

Agreement No. CE 69/2015 (CE)

Tung Chung New Town Extension (East) – Design and Construction

Plan for Review of Use of New Low Noise Road Surfacing
Material(s) for Road D4, Road L4 and Road L5 (Ying Tung Road)
(Final)

(Ref: Z35-09)

February 2025

Tung Chung New Town Extension (East)

Environmental Certification Sheet for Environmental Permit No. EP-519/2016

Reference Document/Plan

| | |
|--------------------------------|--|
| Document/Plan to be Certified: | Plan for Review of Use of New Low Noise Road Surfacing Material(s) |
| Date of Report: | February 2025 |

Reference EP Condition

| | |
|--|----------------|
| Environmental Permit Condition: | Condition 2.23 |
| <p>The Permit Holder shall, no later than 3 months before the commencement of construction of roadworks, submit 3 hardcopies and 1 electronic copy of a plan for review of the use of new low noise road surfacing material(s) (The Plan) to the Director for approval. The Plan shall include at least the following information:</p> <ul style="list-style-type: none">(i) the environmental benefits, including but not limited to reduction of traffic noise impacts, of adopting the new low noise road surfacing material(s) as an alternative noise mitigation measure to the material(s) currently in use;(ii) the extent and locations of providing the new road surfacing material(s) for the roadworks covered by this Permit with justifications; and(iii) reduction in traffic noise impacts at specific sensitive receivers and minimization of the extent of noise barriers for the roadworks covered by this Permit as a resulting of applying the new road surfacing material(s). | |

ET Certification

| | |
|--|--|
| I hereby certify that the above referenced document/plan complies with the above referenced condition of EP-519/2016 | |
| Kelvin So Environmental Team Leader ERM-Hong Kong, Limited |  Date: 10 February 2025 |

Your Ref.

By Post

Our Ref. 198377-0962

Date 10 February 2025

Sustainable Lantau Office
Civil Engineering and Development Department
13/F, North Point Government Offices
333 Java Road, North Point
Hong Kong

Attention: Mr. Rafael TANG / Mr. K.T. WO

Dear Sir,

Agreement No. CE 59/2017 (EP)
Independent Environmental Checker for Tung Chung New Town Extension – Investigation Plan for Review of Use of New Low Noise Road Surfacing Material(s)

We refer to the Plan for Review of Use of New Low Noise Road Surfacing Material(s) for Tung Chung New Town Extension (East) (TCE) dated February 2025 and certified by the Environmental Team Leader of TCE on 10 February 2025. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 2.23 of EP-519/2016.

Should you have any query, please feel free to contact the undersigned at 2608 7314 (chuawo@binnies.com) or our Edward Lau 3894 9695 (lauky@binnies.com).

Yours faithfully,
for and on behalf of
BINNIES HONG KONG LIMITED



MANUEL CHUA
INDEPENDENT ENVIRONMENTAL CHECKER

cc: ET Leader / TCE – ERM (Attn: Mr. Kelvin So) [by Email: kelvin.so@erm.com]
PM / TCE – AECOM (Attn: Mr. Chris Cheung) [by Email: crec1@tce-aecom.com]



Binnies Hong Kong Limited
43/F, AIA Kowloon Tower, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong
寶尼斯工程顧問有限公司
香港九龍觀塘巧明街 100 號友邦九龍大樓 43 樓



+852 2601 1000



+852 2601 3988



binnieshk@binnies.com





土木工程拓展署

Civil Engineering and Development Department

Sustainable Lantau Office

Agreement No. CE 69/2015 (CE)

Tung Chung New Town Extension (East) – Design and Construction

**Plan for Review of Use of New Low Noise Road Surfacing Material(s)
for Road D4, Road L4 and Road L5 (Ying Tung Road) (Final)**

(Ref: Z35-09)

February 2025

Reviewed:

Connie Chan

February 2025

Approved for Issue:

Ivan Tsang

February 2025

AECOM ASIA COMPANY LIMITED

Disclaimer:

This report is prepared for Civil Engineering and Development Department (CEDD) and is given for its sole benefit in relation to and pursuant to Agreement No. CE 69/2015 (CE) Tung Chung New Town Extension (East) – Design and Construction and may not be disclosed to, quoted to or relied upon by any person other than CEDD without our prior written consent. No person (other than CEDD) into whose possession a copy of this report comes may rely on this report without our express written consent and CEDD may not rely on it for any purpose other than as described above.

