



# FUGRO TECHNICAL SERVICES LIMITED

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Date 13 June 2019  
Our Ref. MCL/ED/0283/2019/C

Civil Engineering and Development Department  
Unit 1501, Level 15, Tower I  
Metroplaza, 223 Hing Fong Road  
Kwai Fong, New Territories, Hong Kong

BY MAIL & E-MAIL

Attn: Ms. FUNG Man Ki, Cannifer

Dear Ms. Fung:

**Service Contract No. NDO 03/2018**  
**Environmental Team for Road Widening and Retrofitting Noise Barriers on Tai Po Road**  
**(Sha Tin Section) – (Environmental Permit (EP) No. EP-463/2013/B)**  
**Contract No. NE/2017/05 – Certification of Landscape Plan**

We refer to the Landscape Plan Issue 1 Rev.C re-submitted by AECOM Asia Co. Ltd.

We have no comment on the plan and hereby certify it in accordance with Clause 2.4 of Environmental Permit (EP No.: EP-463/2013/B).

Should you have any queries, please contact our Mr. Calvin Leung at 3565-4441 or the undersigned at 3565-4371.

Yours faithfully,  
for and on behalf of  
FUGRO TECHNICAL SERVICES LIMITED

David Hung  
Environmental Team Leader

c.c.	CEDD	Attn: Mr. Andrew Cheung	(by e-mail)
	AECOM	Attn: Mr. Albert H.W. Yu / Mr. Bobby Hung / Mr. Andrew Cheng / Ms. Catherine Tam / Ms. Kate Chan	(by e-mail)
	IEC	Attn: Mr. Kevin Li / Mr. Tandy Tse	(by e-mail)



Acuity Sustainability Consulting Limited –  
Nature & Technologies (HK) Limited Joint Venture



Our ref: ASCL-2018010

Unit 1501, Level 15,  
Tower I, Metroplaza,  
223 Hing Fong Road, Kwai Fong,  
N.T., Hong Kong.

Attention: Miss FUNG Cannifer

14 June 2019

Dear Miss Fung,

**NE/2017/05**

**Road Widening and Retrofitting Noise Barriers on Tai Po Road (Sha Tin Section)  
Verification for the Landscape Plan**

I refer to the email of AECOM Asia Co. Limited regarding to the revised Landscape Plan, we have no adverse comment on the Landscape Plan – Issue 1 (Rev. C) and verify this plan according to section 1.9 of the Environmental Permit with Permit No. EP-463/2013/B

Yours faithfully,

A handwritten signature in black ink, appearing to be "Kevin Li".

Li Wai Ming Kevin  
Independent Environmental Checker

cc. CRE – Mr. YU Albert (by email only: [albert.yu@aecom.com](mailto:albert.yu@aecom.com))  
ET Leader – Mr. HUNG David (by email only: [d.hung@fugro.com](mailto:d.hung@fugro.com))

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

Contract No. NE/2017/05

# Road Widening and Retrofitting Noise Barriers on Tai Po Road (Sha Tin Section)

Landscape Plan – Issue 1 (Rev. C)

June 2019



土木工程拓展署  
Civil Engineering and Development Department  
North Development Office

Contract No. NE/2017/05  
Road Widening and Retrofitting Noise Barriers  
on Tai Po Road (Sha Tin Section)

**Landscape Plan – Issue 1 (Rev. C)**

June 2019

Approved for Issue:

  
Albert Yu (CRE)

June 2019

AECOM ASIA COMPANY LIMITED

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**Revision History**

Version	Rev. Date	Amendment
Issue 1 (Rev. A)	Feb. 2019	- Figure 60481656/A1/LP01: Landscape Plan (1 of 7) - Table 2.1 Mitigation Measures during Construction and Operation Phase Recommended in the Updated EM&A Manual - Appendix D: Landscape Works Programme
Issue 1 (Rev. B)	Apr. 2019	- Text revised in Section 4.4.1 and 4.4.3 - Figure 60481656/A1/LP01: Landscape Plan (1 of 7) - Appendix C
Issue 1 (Rev. C)	Jun. 2019	- Highlights on page i and 9 are removed - Titles of Figure 60481656/TS/131 to 137 are revised - Appendix F is removed

## 1 INTRODUCTION

### 1.1 Background

- 1.1.1 The existing Tai Po Road (Sha Tin Section) (hereafter referred as TPR-ST) is an essential primary distributor road linking Northeast New Territories with Kowloon and Tsuen Wan. The need of TPR-ST widening from a dual 2-lane to dual-3 lane carriageway, together with other related traffic improvement and road reconstruction works, to cope with the continuous increase of traffic demand due to the existing, committed and planned developments was recommended under the Sha Tin and Ma On Shan District Traffic Study by Transport Department (TD) in 1996. The feasibility of the proposed road widening works has been established under the then Territory Development Department's (TDD) Preliminary Project Feasibility Study (PPFS) and PWP Item No. 707TH was created in 1997. The preliminary design was also completed and the Environmental Impact Assessment (EIA) Study was approved under Agreement no. CE69/97 Investigation Assignment for Widening and Reconstruction of Tai Po Road – Sha Tin Section (referred as CE69/97 IA) by Highways Department (HyD) in 1998. With the anticipation of the possible implementation of Trunk Road T4 (hereafter referred as Road T4), the assignment under CE69/97 has, however, been shelved since 2002.
- 1.1.2 Following the review of traffic conditions of TPR-ST conducted by TD in 2011, with the consideration of the withdrawal of Sha Tin District Council's (STDC) support on the construction of Trunk Road T4 in May 2007, which will deteriorate due to new developments in the districts and increase in cross-boundary traffic upon opening of the Liantang / Heung Yuen Wai Boundary Control Point (LT/HYW BCP), the widening of TPR-ST is considered necessary and should be put forward for detailed design and then construction in end 2017 for completion by 2021 to cope with the traffic forecast in short to medium terms in Year 2021.
- 1.1.3 A Technical Feasibility Statement for the Project was completed by NTEDevO, CEDD and approved by DEVB in July 2012. In September 2012, the project was included in Category B of the Public Works Programme as PWP Item No. 7861TH – Widening of Tai Po Road (Sha Tin Section). CEDD commenced the "Widening of Tai Po Road (Sha Tin Section) – Investigation" study ("I-Study") under Agreement No. CE57/2012 (HY) in March 2013.
- 1.1.4 The Project is a designated project under the Environmental Impact Assessment Ordinance (Cap. 499) and an environmental permit (EP) is required for construction and operation. The EIA Study of the Project has been completed under Agreement No. CE 57/2012 (HY). The EIA review report was submitted to the DEP and the Environmental Permit (No. EP-463/2013) was granted by the DEP on 9 October 2013. Subsequently, variation of the Environmental Permit (VEP) had been obtained for the revised road scheme on 16 March 2015 (No. EP-463/2013/A).
- 1.1.5 A two-stage public engagement exercise, including focus group meetings and a public forum were carried out from July to October 2013 and March 2014. Taking into account the views collected from the public engagement exercise, environmental impact and engineering considerations, a scheme has been formulated for the Project. The Traffic and Transport Committee (T&TC) of STDC had been consulted on 6 January 2015, and supported the Project.
- 1.1.6 To address the comments / concerns raised by the stakeholders and with the aim to completely resolve the envisaged traffic problems of TPR-ST after widening, a revised road scheme has been developed under CE 57/2012 (HY) with substantial modification to the existing diamond-shaped interchange at the junctions of Sha Tin Rural Committee Road (STRCR) and TPR-ST so that the weaving movements of traffic could be avoided.

- 1.1.7 The characteristics of the revised road scheme developed under CE 57/2012 (HY) are summarized below:
- Existing two signalized junctions at STRCR are combined into a single signalized junction;
  - Exclusive traffic lane at TPR-ST Southbound (SB) for traffic heading to Tsing Sha Highway (Route 8);
  - STRCR down ramp slip road will merge with TPR-ST(SB) in middle lane instead of slow lane;
  - Additional exclusive bus lane for buses from TPR-ST Northbound (NB) entering into the bus terminus at New Town Plaza; and
  - Free flow left-turn lanes for traffic from TPR-ST(SB) up ramp slip road to STRCR and from TPR-ST(NB) up ramp slip road to STRCR.
- 1.1.8 Since vehicles heading to Tsing Sha Highway or Route 8 can select the exclusive traffic lane in advance at the upstream of TPR-ST(SB) and vehicles from STRCR down ramp slip road heading either to Shing Mun Tunnel or Tsing Sha Highway can merge with the middle lane of TPR-ST(SB), the weaving movement of vehicles heading to different destinations at TPR-ST can be avoided under this road scheme.
- 1.1.9 The widening works shall generally make use of the existing road verge and roadside open area to provide the additional traffic lane on each side of the carriageway. The interchange at Tai Po Road / STRCR, the footbridge (NF 40) near Wo Che Street and the footbridge (NF 66) near Fung Wo Lane shall be modified to accommodate the widening of Tai Po Road. Two traffic lanes of Tai Po Road in each direction shall be maintained, unless otherwise approved by TD and Police, during the daytime of the construction period in order to meet the traffic demand.
- 1.1.10 Under the retrofitting policy endorsed by the Executive Council on 14 November 2000, direct engineering measures by way of retrofitting of barriers and enclosures will be implemented where practicable on existing roads with a traffic noise level exceeding the limit of 70dB(A.) stipulated in the Hong Kong Planning Standards and Guidelines. Environmental Protection Department (EPD) has identified 10 existing road sections and proposed to be retrofitted with noise barriers/enclosures under the Direct Noise Mitigation Measures (DNMM) on Existing Roads project on 18 April 2006. TPR-ST is one of these 10 existing road sections to be retrofitted with DNMM in order to address the traffic noise impact on residents along the section of Tai Po Road from Scenery Court near Sha Tin Centre Street to Wo Che Estate near Fo Tan Road. The Technical Feasibility Statement (TFS) for Package 2 was subsequently approved in October 2006. The said DNMM works were proposed under PWP No. 804TH, "Retrofitting of Noise Barriers along Tai Po Road – Sha Tin Section" project (hereafter referred as 804TH project) to be implemented by HyD.
- 1.1.11 Notwithstanding the above, as the road improvement works in Package 1 will necessitate the construction of noise barrier works along TPR-ST between New Town Plaza and Wo Che Estate, the scope of the noise barrier works proposed under Package 2 has been adjusted accordingly to exclude those extents of noise barrier works along TPR-ST under Package 1.

### 1.2 Scope of the Project

- 1.2.1 The scope of the Project under this Assignment comprises two Packages:

#### **Package 1**

To widen the existing TPR-ST between Sha Tin Rural Committee Road (STRCR) near Sha Tin Plaza and Fo Tan Road near Man Wo House of Wo Che Estate.

#### **Package 2**

To construct noise enclosures and barriers along TPR-ST at 2 sections of existing Tai Po Road (Sha Tin Section) Scenery Court and Wo Che Estate near Fo Tan Road in Sha Tin.

1.2.2 The scope of Works under Package 1 of this Project comprises:

- (a) widening of Tai Po Road of about 1.1 kilometres between STRCR and Fo Tan Road from dual two-lane to dual three-lane;
- (b) modification to the existing diamond interchange at Tai Po Road / STRCR;
- (c) modification of the two footbridges across Tai Po Road - Sha Tin Section near Wo Che Street and near Fung Wo Lane respectively; and
- (d) associated drainage works, landscape works, noise mitigation measures, street lighting works and traffic control and surveillance system.

