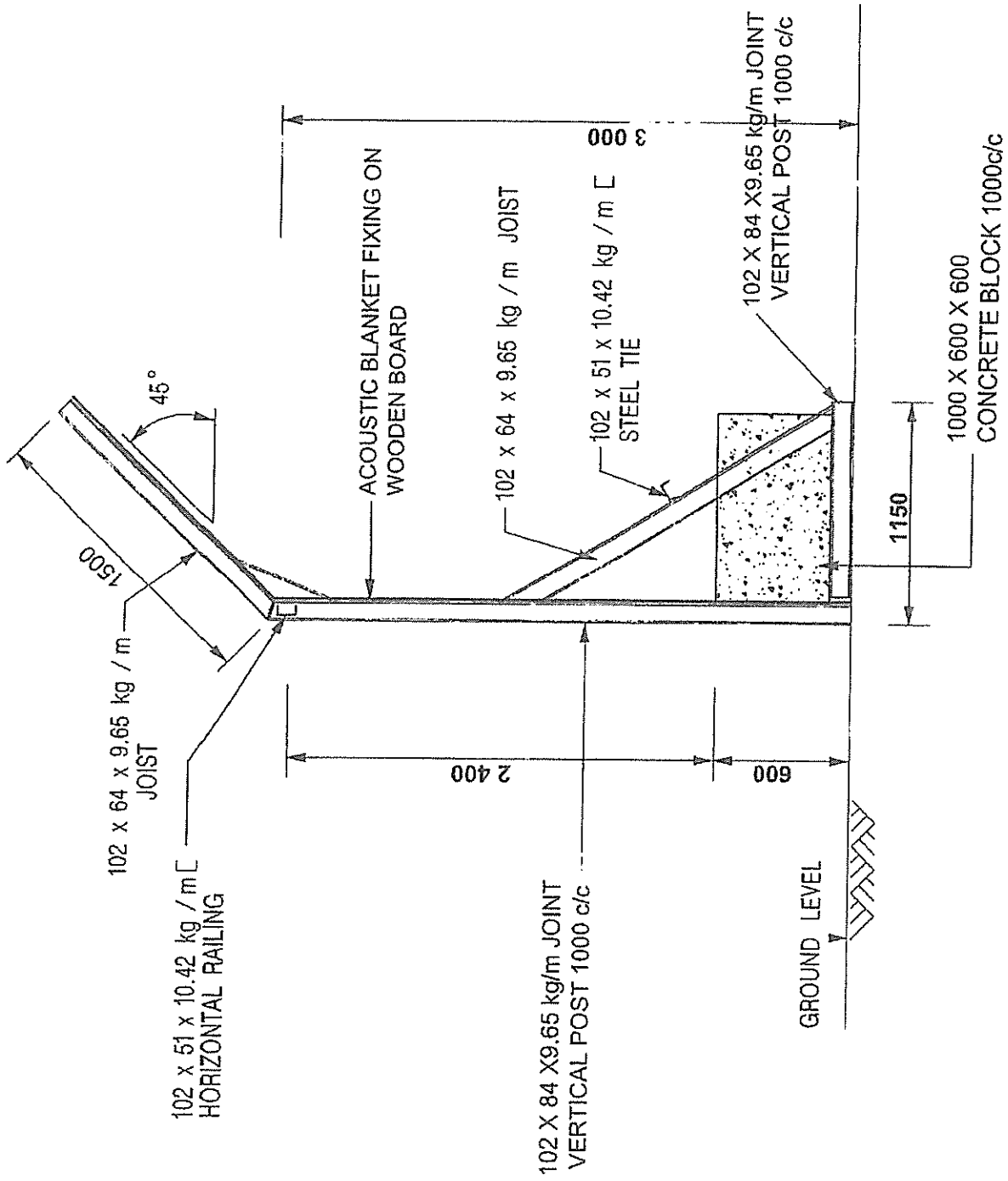


AD1 - Wan Wah Mansion

Appendix 4 Typical Details of the Noise Barrier



MOVEABLE NOISE BARRIER



DETAIL FOR NOISE BARRIER