TABLE OF CONTENTS

| | Page |
|---|----------|
| 1. INTRODUCTION..... | 1 |
| 2. POTENTIAL ENVIRONMENTAL BENEFITS AND APPLICATION CONSIDERATIONS | 2 |
| 3. EXTENT AND LOCATION OF NEW LOW NOISE ROAD SURFACING MATERIAL(S), MINIMISATION OF NOISE BARRIERS AND TRAFFIC NOISE REDUCTION | 3 |
| 3.1 Road D4, Road L4 and Road L5 (Ying Tung Road) | 3 |
| 4. SUMMARY AND WAY FORWARD | 5 |

FIGURES

Figure 3.1 Locations and extents of the proposed LNRS at Road L4, Road L5
(Ying Tung Road) and Road D4

Figure 3.2 Locations and extents of the proposed LNRS at Ying Tung Road (Road L5)

DRAWINGS

| | |
|-------------------------|--|
| 60507694/Z35/Figure 1 | Location Plan of Tung Chung New Town Extension (extracted from EP (EP No. EP-519/2016)) |
| 60507694/Z35/Figure 1.1 | Layout Plan of Tung Chung New Town Extension (East) |
| 60507694/Z35/003 | General Layout of Noise Barriers and Low Noise Road Surfacing Materials in Tung Chung East |

APPENDICES

| | |
|------------|--|
| Appendix A | Implementation Schedule for Noise Mitigation Measures in TCE |
|------------|--|

[BLANK]

1. INTRODUCTION

1.1 Background

- 1.1.1 Tung Chung New Town Extension (TCNTE) (This Project) covers Tung Chung (East)(TCE) and Tung Chung (West)(TCW), forms part of the Tung Chung New Town Extension (TCNTE). This Project includes reclamation, site formation and engineering infrastructure works (including construction of Road P1) for the developments of TCE, construction of salt water pumping station and infrastructure works in Tung Chung Area 58. The EIA Report for TCNTE (AEIAR-196/2016) was approved in April 2016. **60507694/Z35/Figure 1** and **60507694/Z35/Figure 1.1** show the layout plans of TCNTE and TCE respectively.
- 1.1.2 This submission is to review the use of new low noise road surfacing (LNRS) materials in TCE under Condition 2.23 of Environmental Permit (EP)(EP No. EP-519/2016). For the submission for TCW, please refer to the project website of TCW (<https://www.env.tcnte-west.hk/en/ep-submissions.html>). This submission will be revised if there is any update of the information.
- 1.1.3 Subsequent to the approval of the TCNTE EIA, Executive Council endorsed to enhance the development intensity of public housing sites to address land supply shortage, under such circumstance, traffic noise impact assessment was conducted to review traffic noise impact as a result of the intensification policy on public housing sites in TCNTE. The assessment result is presented in the reports "Traffic Noise and Railway Noise Impact Assessments Review for Population Increase and Development Intensity – CASE 2 Scenario 2B (Ref. PI27-02)". This report recommended application of Low Noise Road Surfacing (LNRS) in some road sections on Roads D4, L4 and L5 (Ying Tung Road).
- 1.1.4 This submission is to review use of new LNRS materials in TCE within the TCNTE EIA and EP boundaries, and shall cover the noise mitigation measures at Road L4, L5, D4 and Ying Tung Road only. The review for the use of new LNRS material elsewhere in TCE (including Road D3, Road L7 and Road P1) would be covered in separate submission in view of the roadworks programme. Road sections of part of Ying Tung Road (lying between Ying Hei Road and Road P1), Ying Hei Road and Tung Chung Waterfront Road not within TCNTE EIA and EP boundaries are not covered in the review of this submission.

1.2 Scope of this Plan

- 1.2.1 In accordance with Condition 2.23 of the Environmental Permit (EP)(EP No. EP-519/2016), this plan shall include at least the following information:
- i) the environmental benefits, including but not limited to reduction of traffic noise impacts, of adopting the new low noise road surfacing material(s) as an alternative noise mitigation measure to the material(s) currently in use;
 - ii) the extent and locations of providing the new road surfacing material(s) for the roadworks covered by the EP with justifications; and
 - iii) reduction in traffic noise impacts at specific sensitive receivers and minimization of the extent of noise barriers for the roadworks covered by the EP as a resulting of applying the new road surfacing material(s).

2. POTENTIAL ENVIRONMENTAL BENEFITS AND APPLICATION CONSIDERATIONS

2.1 Potential Environmental Benefits from New Low Noise Road Surfacing Materials

2.1.1 According to Guidance Notes on Low Noise Road Surfacing on Local Roads (RD/GN/011D) issued by the Research & Development Division of HyD, Polymer Modified Friction Course (PMFC), attributed to its porous nature, is susceptible to wear and tear making it not sufficiently durable as low noise road surfacing for many situations to sustain the local road conditions.

2.1.2 A new type of LNRS materials, namely the polymer modified stone mastic asphalt of 6mm nominal maximum aggregate size (PMSMA6) which was tested in the study (Agreement No. Hy(S)Q/024/2016). It was found that PMSMA6 is a better mix than PMFC in various aspects, in particular for resisting rutting. Such findings tally with the understanding that the engineering performance of PMSMA6 (which is structural layer) is superior to PMFC (which is non-structural layer). Therefore, PMSMA6 can be laid on base course directly while PMFC has to be laid on top of wearing course in general in their application on bituminous road surface.