1.2.3 The scope of Works under Package 2 of this Project comprises:

- (a) retrofitting of vertical barriers of about 220 m in length and 6 m in height on the northbound (NB) of TPR, fronting Tin Liu;
- (b) retrofitting of cantilevered barriers of about 70 m in length and 7 m in height on the southbound (SB) of TPR, fronting Scenery Court;
- (c) retrofitting of semi-enclosures of about 260 m in length and variation from 6 m to 12.3 m in height over the SB of TPR with a 2 m cantilevered section extending over the NB of TPR fronting Hilton Plaza and Wai Wah Centre;
- (d) retrofitting of vertical barriers of 155 m in length and 5 m in height above the central divider by integrating with the semi-enclosures and fronting Wai Wah Centre;
- (e) retrofitting of cantilevered barriers of about 110 m in length and 6 m in height with 2 m cantilever and vertical barriers of about 75 m in length and 5 m in height with the last 15 m varies from 5 m to 2 m in height at its northern end, on the slip road from the NB of TPR to Fo Tan Road,
- (f) retrofitting of vertical barriers of about 170 m in length and 5 m in height on the slip road from Fa Tan Road to SB of TPR;
- (g) retrofitting of semi-enclosures of about 110 m in length and 6 m in height over the SB of TPR with a 2 m cantilevered section extending over the NB of TPR, fronting Mei Wo House of Wo Che Estate; and
- (h) ancillary civil and geotechnical, utility diversion, street lighting, landscaping, traffic aids, drainage and other related works.

1.2.4 The General Layout Plan is shown in **Appendix A**.

### 1.3 Purpose, Scope and Structure of Report

1.3.1 This Landscape Plan is prepared in fulfillment of Condition 2.4 of Environmental Permit (EP) No. EP-463/2013/B.

1.3.2 As stated in Condition 2.4 of EP No. EP-463/2013/B, "The Permit Holder shall, at least one month before the commencement of the corresponding parts of landscape works of the Project, deposit with the Director four hard copies and four electronic copies of landscape plan(s). The landscape plan(s) shall show the design details, confirmation of the feasibility for proposed planting, locations, implementation programme, maintenance and management schedules, and drawings in the scale of 1:1,000 or other appropriate scale of the landscape and visual mitigation measures of the Project. Before submission to the Director, the landscape plan(s) shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information

and recommendations contained in the EIA Report (Register No. AEIAR-020/1999) and the EIA Review Report".

1.3.3 The scope of this Landscape Plan includes:

- Providing a preliminary tree preservation and protection plan complied with DEVB TC(W) No. 7/2015.
- Presenting preliminary proposals for all hard and soft landscape works supported by design objectives and guidelines.
- Temporary landscape works, if required, should match the overall aesthetic themes and treatments of the permanent works.

1.3.4 Following this introductory section, the remainder of the Report is arranged as follows:

- Section 2 describes environmental legislations, standards and guidelines related to landscape design;
- Section 3 presents the landscape design objectives and guidelines;
- Section 4 presents the tree treatment recommendation and tree compensation;
- Section 5 presents the preliminary proposals for hard and soft landscape works;
- Section 6 presents the management and maintenance authorities for landscape works; and
- Section 7 summarizes the findings and recommends the way forward of the project.

### 1.4 Abbreviations

1.4.1 The following table lists out the abbreviated titles of Government bureaux, departments, offices, statutory bodies and public organizations mentioned in this Report:

Abbreviation	Full Title
AFCD	Agriculture, Fisheries and Conservation Department
CEDD	Civil Engineering and Development Department
DEVB	Development Bureau
EPD	Environmental Protection Department
ETWB	Environment, Transport and Works Bureau
GEO	Geotechnical Engineering Office of Civil Engineering and Development Department
HyD	Highways Department
LandsD	Lands Department
LCSD	Leisure and Cultural Services Department
STDC	Shatin District Council

1.4.2 The following table lists out the abbreviations for expressions adopted in this Report:

<b>Abbreviation</b>	<b>Full Expression</b>
TPR-ST	Tai Po Road (Sha Tin Section)
the Project	The Tai Po Road (Sha Tin Section) Project
The Road	The Tai Po Road (Sha Tin Section) within the Project Boundary
DEVB TC(W)	Development Bureau Technical Circular (Works)
EIA	Environmental Impact Assessment
EP	Environmental Permit
EM&A	Environmental Monitoring & Audit
VEP	Variation of Environmental Permits
ET	Environmental Team
ETL	Environmental Team Leader
ETWB TC(W)	Environment, Transport and Works Bureau Technical Circular (Works)
OVTs	Old and Valuable Trees
SI	Site Investigation
TC	Technical Circular
VSRs	Visually Sensitive Receivers
WBTC	Technical circulars issued by the Works Bureau, the Works Branch, the Lands & Works Branch or the Public Works Department



## 2 LEGISLATIONS, STANDARDS AND GUIDELINES

### 2.1 Government Publications, Guidelines and Reports

#### 2.1.1 Government Publications, Guidelines and Reports related to Landscape Design include:

- Agriculture, Fisheries and Conservation Department – AFCD Nature Conservation Practice Note No. 1 – Clearing Mikania.
- Agriculture, Fisheries and Conservation Department – AFCD Nature Conservation Practice Note No. 2 – Measurement of Diameter at Breast Height (DBH).
- Agriculture, Fisheries and Conservation Department – AFCD Nature Conservation Practice Note No. 3 – The Use of Plant Names.
- Civil Engineering and Development (2006) – General Specifications for Civil Engineering Works, Sections 3 and 26.
- Civil Engineering and Development (2008) – Project Administration Handbook, Chapters 1 and 4.
- Development Bureau – Latest Guidelines for Tree Risk Management and Assessment Arrangement on an Area Basis and on a Tree Basis.
- GEO Publication (2000) – Highway Slope Manual, Chapters 6 and 8.
- GEO Publication No. 1/2011 – Technical Guidelines on Landscape Treatment for Slopes
- GEO Report No. 56 (1999) – Application of Prescriptive Measures to Slopes and Retaining Walls, 2nd Edition.
- GEO Report No. 116 (2001) – Review of Effective Methods of Integrating Man made Slopes and Retaining Walls (Particularly for Roadside Slopes) into Their Surroundings.
- Highways Department (2006) – Structures Design Manual for Highways and Railways, Third Edition, Chapter 17 – Aesthetics.
- HyD Standard Drawings, Sections 5 and 6.
- Lands Department, Lands Administration Office Instructions (LAOI) Section D-12 – Tree Preservation.
- Transport Department – Transport Planning & Design Manual (TPDM).
- Latest General Requirement of Roadside Landscape Areas to be handed over to LCSD.

### 2.2 Technical Circulars

#### 2.2.1 Technical Circulars related to Landscape Design include:

- ETWB TCW No. 13/2003A – Guidelines and Procedures for Environmental Impact Assessment of Government Projects and Proposals Planning for Provision of Noise Barriers.
- ETWB TCW No. 34/2003 – Community Involvement in Greening Works.
- DEVB TC(W) No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features.
- ETWB TCW No. 11/2004 – Cyber Manual for Greening.
- ETWB TCW No. 29/2004 – Registration of Old and Valuable Trees, and Guidelines for their Preservation.
- ETWB TCW No. 36/2004 – The Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS).
- DEVB TC(W) No. 2/2013 - Greening on Footbridges and Flyovers.
- TBTC No. 2/2000 – Provision of Covers, Ramps and Escalators to Grade Separated Pedestrian Facilities.
- DevB TC(W) No. 3/2012 - Site Coverage of Greenery for Government Building Projects.
- DevB TC(W) No. 2/2012 - Allocation of Space for Quality Greening on Roads.
- DEVB TC(W) No. 7/2015 – Tree Preservation.
- Proper Planting Practices and other relevant guidelines issued by GMLT Section of DevB.
- HyD RD/GN/044 – Guidance Notes on Design and Construction of Pavements with Paving Units and District Paving Master Plan.
- HyD RD/GN/041 – Guidelines on Design of Railings.
- HyD TC No. 10/2001 – Visibility of Directional Signs.
- HyD TC No. 3/2008 – Independent Vetting of Tree Works under the Maintenance of Highways Department.
- HyD HQ/GN/13 – Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit.
- HyD HQ/GN/15 – Guidelines for Greening Works along Highways.
- HyD Requirements for Handover of Vegetation to Highways Department.
- Guidelines on Greening of Noise Barriers by GLTM/DEVB.
- Guidelines on Design of Noise Barriers by EPD and HyD.
- Guidelines from Greening, Landscape and Tree Management Section of DevB (<http://www.greening.gov.hk/en/index.html> and <http://www.trees.gov.hk/en/home/index.html>), such as Guidelines on Tree Transplanting, Guidelines on Tree Preservation during Development etc.

### 2.3 Ordinances and Regulations

#### 2.3.1 Ordinances and Regulations related to Landscape Design include:

- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislations.
- Plant Varieties Protection Ordinance (Cap. 490).
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586).
- Environmental Impact Assessment Ordinance (Cap. 499)

**2.4 Landscape and Visual Mitigation Measures Recommended in the Approved EIA and Updated EM&A Manual**

2.4.1 Landscape and Visual Mitigation Measures proposed under the approved EIA and Updated EM&A Manual (Version Ref. No.: 0064/18/ED/0122D) were incorporated in the Landscape Plan. The proposed Mitigation Measures during Construction and Operation Phases are summarized in **Table 2.1**.

**Table 2.1 Mitigation Measures during Construction and Operation Phase Recommended in the Updated EM&A Manual**

ID No.	Landscape and Visual Mitigation Measures	Funding and Implementation Agency	Maintenance/ Management Agency
<b>Construction Phase</b>			
<b>CM1</b>	<b>Protection of retained trees, transplanting of transplanted trees and conservation of topsoil</b> Existing trees shall be preserved as much as possible. Detailed tree preservation and transplanting proposals shall be submitted to relevant government departments for approval in accordance with DEVB TC(W) No. 7/2015. Topsoil will be conserved as far as possible during the road improvement works and utilized during the replanting operations. The stock piling height of the topsoil will not be more than 2m.	Contractor	CEDD
<b>CM2</b>	<b>Protection of OVTs</b> OVTs identified in the Project Boundary shall be protected in accordance with ETWB TCW no. 29/2004.	Contractor	CEDD
<b>CM3</b>	<b>Control of Night-time Lighting Glare</b> Night-time lighting glare shall be properly managed and control during construction so as to minimize any adverse visual impact on adjacent VSRs.	Contractor	CEDD
<b>CM4</b>	<b>Erection of Decorative Screen Hoarding</b> Decorative screen hoarding with design compatible with the surrounding landscape setting shall be erected along the southern boundary of Tai Po Road to mitigate any potential adverse impact on adjacent Pedestrian and Cyclists on Footpath/Bicycle Track.	Contractor	CEDD
<b>Operation Phase</b>			
<b>OM1</b>	<b>Compensatory planting for loss of existing trees</b> Compensatory planting shall be provided within and outside the project boundary where possible. Detailed compensatory planting proposal will be prepared in accordance with DEVB TC(W) No. 7/2015.	Contractor	LCSD/HyD

ID No.	Landscape and Visual Mitigation Measures	Funding and Implementation Agency	Maintenance/ Management Agency
<b>OM2</b>	<b>Planting of engineered slopes, road verges, central divider and around structures</b> Planting shall be undertaken at the earliest practical time in the construction period. The planting proposal shall aim to strengthen the existing tree species and supplement the existing tree planting to provide an effective screen to ameliorate any potential landscape and visual impacts. The proposed species to be utilized for road improvement works shall be agreed with LCSD and future maintenance authorities. All the proposed species for compensatory planting shall be suitable for roadside streetscape planting.  For areas where planting is not feasible, the exemption of allocation of space for quality greening on roads (under DEVB Technical Circular (Works) No.2/2012) was granted from Works and Maintenance Committee on Greening (WMCG).	Contractor	LCSD/HyD
<b>OM3</b>	<b>Provision of visually pleasing aesthetic treatment on noise barriers and enclosures</b> Provision of visually pleasing noise barriers and enclosures design shall be proposed. The design of these structures aims to minimize any potential visual impact and visually integrate the proposed structures into the adjacent landscape context. This should be achieved through the use of form, colour, tones, materials and planting materials.	Contractor	HyD
<b>OM4</b>	<b>Hard Landscape Treatment of Carriageway, Structures and Roadside Furniture</b> Aesthetically pleasing hard landscape treatment of the carriageway and roadside furniture, including development of chromatic themes in the architectural treatment of engineering structures, and the consideration of landscape lighting and special landscape features.	Contractor	HyD
<b>OM5</b>	<b>Shrubs and Climbers Planting proposed at column along the Noise Enclosures and Barriers with provision of supporting frame</b> Shrubs and climbers planting are proposed at column along the Noise Enclosures and Barriers with provision of supporting frame to mitigate any adverse impact on adjacent VSRs in area where space for tree planting is not feasible.	Contractor	LCSD/HyD

2.4.2 The actions / plans undertaken by the contractor against the Landscape and Visual Mitigation Measures are summarized in **Table 2.2**. The proposed Landscape and Visual Mitigation Measures will be updated based on the actual site conditions.

**Table 2.2 Actions / Plans undertaken by Contractor against the Landscape and Visual Mitigation Measures**

ID No.	Landscape and Visual Mitigation Measures	Proposed Actions / Plans
<b>Construction Phase</b>		
CM1	<b>Protection of retained trees, transplanting of transplanted trees and conservation of topsoil</b>  Existing trees shall be preserved as much as possible. Detailed tree preservation and transplanting proposals shall be submitted to relevant government departments for approval in accordance with DEVB TC(W) No. 7/2015.  Topsoil will be conserved as far as possible during the road improvement works and utilized during the replanting operations. The stock piling height of the topsoil will not be more than 2m.	Protection of retained trees, transplanting of trees and conservation of topsoil would comply with the Tree Preservation and Protection Plan ( <b>Appendix E</b> refers) and relevant method statements would be submitted by contractor.  Trees to be retained / transplanted would be labelled and their protection zones would be fenced off to avoid disturbance from work activities. Regular monitoring and tree inspection would be conducted by Qualified Arborist(s). All preservation works would be supervised by a competent person.  Tool box talk training would be carried out to supervisors and workers not to disturb any preserved trees and not to pile up top soil stock higher than 2m.
CM2	<b>Protection of OVTs</b>  OVTs identified in the Project Boundary shall be protected in accordance with ETWB TCW no. 29/2004.	The protection of OVTs would comply with the Tree Preservation and Protection Plan ( <b>Appendix E</b> refers) and relevant method statements would be submitted by contractor.  Water barriers would be used to fence off the OVTs to ensure no work or equipment within the protection zones. Regular monitoring inspection would be conducted by the Independent Tree Specialist.
CM3	<b>Control of Night-time Lighting Glare</b>  Night-time lighting glare shall be properly managed and control during construction so as to minimize any adverse visual impact on adjacent VSRs.	Lighting equipment would be carefully positioned to avoid the directions towards residents. Quantity of the site lightings at night would be minimized with optimized luminosity.

CM4	<b>Erection of Decorative Screen Hoarding</b>  Decorative screen hoarding with design compatible with the surrounding landscape setting shall be erected along the southern boundary of Tai Po Road to mitigate any potential adverse impact on adjacent Pedestrian and Cyclists on Footpath/Bicycle Track.	Screen hoarding would be designed by contractor with design compatible with the surrounding landscape setting. Method statement would be prepared for the hoarding erection by contractor as well.
<b>Operation Phase</b>		
OM1	<b>Compensatory planting for loss of existing trees</b>  Compensatory planting shall be provided within and outside the project boundary where possible. Detailed compensatory planting proposal will be prepared in accordance with DEVB TC(W) No. 7/2015.	Compensatory planting plan (Section 4.2 of this document refers) has been designed in the design stage of the Project in accordance with DEVB TC(W) No. 7/2015.  Replacement planting shall be new plants of the same species and of similar size and form or other alternative planting together with the necessary mitigation landscape works as agreed by the Project Manager as the trees are damaged, in opinion of the Supervisor, due to negligence or failure on part of contractor.
OM2	<b>Planting of engineered slopes, road verges, central divider and around structures</b>  Planting shall be undertaken at the earliest practical time in the construction period. The planting proposal shall aim to strengthen the existing tree species and supplement the existing tree planting to provide an effective screen to ameliorate any potential landscape and visual impacts. The proposed species to be utilized for road improvement works shall be agreed with LCSD and future maintenance authorities. All the proposed species for compensatory planting shall be suitable for roadside streetscape planting.  For areas where planting is not feasible, the exemption of allocation of space for quality greening on roads (under DEVB Technical Circular (Works) No.2/2012) was granted from Works and Maintenance Committee on Greening (WMCG).	Planting would be undertaken zone by zone in order to best match the construction sequences. All the works would be complied to Contract Drawings. Contractor's landscape works programme is illustrated in Section 6.2 of this document and an indicative planting schedule of the proposed species was shown in Figure 60481656/A1/LP07.

OM3	<p><b><i>Provision of visually pleasing aesthetic treatment on noise barriers and enclosures</i></b></p> <p>Provision of visually pleasing noise barriers and enclosures design shall be proposed. The design of these structures aims to minimize any potential visual impact and visually integrate the proposed structures into the adjacent landscape context. This should be achieved through the use of form, colour, tones, materials and planting materials.</p>	<p>Visually pleasing noise barriers and enclosures has been taken into account in the landscape design to minimize any potential visual impact and visually integrate the proposed structures into the adjacent landscape context.</p> <p>Noise barriers and enclosures would be constructed according to Contract Drawings by Contractor.</p>
ID No.	<p><b>Landscape and Visual Mitigation Measures</b></p>	<p><b>Proposed Actions / Plans</b></p>
OM4	<p><b><i>Hard Landscape Treatment of Carriageway, Structures and Roadside Furniture</i></b></p> <p>Aesthetically pleasing hard landscape treatment of the carriageway and roadside furniture, including development of chromatic themes in the architectural treatment of engineering structures, and the consideration of landscape lighting and special landscape features.</p>	<p>Aesthetically pleasing hard landscape treatment of the carriageway and roadside furniture, including development of chromatic themes in the architectural treatment of engineering structures, and the consideration of landscape lighting and special landscape features has been taken into account in the landscape design. All the landscape works would be constructed in according to Contract Drawings by contractor.</p>
OM5	<p><b><i>Shrubs and Climbers Planting proposed at column along the Noise Enclosures and Barriers with provision of supporting frame</i></b></p> <p>Shrubs and climbers planting are proposed at column along the Noise Enclosures and Barriers with provision of supporting frame to mitigate any adverse impact on adjacent VSRs in area where space for tree planting is not feasible.</p>	<p>Shrubs and climbers planting have been design at column along the Noise Enclosures and Barriers with provision of supporting frame in order to mitigate any adverse impact on adjacent VSRs in area where space for tree planting is not feasible. All the landscape works would be constructed in according to Contract Drawings by contractor.</p>

### 3 LANDSCAPE DESIGN OBJECTIVES AND GUIDELINES

#### 3.1 Landscape Design Objectives

3.1.1 Landscape design objectives for the Project shall include the following:

- To provide landscape design to mitigate the potential landscape and visual impact of the project during the construction and operation phase in accordance with approved EIA Report, EIA Review Report, Updated EM&A Manual and Tree Preservation and Protection Plan, also with agreement of relative department;
- To enhance the landscape and visual quality of the Project making references the proposed planting themes from Greening Master Plans (GMPs);
- To maximize tree preservation, in particular preservation of OVTs and other important trees;
  - To optimize greening opportunities to recover the loss of greenery in terms of quality;
  - To beautify the proposed roadworks and associated structures and integrate the proposed works with the adjacent hard and soft landscape settings within the project boundary; and
  - To provide seamless landscape design transition with adjacent landscape treatments proposed in the Project.

#### 3.2 Design Guidelines for Hard and Soft landscape Works

3.2.1 Proposed Hard Landscape Works shall be selected using the following guidelines:

- Durable – utilizing long lasting or permanent materials and finishes.
- Low maintenance – easy to clean and repair.
- Reasonable Cost – reasonable cost range providing the greatest value for expense.
- Visual compatibility – compatible with the existing materials and design in the adjacent development.
- Recyclable and Environmental Friendly Materials – utilizing recyclable and environmental friendly materials where possible.

3.2.2 Proposed Soft Landscape Works shall be selected using the following guidelines:

- Adaptive – able to relatively quickly provide the desired landscape design intent as appropriate to the area.
- Pollution Tolerance – able to withstand polluted roadside environment, poor drainage and salty soil, particularly for plant materials proposed for Shatin District.
- Wind tolerance – able to withstand windy conditions at exposed areas.
- Seasonal interest – providing seasonal variety or seasonal flowers, fruit or foliage colour.
- Low maintenance and self-sustainability – easy to grow without special treatments or maintenance operations.
- Non-toxic – relatively safe and non-poisonous materials and/or biodegradable.
- Harmony – part of the theme in Shatin district/ Greening master Plan

- Slope greening – greening of slope shall make reference to “GEO Publication No. 1/2011 – Technical Guidelines on Landscape Treatment for Slopes” which providing a relatively safe and sustainable greening strategy
- Right Plant, Right Place – plants are designed to plant in planters with sufficient growing space and also accessible, especially tree planting. Also, planting design for location with safety concerned has to agree by relative department and fulfil related guideline, for example underground utilities are located underneath.
- OVTs and retained trees – Preservation of OVTs and retained trees shall make reference to “DEVB TC(W) No. 7/2015 – Tree Preservation” and “ETWB TCW No. 29/2004 – Registration of Old and Valuable Trees, and Guidelines for their Preservation” which providing guidelines to maximize tree preservation, in particular preservation of OVTs.

#### 4 TREE TREATMENT RECOMMENDATION AND TREE COMPENSATION

##### 4.1 Tree Survey and Treatment Recommendations

4.1.1 In the design stage of this project, tree survey was carried out and the tree recommendation was submitted with the Report for Tree Removal and Transplant Application (TRTA) (Ref. C07) – Issue 3 (January 2018) to LCSD, HyD, AFCD, LandsD/LAO/DLO(ST) and CEDD. A total of 1114 trees were surveyed; the numbers of trees recommended to be felled, retained and transplanted are 887, 219, and 8 respectively. The breakdown of the tree recommendation is summarized in **Appendix C**.

4.1.2 In accordance with the, three registered OVTs are identified within the Project boundary. Tree preservation proposals shall be prepared separately in accordance with the DEVB TC(W) No.7/2015. The requirement of ETWB TC(W) No. 29/2004 will be complied with for the protection of the OVTs. The Guidelines on Tree Preservation during Development and Tree Care during Construction issued by Greening, Landscape and Tree Management Section, Development Bureau will be referred. Details of the three registered OVTs are summarized in **Table 4.1**.

**Table 4.1 Detailed Conditions of OVTs within Project Boundary**

Tree # / Photo #	Species	Measurements			Tree Condition (Good/ Fair/ Poor)	Tree recommendation (Retain/Fell/Transplant)	Defective
		Trunk Diameter-DBH (mm)	Height (m)	Crown Spread (m)			
T584	<i>Ficus annulata</i> 環紋榕	1686	16.5	30.0	Fair	Retain	3,5 *
T605	<i>Bischofia polycarpa</i> 重陽木	527	14.0	14.0	Fair	Retain	3,4,11,23 *
T606	<i>Bischofia polycarpa</i> 重陽木	520	13.0	13.0	Fair	Retain	3,4,9,11 *

\* 3) Wound; 4) Dead branches; 5) Cross branches; 9) Co-dominant branches; 11) Cavity/Decay; 23) Broken branches

4.1.3 An initial tree survey after the commencement of the construction was conducted by the contractor. New TRTA will be submitted to relevant authorities if additional trees are required to be removed or transplanted.