2.1.3 In addition, for the environmental benefits, the optimised texture of PMSMA6, which is smooth enough in minimising tyre vibration and with small open texture to reduce air pumping, gives the surface certain noise reduction potential. Such noise reduction mechanism could be more sustainable than PMFC. PMSMA6 is considered a better LNRS materials alternative for local roads conditions, as compared with PMFC. It is recommended the use of the PMSMA6 as LNRS materials for this project.

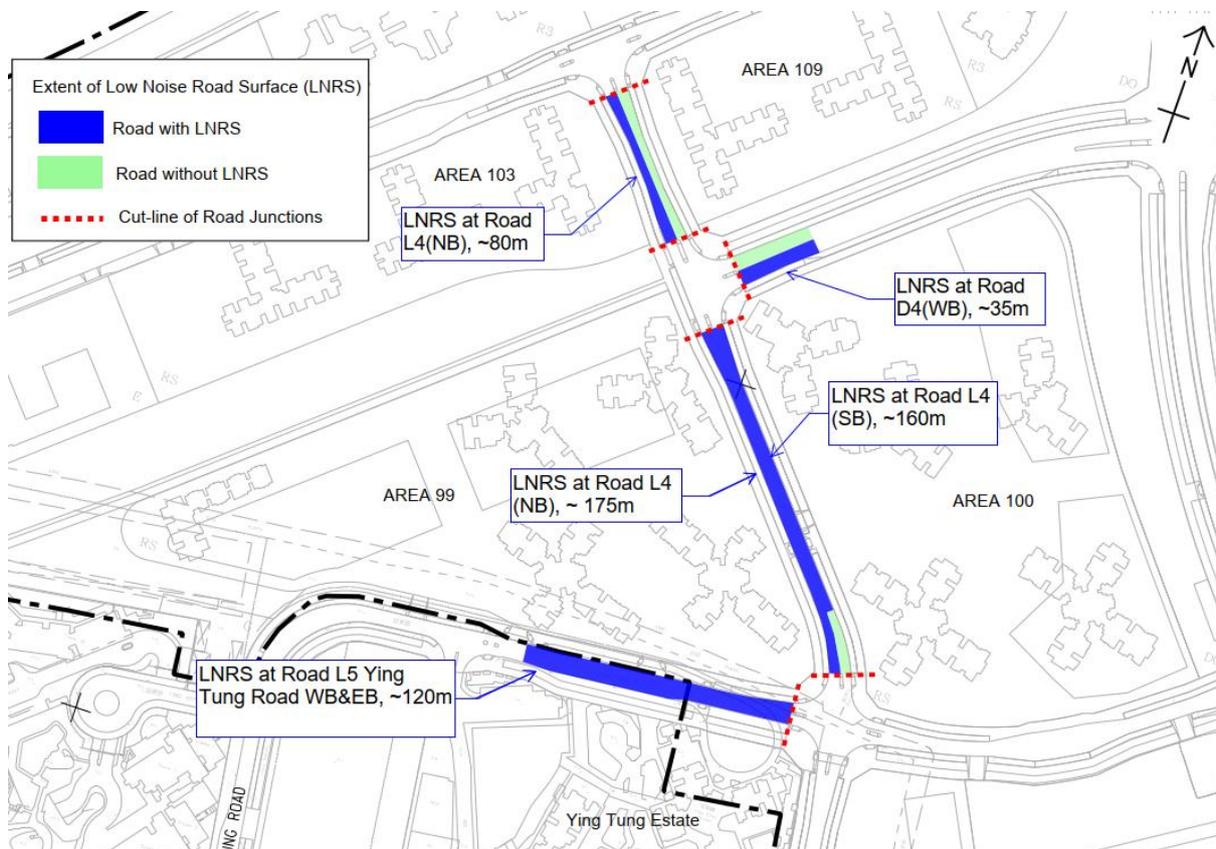
2.1.4 The PMSMA6 is found suitable to be laid on bituminous local roads as LNRS except that the following locations/road characteristics shall be excluded:

- Road sections where more durable materials (e.g. polymer modified stone mastic asphalt with 10mm nominal maximum aggregate size (PMSMA10) or highly modified stone mastic asphalt with 10mm nominal maximum aggregate size (HMSMA10) should be used according to Table 2 of the latest version of Guidance Notes No. RD/GN/038
- Run in-out located at industrial buildings or heavy vehicle car parks
- Bus stop zone on road section with gradient greater than 5%
- stop line zone of bus lane
- sharp turn located at entrance/ exit of bus terminus

3. EXTENT AND LOCATION OF NEW LOW NOISE ROAD SURFACING MATERIAL(S), MINIMISATION OF NOISE BARRIERS AND TRAFFIC NOISE REDUCTION

3.1 Road D4, Road L4 and Road L5 (Ying Tung Road)

3.1.1 Traffic Noise and Railway Noise Impact Assessments Review for Population Increase and Development Intensity - CASE 2 Scenario 2B (Ref. PI27-02), proposed Low Noise Road Surfacing (LNRS), which will be PMSMA6, along Road D4, Road L4 and Road L5 (Ying Tung Road) as part of the noise mitigation measures in TCE. The locations of LNRS along Road D4, Road L4 and Road L5 (Ying Tung Road) are shown in **Figure 3.1**, which is extracted from Case 2 Scenario 2B (Ref. PI27-02) - report Appendix 2.4. The extents of LNRS at Road D4, Road L4 and Road L5 (Ying Tung Road) are summarized in Table 3.2. Due to the site limitation, the extent of LNRS will fall into the acceleration zone and braking zone. Notwithstanding, the proposed scheme has been agreed with HyD/NT Region for the extent and use of PMSMA6 under housing intensification to meet the noise level standards and achieve minimal extent of LNRS.