4.1.4 A plan regarding the preservation and protection of retained trees, including the three OVTs are detailed in the Tree Preservation and Protection Plan in **Appendix E**.

##### 4.2 Compensatory Planting Proposals

4.2.1 On-site Transplantation and Compensatory Planting Proposal for transplantation of existing trees and compensation of trees to be felled under the Project, as well as relative maintenance departments are incorporated in **Figure 60481656/TS/131 to 60481656/TS/137**.

## 5 PRELIMINARY LANDSCAPE PROPOSALS

### 5.1 Landscape Proposals

5.1.1 Landscape master plan for the Project is shown in **Figures 60481656/A1/LP01 to 60481656/A1/LP06**. Landscape Sections are illustrated in **Figures 60481656/LS-01 and 60481656/LS-02**.

5.1.2 The landscape design intention is to maximize greening within the project boundary and provide a pleasant landscaped environment for the enjoyment for the users of the project which include motorists, cyclists and pedestrians.

5.1.3 Landscape Proposals for the Project include:

- Retention of existing trees and vegetation where possible;
- Provision of landscape buffer for highways;
- Provision of comfortable walking environment for pedestrian/ road users;
- Provision of hard landscape design treatments to the roadside landscape areas;
- Provision of amenity planting with ground covers or small shrubs along the planters that separate the carriageway, cycle track and pavement on the bridge deck;
- Tree and Shrub Planting are proposed along the noise enclosures at the both sides of Road where space is available;
- Woodland mix planting (with whips and shrubs or with shrubs only) is proposed on HyD's SIMAR slopes to maximize greening opportunity as far as practicable.

### 5.2 Hard Landscape Materials

5.2.1 The following hard landscape materials are proposed for the Project:

- The cycle track will be finished with bituminous material and surfaced with high friction coating to provide grip to cyclists. Red pigments will be added to give a thematic 'Red' color common to the cycle tracks in Shatin. To in line with the existing condition, no red pigment will be applied on bituminous pavement of the cycle track subway in front of Sha Tin Plaza.
- Kerb planters will be adopted for all proposed planters along cycle track. For details refer to HyD's Standard Drawing No. H 5138. Material and finishes shall be match with the adjacent original kerb planter.
- Pixelated pattern in green will be adopted for the proposed noise barrier and semi-noise enclosures to provide aesthetically pleasing visualization and further reduce the negative visual impact to the surrounding residents.
- Color ceramic tiles of pixelated pattern in green will be adopted as wall finishing of Cycle Track Subway NS30 to provide harmonic visualization with the proposed noise mitigation measures. The floor of cycle track will be paved by bitumen. Ceilings of the subway barrels will be painted in white.
- Hard landscape treatment design proposal has been submitted to the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS) for vetting and acceptance-in-principle has been obtained.

### 5.3 Soft Landscape Materials

5.3.1 An indicative planting schedule for soft landscape area for the Project is shown in **Figure 60481656/A1/LP07**.

### 5.4 Irrigation Strategy

5.4.1 All amenity planting areas proposed within the project boundary are generally accessible. Lockable hand operated water points will be provided at intervals of not more than 40m apart (determined by 20m hose-pipe length) at locations where existing water points are not available. Water point designs will be to the satisfaction of LCSD, WSD, HyD and EMSD.

5.4.2 Irrigation layout showing the indicative water point locations will be submitted to seek relevant government department's comment and agreement separately in due course.

## 6 PLANNING, PROGRAMME, MANAGEMENT AND MAINTENANCE OF LANDSCAPE WORKS

### 6.1 Planning of Landscape Works

- 6.1.1 This Landscape Plan presents the overall landscape design intention of the Project to blend in with existing and future planning and landscape framework of the area in accordance with the Approved EIA and EM&A manual.
- 6.1.2 Photomontage for proposed works with mitigation measures is shown in **Appendix B**.

### 6.2 Landscape Works Programme

- 6.2.1 The landscape works programme proposed by contractor is shown in **Appendix D**.

### 6.3 Management and Maintenance Authorities for Landscape Works

- 6.3.1 In accordance with ETWB TC(W) No. 6/2015, the management and maintenance authorities for greening provision within the Project boundary are HyD, LCSD and AFCD respectively. They have been identified and presented in the Landscape Layout Plan in **Figures 60481656/A1/LP01 to 60481656/A1/LP06**.
- 6.3.2 Management and maintenance authorities for other provisions, e.g. finishing and pavement, will be circulated to seek agreement in principle from relevant maintenance authorities under separate cover – Management and Maintenance Schedule.

## 7 SUMMARY AND WAY FORWARD

### 7.1 Conclusions

- 7.1.1 This is the Landscape Plan submission to fulfil the EP requirement as stated in Condition 2.4 of EP No. EP-463/2013/B.
- 7.1.2 The landscape design consideration and a preliminary landscape design have been presented in this document. Proposed landscape measures as landscape and visual mitigation measures during detailed design stage in accordance with the approved EIA report and updated EM&A Manual are discussed.

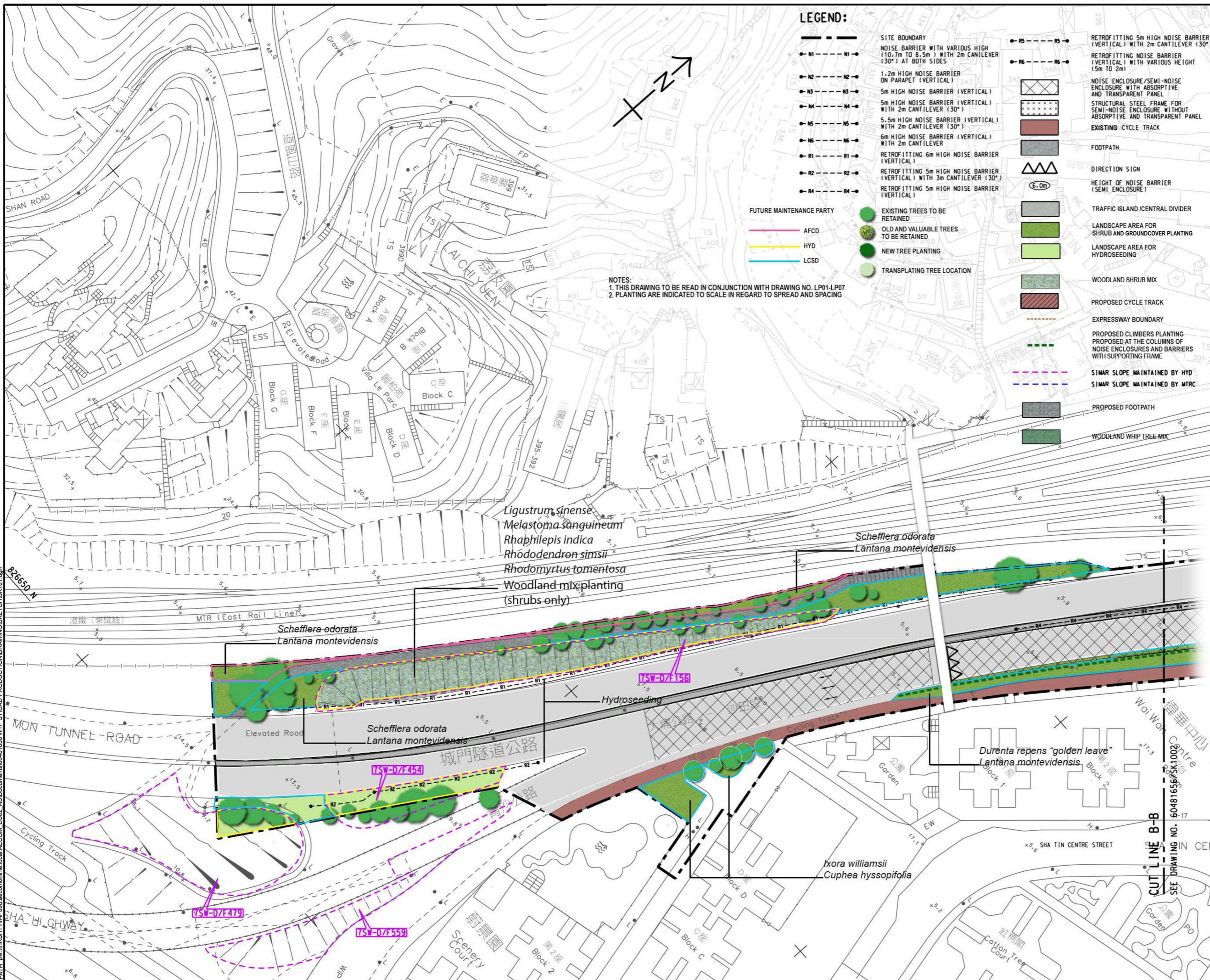
### 7.2 Way Forward

- 7.2.1 Upon receiving comments from relevant Government departments on this first issue of Landscape Plan, landscape design for the Project will be updated in due course having taken into the account on the comments received or the updates of site conditions.



# FIGURES

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**LEGEND:**

- SITE BOUNDARY
- R1 --- R1 --- NOISE BARRIER WITH VARIOUS HIGH (10.7m TO 8.5m) WITH 2m CANTILEVER (30°) AT BOTH SIDES
- R2 --- R2 --- 1.2m HIGH NOISE BARRIER ON PARAPET (VERTICAL)
- R3 --- R3 --- 5m HIGH NOISE BARRIER (VERTICAL)
- R4 --- R4 --- 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- R5 --- R5 --- 5.5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- R6 --- R6 --- 6m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER
- R1 --- R1 --- RETROFITTING 6m HIGH NOISE BARRIER (VERTICAL)
- R2 --- R2 --- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 3m CANTILEVER (30°)
- R4 --- R4 --- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL)
- FUTURE MAINTENANCE PARTY --- AFCD (Green circle)
- HYD (Yellow circle)
- LCSD (Blue circle)
- EXISTING TREES TO BE RETAINED (Green circle with cross)
- OLD AND VALUABLE TREES TO BE RETAINED (Green circle with star)
- NEW TREE PLANTING (Green circle)
- TRANSPLANTING TREE LOCATION (Green circle with cross)
- R5 --- R5 --- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- R6 --- R6 --- RETROFITTING NOISE BARRIER (VERTICAL) WITH VARIOUS HEIGHT (5m TO 2m)
- NOISE ENCLOSURE/SEMI-NOISE ENCLOSURE WITH ABSORPTIVE AND TRANSPARENT PANEL (Cross-hatched box)
- STRUCTURAL STEEL FRAME FOR SEMI-NOISE ENCLOSURE WITHOUT ABSORPTIVE AND TRANSPARENT PANEL (Dotted box)
- EXISTING CYCLE TRACK (Red hatched box)
- FOOTPATH (Grey box)
- DIRECTION SIGN (Triangle with arrow)
- HEIGHT OF NOISE BARRIER (SEMI ENCLOSURE) (6.0m)
- TRAFFIC ISLAND / CENTRAL DIVIDER (Grey box)
- LANDSCAPE AREA FOR SHRUB AND GROUND COVER PLANTING (Green box)
- LANDSCAPE AREA FOR HYDROSEEDING (Light green box)
- WOODLAND SHRUB MIX (Dark green box)
- PROPOSED CYCLE TRACK (Red dashed line)
- EXPRESSWAY BOUNDARY (Dashed line)
- PROPOSED CLIMBERS PLANTING PROPOSED AT THE COLUMNS OF NOISE ENCLOSURES AND BARRIERS WITH SUPPORTING FRAME (Dotted line)
- SIMAR SLOPE MAINTAINED BY HYD (Blue dashed line)
- SIMAR SLOPE MAINTAINED BY MTRC (Red dashed line)
- PROPOSED FOOTPATH (Grey box)
- WOODLAND WHIP TREE MIX (Green box)

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 2. PLANTING ARE INDICATED TO SCALE IN REGARD TO SPREAD AND SPACING

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 WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION

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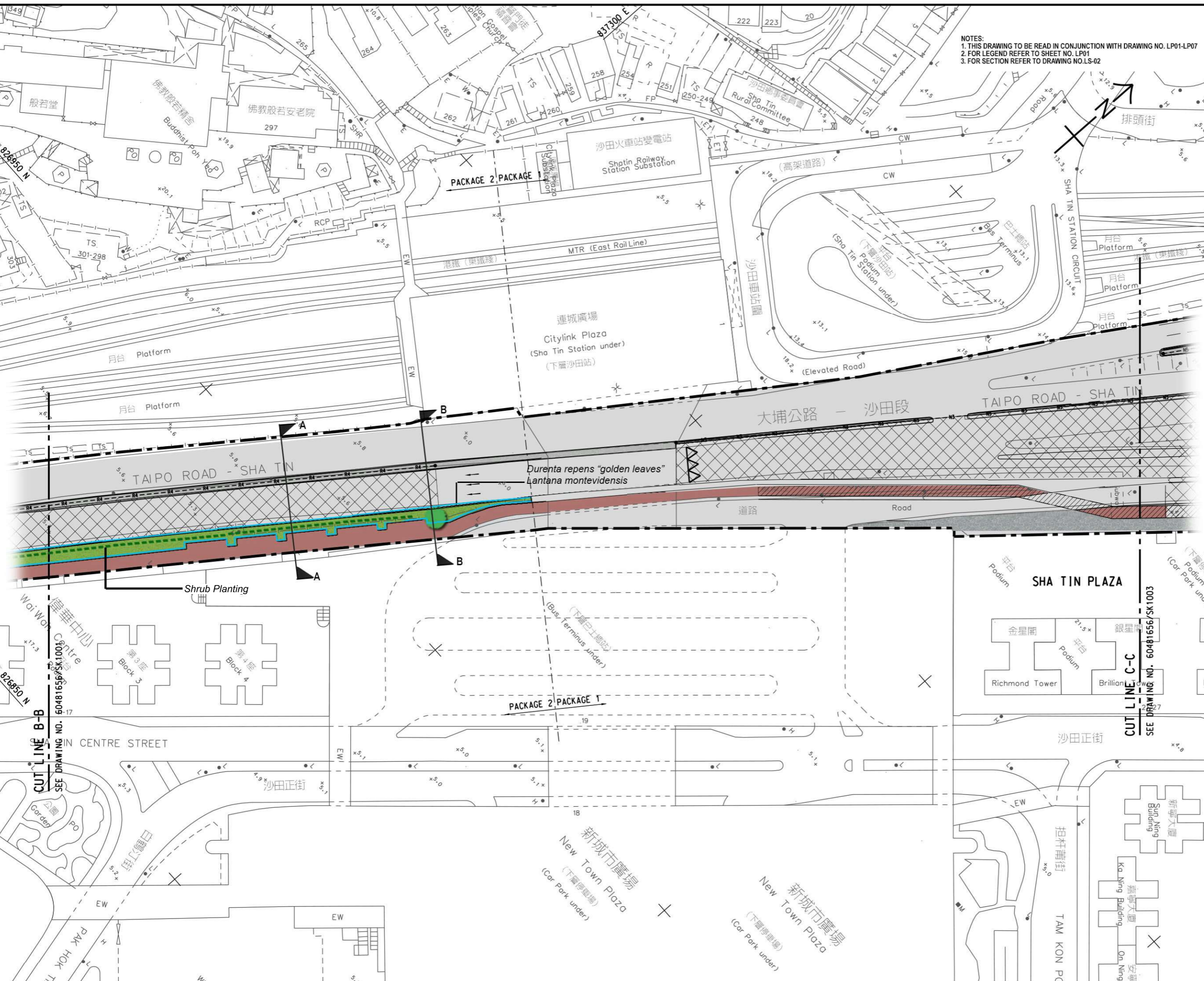
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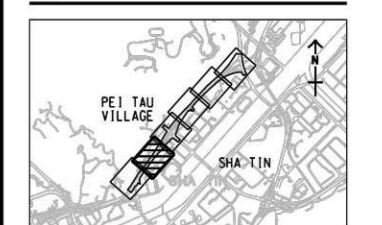
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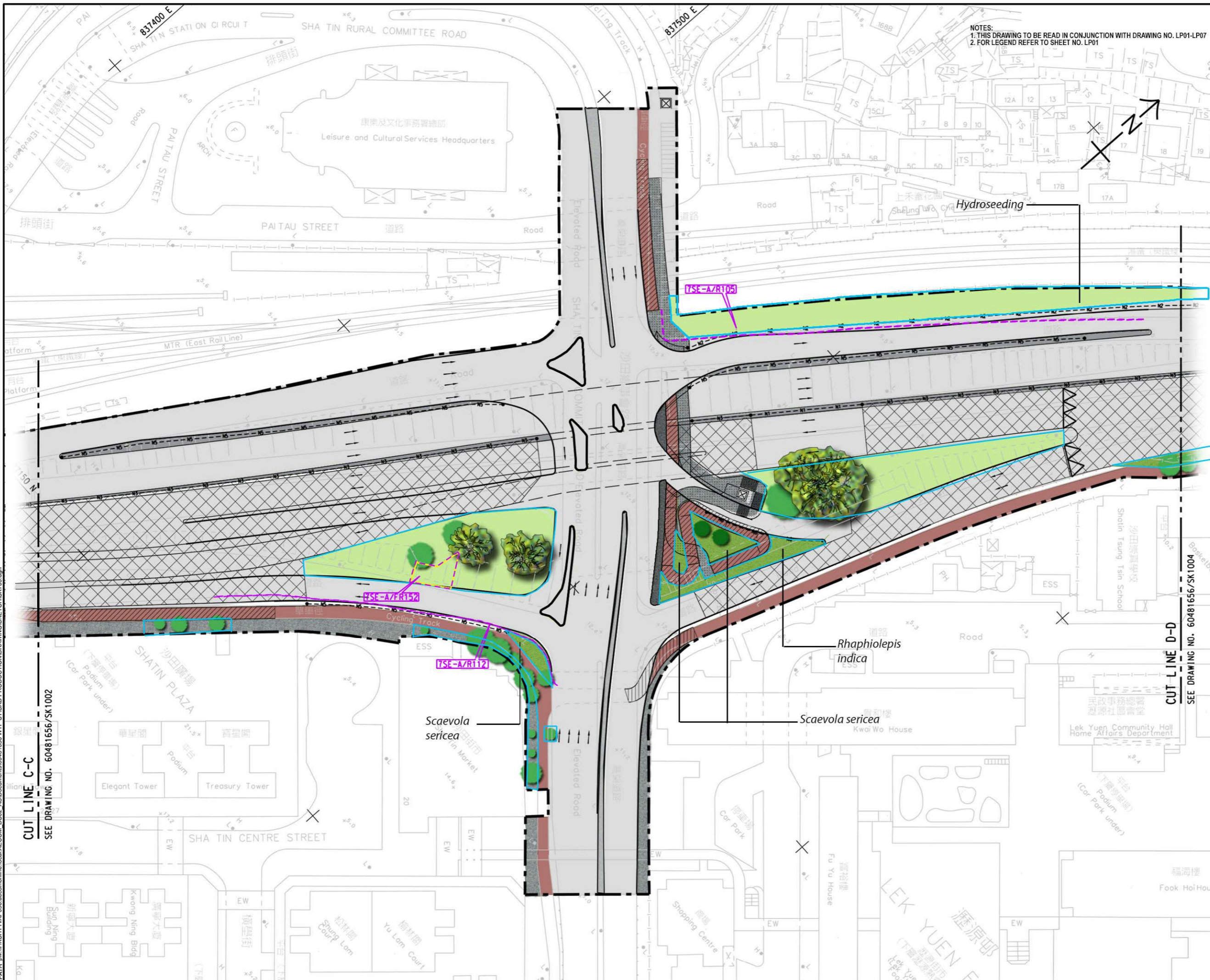