Remarks: For the LNRS at Road L4 between Area 99 and Area 100, the LNRS at Road L4 (Northbound) is about 175m, while the LNRS at Road L4 (Southbound) is about 160m.

WB = Westbound, EB = Eastbound, NB = Northbound, SB = Southbound

Figure 3.1 – Locations and extents of the proposed LNRS at Road L4, Road L5 (Ying Tung Road) and Road D4

| Location | LNRS |
|--|---------------------------------------|
| Road D4 (Westbound) between Area 100 and Area 109 | ~35m from cut-line of road junctions |
| Road L4 (Northbound) between Area 103 and Area 109 | ~80m from cut-line of road junctions |
| Road L4 (Northbound) between Area 99 and Area 100 | ~175m from cut-line of road junctions |
| Road L4 (Southbound) between Area 99 and Area 100 | ~160m from cut-line of road junctions |
| Road L5 along Ying Tung Road | ~120m from cut-line of road junctions |

Table 3.2 – Extent of LNRS at Road D4, Road L4 and Road L5 along Ying Tung Road

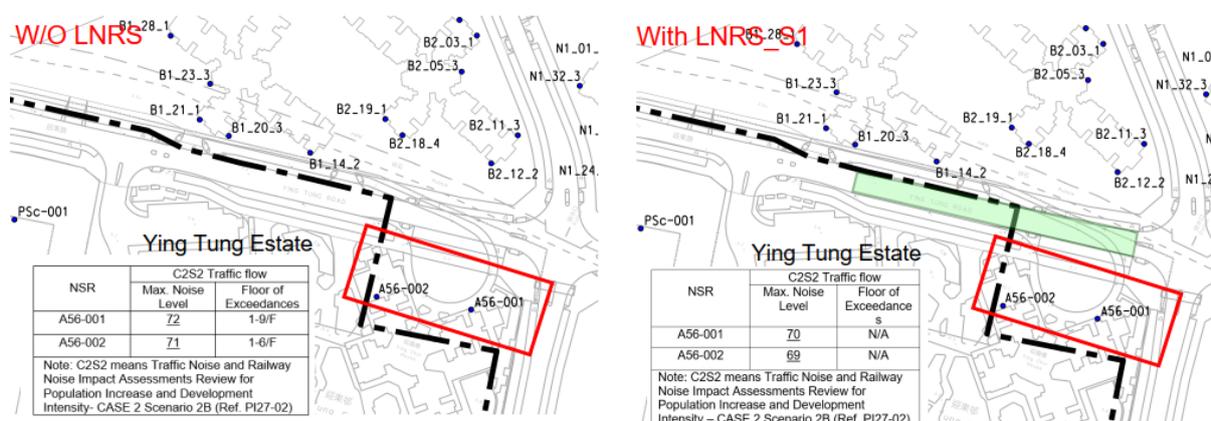


Figure 3.2 – Locations and extents of the proposed LNRS at Ying Tung Road (Road L5)