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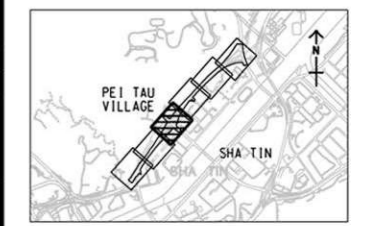
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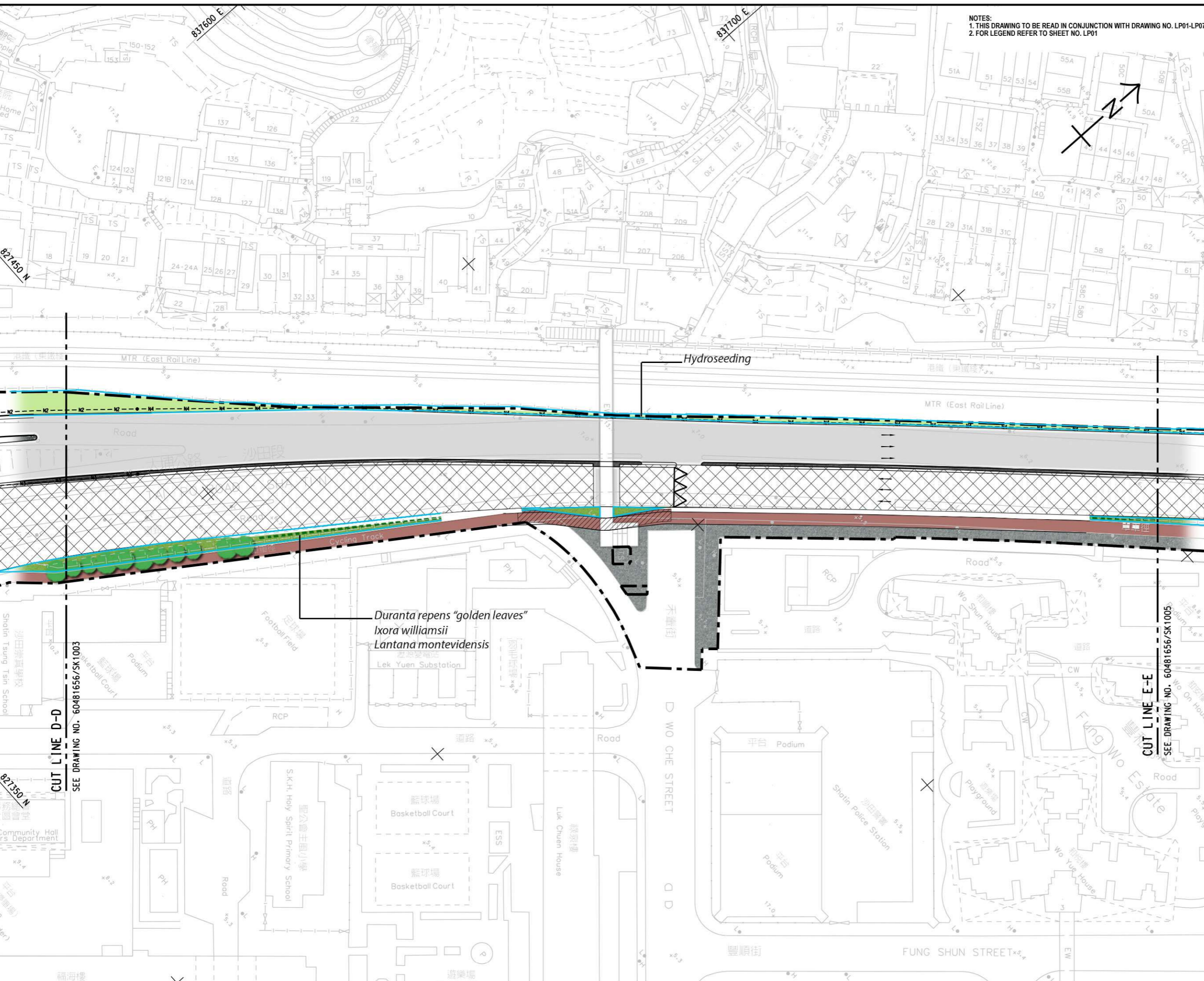
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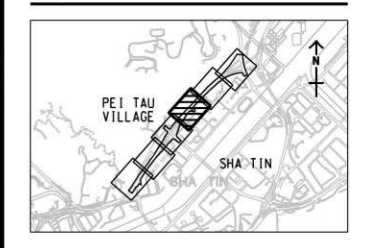
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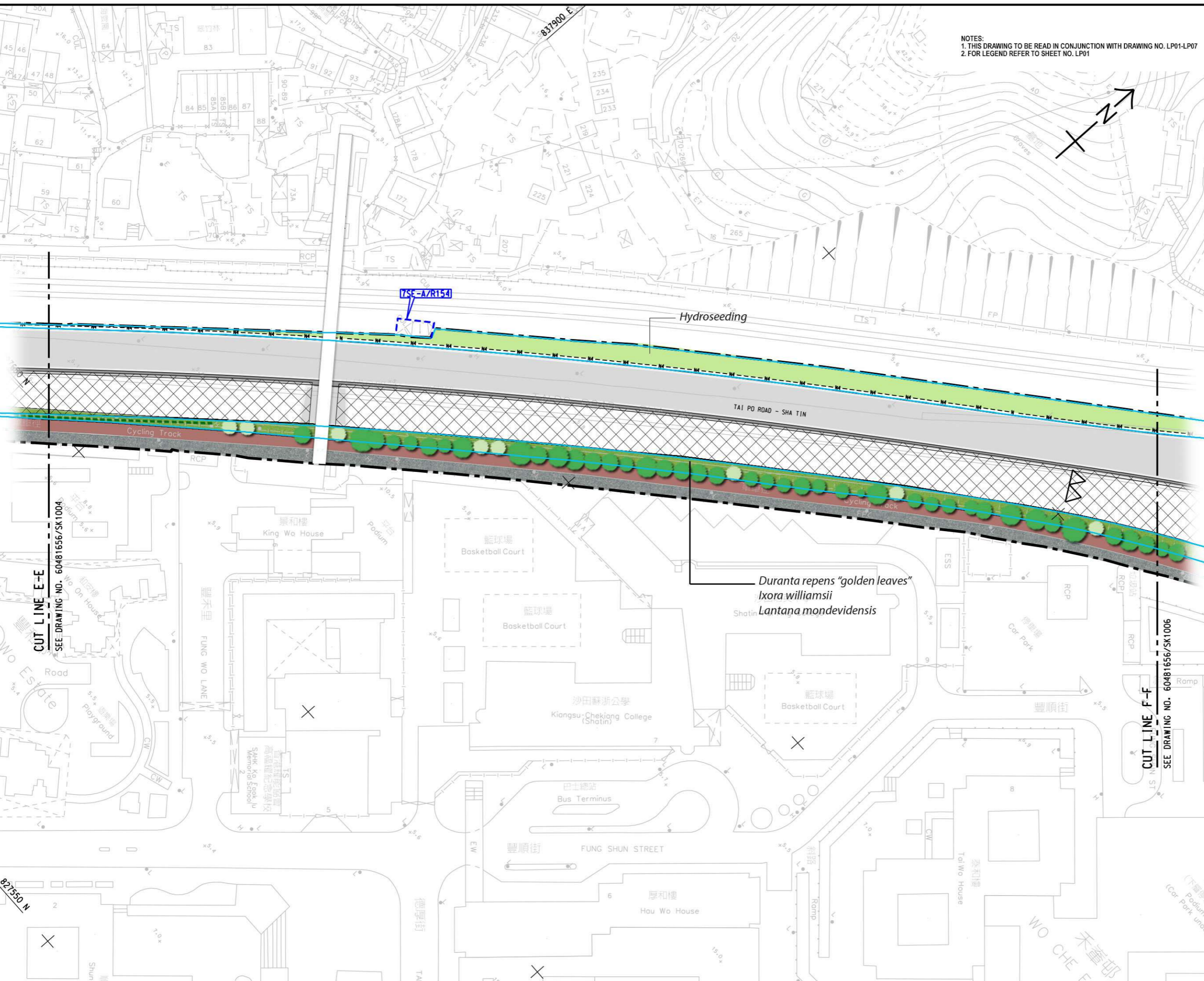
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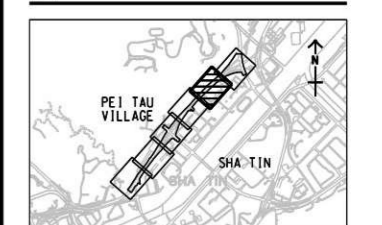
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REV	DATE	DESCRIPTION	CHK
-	DEC 16	FIRST ISSUE	-
1/1		內容修改	

**STATUS**

**SCALE**  
 比例  
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**DIMENSION UNIT**  
 尺寸單位  
 METRES

**KEY PLAN** A1 1: 40000  
 索引圖



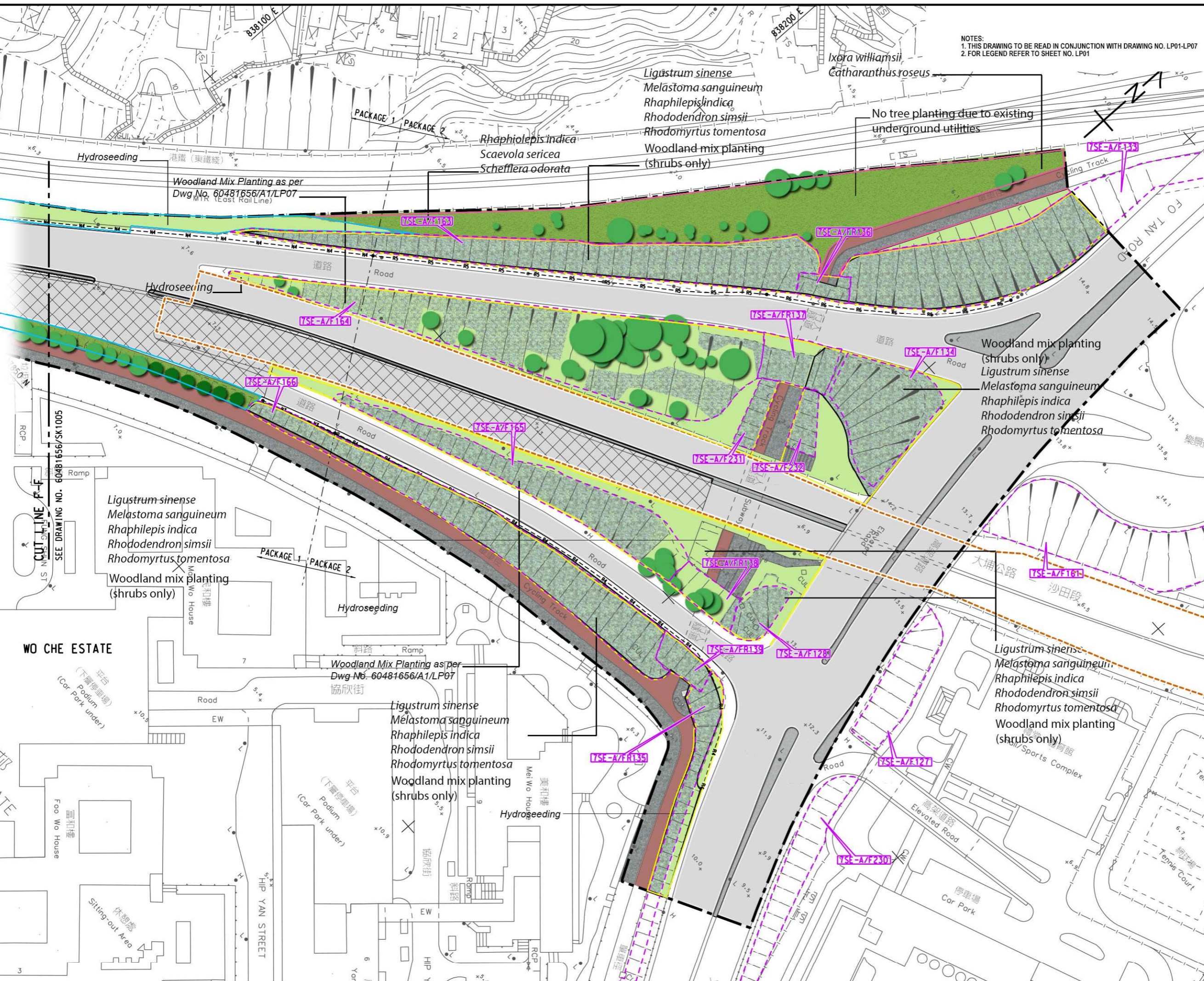
**PROJECT NO.**  
 項目編號  
 60481656  
**CONTRACT NO.**  
 合約編號  
 CE 33/2015 (HY)

**SHEET TITLE**  
 圖紙名稱  
**LANDSCAPE LAYOUT PLAN**

**SHEET NUMBER**  
 圖紙編號  
 60481656/A1/LP05

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NOTES:  
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. LP01-LP07  
 2. FOR LEGEND REFER TO SHEET NO. LP01

**AECOM**

PROJECT  
 項目

**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

CLIENT  
 業主

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

CONSULTANT  
 工程顧問公司

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IR/修訂	DATE/日期	DESCRIPTION/內容摘要	CHK/校核
-	DEC 16	FIRST ISSUE	-

STATUS  
 階段

SCALE  
 比例

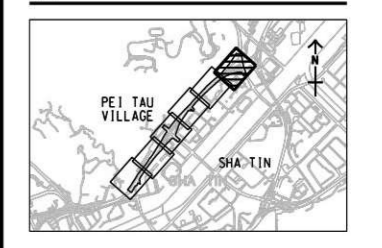
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DIMENSION UNIT  
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METRES

KEY PLAN  
 索引圖

A1 1: 40000



PROJECT NO.  
 項目編號

60481656

CONTRACT NO.  
 合約編號

CE 33/2015 (HY)

SHEET TITLE  
 圖紙名稱

LANDSCAPE LAYOUT PLAN

SHEET NUMBER  
 圖紙編號

60481656/A1/LP06

SHEET 6 OF 7

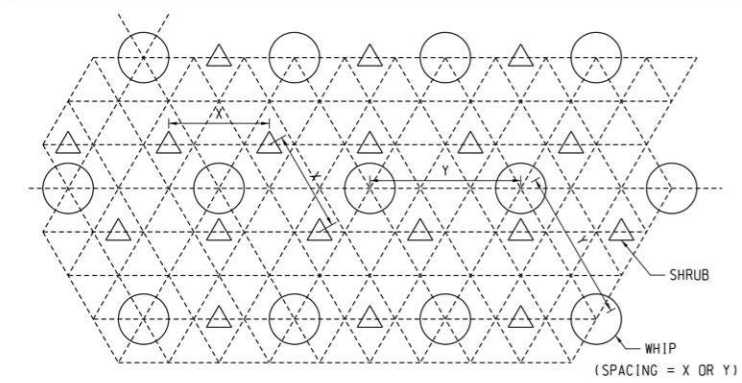
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PLANTING SCHEDULE						
BOTANICAL NAME	CHINESE NAME	SIZE(mm) HEIGHT(H) x SPREAD(S)	SPACING (mm)	No./m <sup>2</sup>	REMARK	
<b>WOODLAND WHIP TREE MIX (WT)</b>						
<i>Ligustrum sinense</i> *	山指甲	400(H) x 400(S)	1000	1.2	PLANT EACH SPECIES IN GROUPS OF 4 TO 14 AT RANDOM THROUGH OUT AREA DESIGNATED FOR WOODLAND MIX PLANTING. PLANT ALL SPECIES IN A STAGGERED PATTERN.	
<i>Melastoma sanguineum</i> *	毛梲	400(H) x 400(S)	1000	1.2		
<i>Raphiolepis indica</i> *	車輪梅	400(H) x 400(S)	1000	1.2		
<i>Rhododendron simsii</i> *	紅杜鵑	400(H) x 400(S)	1000	1.2		
<i>Rhodomyrtus tomentosa</i> *	桃金娘	400(H) x 400(S)	1000	1.2		
<i>Phyllanthus emblica</i> *	餘甘子	WHIP TREE	1500	1.2		
<i>Elaeocarpus chinensis</i> *	中華杜英	WHIP TREE	1500	1.2		
<i>Polyspora axillaris</i> *	大頭茶	WHIP TREE	1500	1.2		
<i>Ternstroemia gymnanthera</i> *	厚皮香	WHIP TREE	1500	1.2		
NATIVE SPECIES*						

PLANTING SCHEDULE						
BOTANICAL NAME	CHINESE NAME	SIZE(mm) HEIGHT(H) x SPREAD(S)	SPACING (mm)	No./m <sup>2</sup>	REMARK	
<b>WOODLAND SHRUB MIX (WS)</b>						
<i>Ligustrum sinense</i> *	山指甲	400(H) x 400(S)	1000	1.2	PLANT EACH SPECIES IN GROUPS OF 5 TO 30 AT RANDOM THROUGH OUT AREA DESIGNATED FOR WOODLAND MIX PLANTING. PLANT ALL SPECIES IN A STAGGERED PATTERN.	
<i>Melastoma sanguineum</i> *	毛梲	400(H) x 400(S)	1000	1.2		
<i>Raphiolepis indica</i> *	車輪梅	400(H) x 400(S)	1000	1.2		
<i>Rhododendron simsii</i> *	紅杜鵑	400(H) x 400(S)	1000	1.2		
<i>Rhodomyrtus tomentosa</i> *	桃金娘	400(H) x 400(S)	1000	1.2		
NATIVE SPECIES*						

PLANTING SCHEDULE						
BOTANICAL NAME	CHINESE NAME	SIZE(mm) HEIGHT(H) x SPREAD(S)	SPACING (mm)	No./m <sup>2</sup>	REMARK	
<b>TREE PLANTING</b>						
<i>Liquidambar formosana</i> *	楓香	HEAVY STANDARD	MIN. 5000	-		
<i>Melaleuca cajuputi subsp. Cumingiana</i>	白千層	HEAVY STANDARD	MIN. 5000	-		
<b>Shrub Planting</b>						
<i>Duranta repens 'golden'</i>	金連翹	300(H) x 300(S)	300	12.54	PLANT ALL SPECIES IN A STAGGERED PATTERN.	
<i>Ixora williamsii</i>	細葉龍船花	300(H) x 300(S)	300	12.54		
<i>Raphiolepis indica</i> *	車輪梅	400(H) x 400(S)	300	12.54		
<i>Scaevola sericea</i> *	草海桐	400(H) x 400(S)	300	12.54		
<i>Schefflera odorata 'variegata'</i>	花葉鴨腳木	400(H) x 400(S)	300	12.54		
<b>GROUNDCOVER PLANTING</b>						
<i>Catharanthus roseus</i>	長春花	250(H) x 250(S)	250	18.4	PLANT ALL SPECIES IN A STAGGERED PATTERN.	
<i>Cuphea hyssopifolia</i>	細葉雪加花	250(H) x 250(S)	250	18.4		
<i>Lantana montevidensis</i>	小葉馬纓丹	250(H) x 250(S)	250	18.4		
<b>CLIMBER PLANTING</b>						
<i>Ficus pumila</i> *	薛荔	MIN. 3 SHOOTS PER PLANT, 1000mm LONG	300	-	PLANT EACH SPECIES AT THE COLUMNS OF NOISE ENCLOSURES AND BARRIERS, IN ALTERNATIVE PATTERN.	
<i>Parthenocissus dalzielii</i>	異葉爬牆虎	MIN. 3 SHOOTS PER PLANT, 1000mm LONG	300	-		
NATIVE SPECIES*						



GRASS (APRIL TO AUGUST)	BOTANICAL NAME	CHINESE NAME	APPLICATION RATE
BERMUDA	<i>Cynodon dactylon</i>	百慕達草	13-15 g/m <sup>2</sup>
BAHIA	<i>Paspalum notatum</i>	八喜亞草	8-10 g/m <sup>2</sup>
RHODES	<i>Chloris gayana</i>	羅滋草	1-4 g/m <sup>2</sup>
			25 g/m <sup>2</sup> (MIN)

GRASS (SEPTEMBER TO MARCH)	BOTANICAL NAME	CHINESE NAME	APPLICATION RATE
BERMUDA	<i>Cynodon dactylon</i>	百慕達草	15 g/m <sup>2</sup>
BAHIA	<i>Paspalum notatum</i>	八喜亞草	10 g/m <sup>2</sup>
RYE	<i>Lolium perenne</i>	黑麥草	5 g/m <sup>2</sup>
			30 g/m <sup>2</sup> (MIN)

**Woodland Shrub Planting**



**Woodland Whip Tree Planting**



**Shrub Planting**



**Ground Cover Planting**



**Climbers Planting**



**Tree Planting**



**PROJECT**  
WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION

**CLIENT**  
土木工務發展署  
Civil Engineering and Development Department

**CONSULTANT**  
AECOM Asia Company Ltd.  
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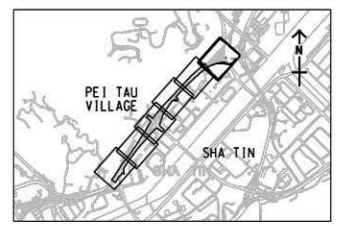
**ISSUE/REVISION**

NO.	DATE	DESCRIPTION	CHK.
-	DEC 16	FIRST ISSUE	-

**STATUS**

**SCALE** A1 1: 500  
**DIMENSION UNIT** METRES

**KEY PLAN** A1 1: 4000



**PROJECT NO.** 60481656  
**CONTRACT NO.** CE 33/2015 (HY)

**SHEET TITLE** PLANTING SCHEDULE

**SHEET NUMBER** 60481656/A1/LP07

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 9/27/2016

NOTE:  
FOR LEGEND, REFER TO SHEET 60481656/A1/LP01

**AECOM**

PROJECT  
 項目  
**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

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

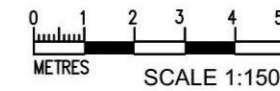
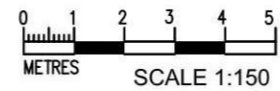
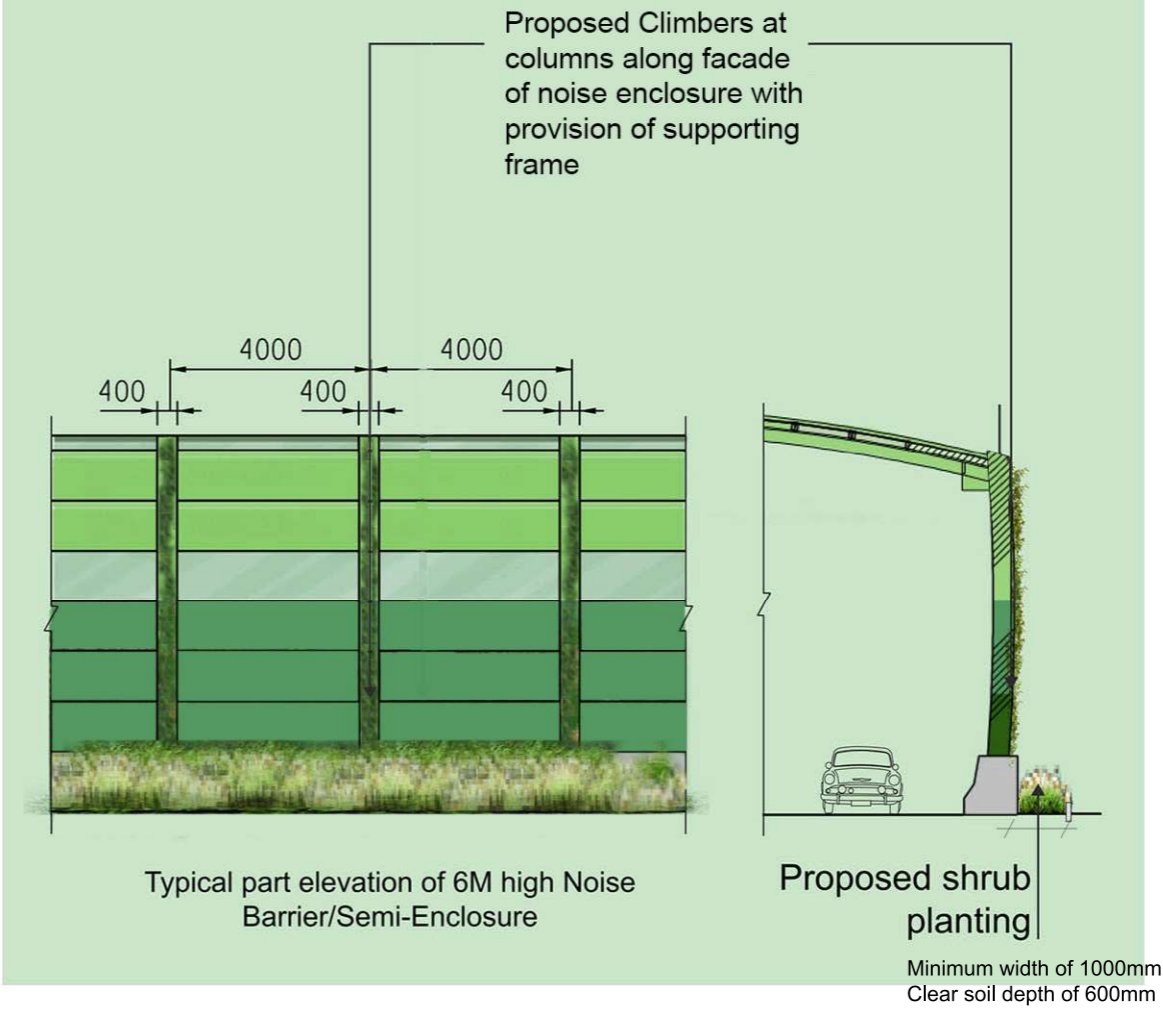
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# 1 Landscape Treatment Type 1 – Trees and Shrubs Planting



# 2 Landscape Treatment Type 2 – Shrubs and Climbers Planting



ISSUE/REVISION  
 修訂

NO.	DATE	DESCRIPTION	CHK.
-	SEP 16	FIRST ISSUE	-
I/R	DATE	DESCRIPTION	CHK.
修訂	日期	內容摘要	校核

STATUS  
 階段

SCALE  
 比例  
 --  
 DIMENSION UNIT  
 尺寸單位  
 METRES

PROJECT NO.  
 項目編號  
 60481656  
 CONTRACT NO.  
 合約編號  
 CE 33/2015 (HY)