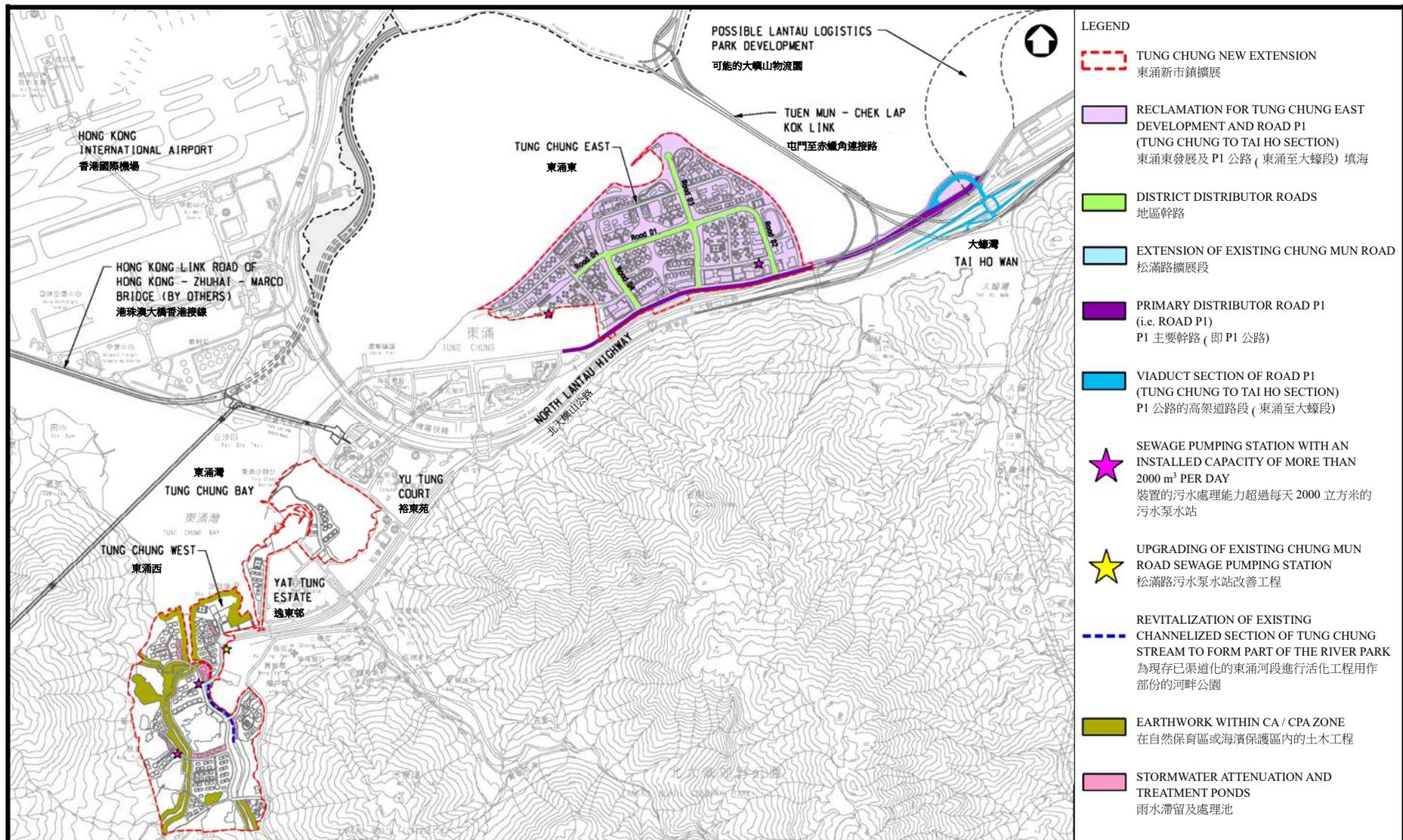
Noise Reduction Benefit

3.1.2 Under the unmitigated scenario, the maximum predicted noise level at Area 99, 100, 103 and 109 at Year 2045 is 73-74dB(A). For the existing NSRs A56-001 and A56-002 of Ying Tung Estate, the maximum unmitigated noise level is 72dB(A) and 71dB(A), respectively. With the implementation of LNRS shown in **Figure 3.1, 3.2** together with additional at-receiver mitigation measures (e.g. acoustic windows, architectural fins, etc.) at the planned sites recommended in “Traffic Noise and Railway Noise Impact Assessments Review for Population Increase and Development Intensity- CASE 2 Scenario 2B (Ref. PI27-02)”, the maximum predicted noise level at Area 99, 100, 103 and 109, as well as the existing NSR A56-001 and A56-002 of Ying Tung Estate will all comply with the 70dB(A) noise criteria, adverse noise impact would not be expected. No noise barriers were proposed along Road D4, Road L4 and Road L5 (Ying Tung Road) in CASE 2 Scenario 2B (Ref. PI27-02).

4. SUMMARY AND WAY FORWARD

- 4.1 The Plan is to meet conditions under the EP for TCE of TCNTE on review of use of new low noise road surfacing material (s). Environmental benefits of adopting the new low noise road surfacing materials were discussed. For the newly proposed low noise road surfacing along Road D4, Road L4 and Road L5 (Ying Tung Road), HyD considered that PMSMA6 is applicable and will be used on these roads. This submission will be revised when there is any update of the information. The implementation schedule for noise mitigation measures in TCE are provided at **Appendix A**.
- 4.2 The review of the noise mitigation measures elsewhere (i.e. noise mitigation measures at Road P1, D3 and L7) would be provided in separate submission.

Drawing



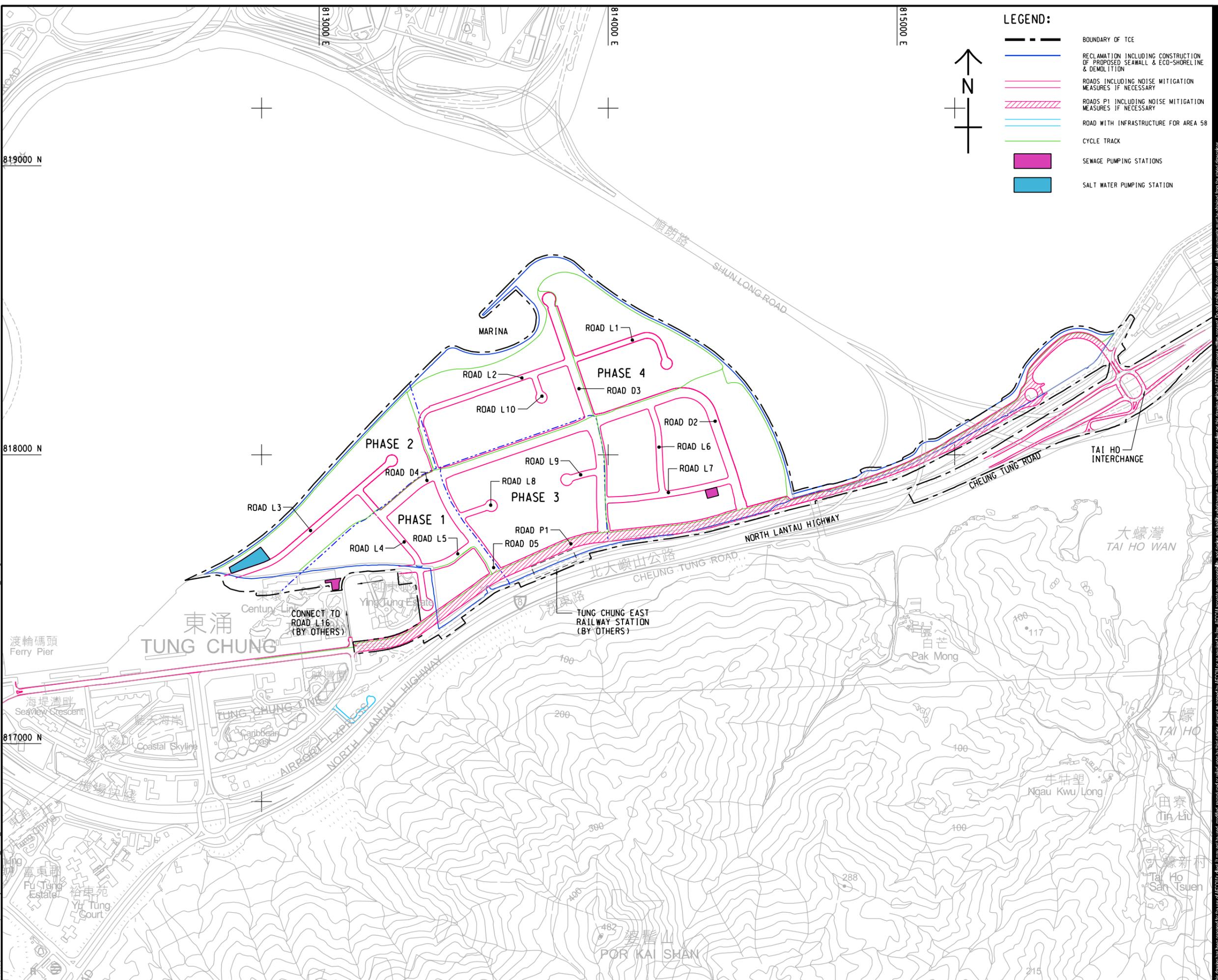
Project Title: Tung Chung New Town Extension
工程項目名稱：東涌新市鎮擴展

Figure 1: Location Plan
圖 1：位置圖
[This figure was prepared based on Figure 1.3 of the approved EIA Report No. AEIAR-196/2016]
[本圖是根據環境影響評估報告編號 AEIAR-196/2016，圖 1.3 編制]

Environmental Permit No.: EP-519/2016
環境許可證編號：
EP-519/2016



V:\BAK\US55-BAK\CSWP\pld\drv\Create PH file\new\CSWP-75\cb\er\p1
 Plot File by: haojie
 PATH: p:\aecom\as-pw\benjie\com\AECOM_DSO2_ASI\Documents\60507694_TCNTE - DRACAD PRODUCTION\DRAWING\REPORT\Z35-Z35_002.dgn
 21-11-2024
 ISO A1 594mm x 841mm
 Approved:
 Checked:
 Designer:
 Project Management Initials:



LEGEND:

- BOUNDARY OF TCE
- RECLAMATION INCLUDING CONSTRUCTION OF PROPOSED SEAWALL & ECO-SHORELINE & DEMOLITION
- ROADS INCLUDING NOISE MITIGATION MEASURES IF NECESSARY
- ROADS P1 INCLUDING NOISE MITIGATION MEASURES IF NECESSARY
- ROAD WITH INFRASTRUCTURE FOR AREA 58
- CYCLE TRACK
- SEWAGE PUMPING STATIONS
- SALT WATER PUMPING STATION



AECOM

PROJECT
 TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

CLIENT
 土木工程拓展署
 Civil Engineering and Development Department

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

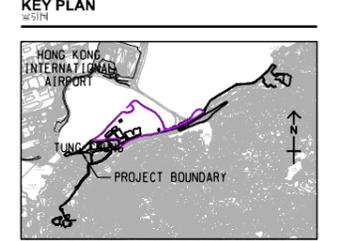
ISSUE/REVISION

| I/R | DATE | DESCRIPTION | CHK. |
|-----|------|-------------|------|
| | | | |
| | | | |
| | | | |

STATUS

SCALE
A1 : 6000

DIMENSION UNIT
METRES



PROJECT NO.
60507694

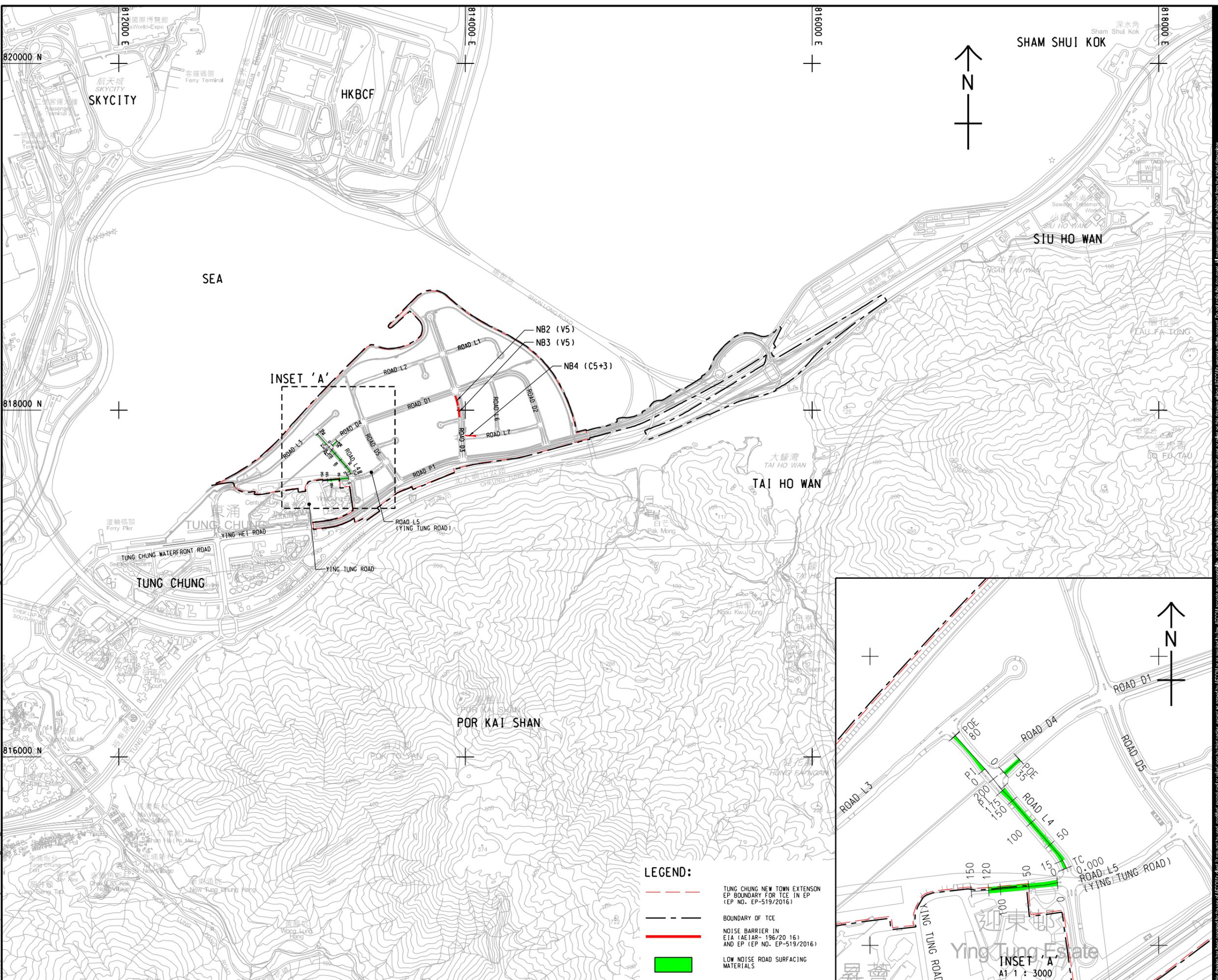
CONTRACT NO.
CE 69/2015 (CE)

SHEET TITLE
LAYOUT PLAN OF TUNG CHUNG NEW TOWN EXTENSION (EAST)

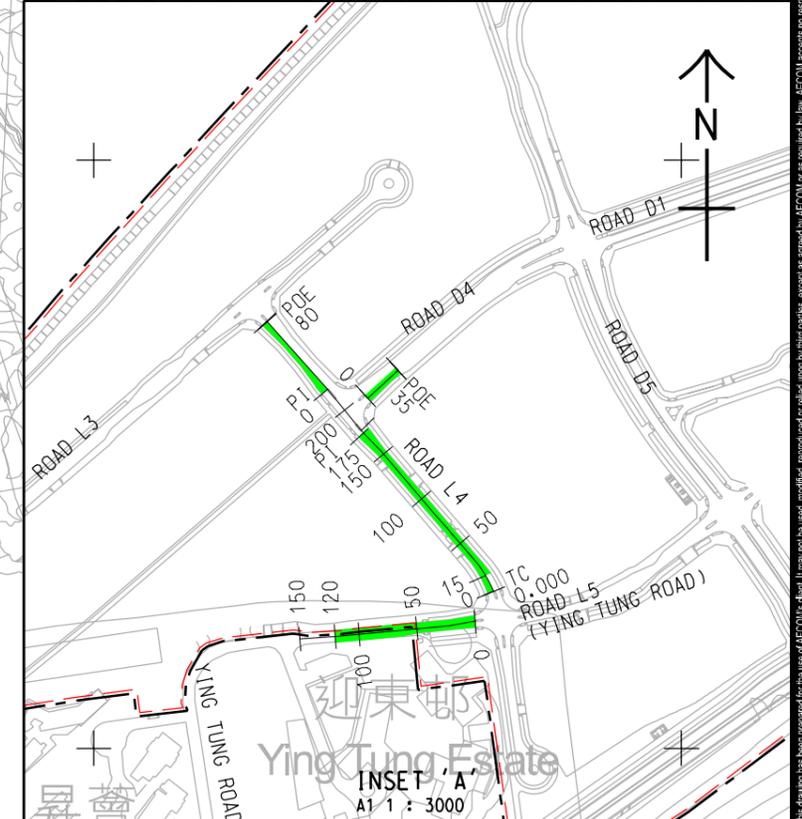
SHEET NUMBER
60507694/Z35/FIGURE 1.1

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the paper dimensions.

V:\BAKU\US5-BAC\CSWP\pldtrv\Create PH file\new\CSWP-75\cbrt\pht
 Plot File by: haco.lic
 PATH: p:\aecom\as-pw\benally.com\AECOM_DSO2\ASDocuments\60507694_TCNTE - D&C\CAD PRODUCTION\DRAWING\REPORT\Z35-Z35_003.dgn
 ISO A1 594mm x 841mm
 Approved:
 Checked:
 Designer:
 Project Management Initials:



- LEGEND:**
- TUNG CHUNG NEW TOWN EXTENSION EP BOUNDARY FOR TCE IN EP (EP NO. EP-519/2016)
 - BOUNDARY OF TCE
 - NOISE BARRIER IN EIA (AEIAR- 196/20 16) AND EP (EP NO. EP-519/2016)
 - LOW NOISE ROAD SURFACING MATERIALS



AECOM

PROJECT
TUNG CHUNG NEW TOWN EXTENSION (EAST) - DESIGN AND CONSTRUCTION

CLIENT
CEDD 土木工程拓展署
 Civil Engineering and Development Department

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

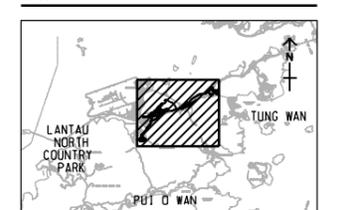
SUB-CONSULTANTS

ISSUE/REVISION

| IR | DATE | DESCRIPTION | CHK. |
|----|------|-------------|------|
| | | | |
| | | | |
| | | | |

STATUS

SCALE 1:10000
DIMENSION UNIT METRES



PROJECT NO. 60507694
CONTRACT NO. CE 69/2015 (CE)

SHEET TITLE
 GENERAL LAYOUT OF NOISE BARRIERS AND LOW NOISE SURFACING MATERIALS IN TUNG CHUNG EAST

SHEET NUMBER
 60507694/Z35/003

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and seeks no liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the paper dimensions.

APPENDIX A

*Implementation Schedule for Noise Mitigation Measures
in TCE*

Appendix A

| Mitigation Measures | Objectives of the Measures | Who to Implement the Measures | Locations | When to Implement the Measures | Reference to Paragraph in this Plan |
|---|--|--|---|---|-------------------------------------|
| <p>Approx. 35m long LNRS (PMSMA6) along Road D4 (westbound)</p> <p>Approx. 80m long LNRS (PMSMA6) along Road L4 (northbound)</p> <p>Approx. 175m long LNRS (PMSMA6) along Road L4 (northbound)</p> <p>Approx. 160m long LNRS (PMSMA6) along Road L4 (Southbound)</p> <p>Approx. 120m long LNRS (PMSMA6) along Road L5 (westbound and eastbound, Ying Tung Road)</p> | Reduce operational noise from road traffic | Project Office CEDD and the consultant AECOM | <p>LNRS along Road D4 (westbound): between Area 100 and Area 109</p> <p>Approx. 80m long LNRS along Road L4 (northbound): between Area 103 and Area 109</p> <p>Approx. 175m long LNRS along Road L4 (northbound): between Area 99 and Area 100</p> <p>LNRS along Road L4 (southbound): between Area 99 and Area 100</p> <p>LNRS along Road L5 (westbound and eastbound, Ying Tung Road): between Ying Tung Estate and Area 99</p> | <p>Road D4: 2025 Q4</p> <p>Road L4: 2025 Q2</p> <p>Road L5: 2025 Q1</p> | S3.1 |