SHEET TITLE  
 圖紙名稱  
 TYPICAL SOFT LANDSCAPE TREATMENT ON NOISE BARRIER / ENCLOSURES

SHEET NUMBER  
 圖紙編號  
 60481656/LS-01

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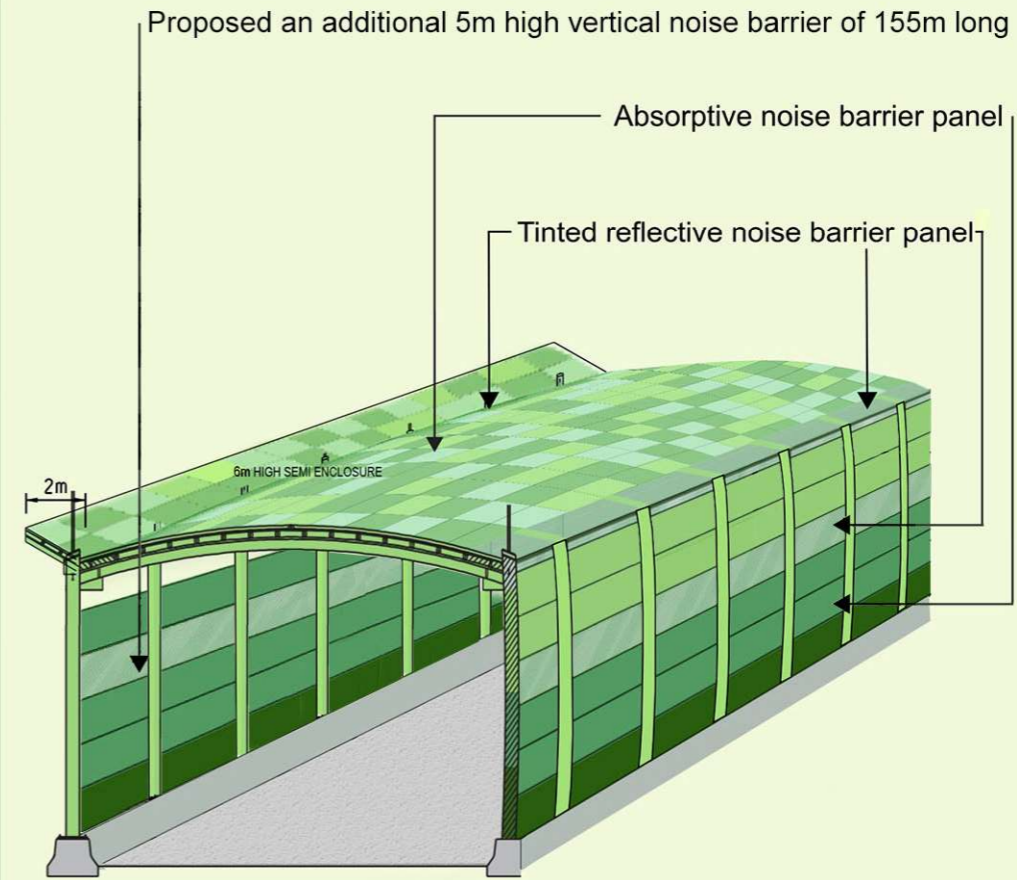
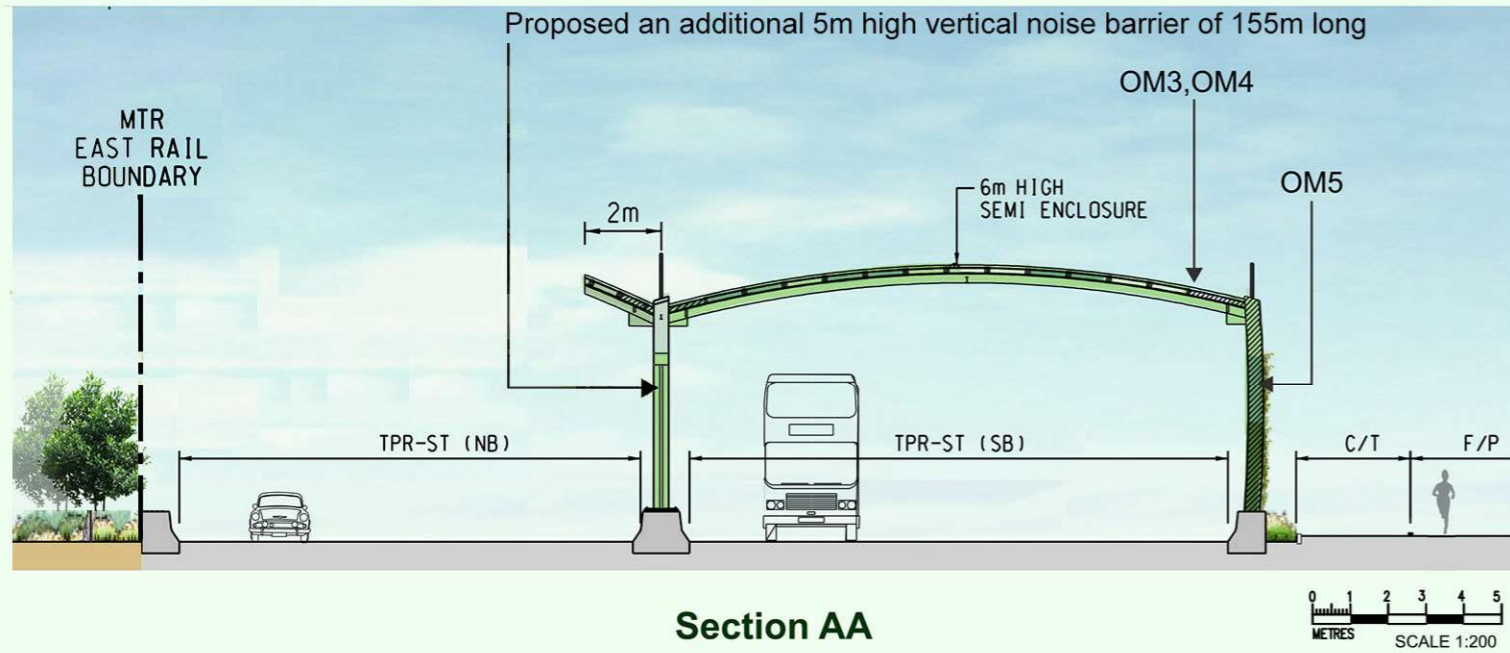
**AECOM**

PROJECT  
 項目  
**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

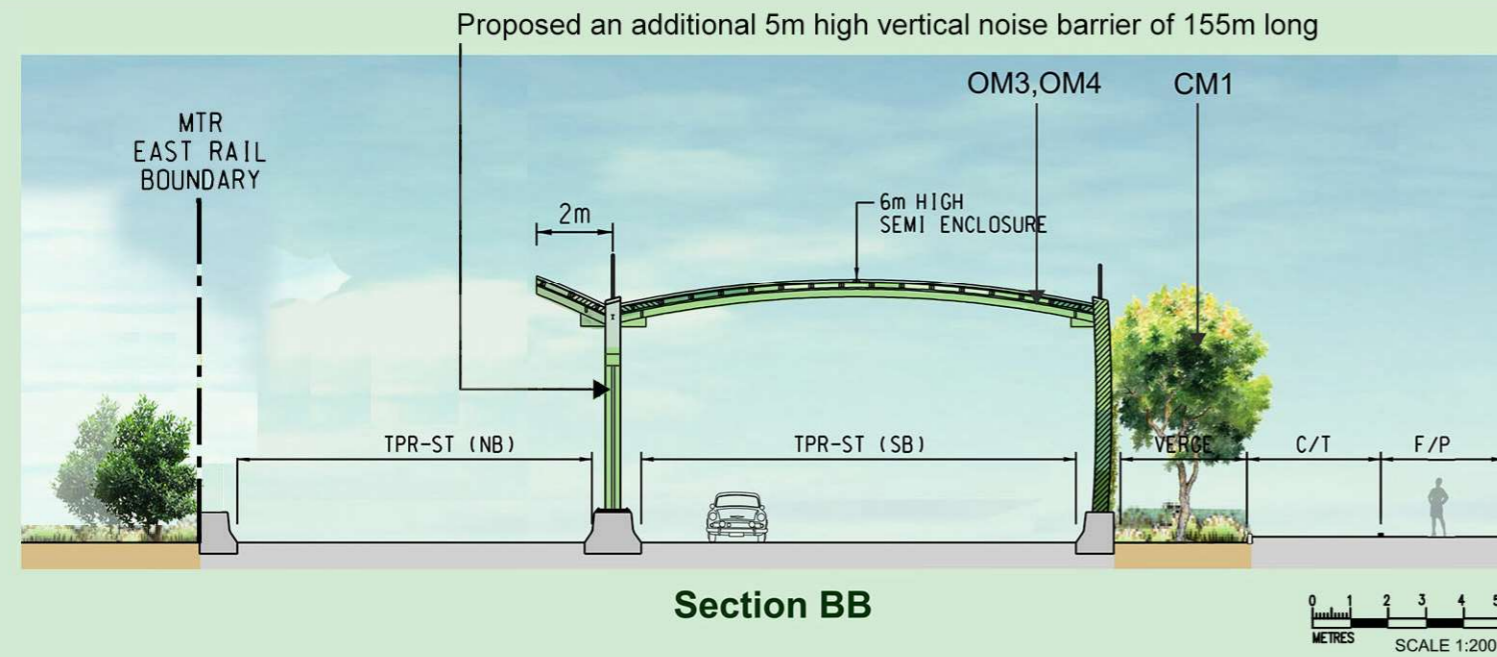
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**Illustration of Typical Aesthetic Treatment on Semi Noise Enclosure**



ISSUE/REVISION

REV	DATE	DESCRIPTION	CHK
-	SEP 16	FIRST ISSUE	-

STATUS  
 階段

SCALE  
 比例  
 1:200 (A3)

DIMENSION UNIT  
 尺寸單位  
 METRES

PROJECT NO.  
 項目編號  
 60481656

CONTRACT NO.  
 合約編號  
 CE 33/2015 (HY)

SHEET TITLE  
 圖紙名稱  
 LANDSCAPE SECTIONS AND AESTHETIC TREATMENT ON NOISE ENCLOSURE

SHEET NUMBER  
 圖紙編號  
 60481656/LS-02

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**WOODLAND WHIP TREE MIX PLANTING SCHEDULE:**

	BOTANICAL NAME	SPACING (mm)	PERCENTAGE (%)	AREA (m <sup>2</sup> )	QUANTITY (NOS.)
<b>SHRUBS</b>					
A	<i>Ligustrum sinense</i> * 山指甲	1000	20	454	544
B	<i>Melastoma sanguineum</i> * 毛棧	1000	20	454	544
C	<i>Rhaphiolepis indica</i> * 車輪梅	1000	20	454	544
D	<i>Rhododendron simsii</i> * 紅杜鵑	1000	20	454	544
E	<i>Rhodomyrtus tomentosa</i> * 桃金娘	1000	20	454	544
<b>WHIP TREES</b>					
F	<i>Phyllanthus emblica</i> * 餘甘子	1500	20	454	254
G	<i>Elaeocarpus chinensis</i> * 中華杜英	1500	20	454	254
H	<i>Polyspora axillaris</i> * 大頭茶	1500	20	454	254
K	<i>Tenstroemia gymnanthera</i> * 厚皮香	1500	40	908	508

**WOODLAND SHRUB MIX PLANTING SCHEDULE:**

	BOTANICAL NAME	SPACING (mm)	PERCENTAGE (%)	AREA (m <sup>2</sup> )	QUANTITY (NOS.)
A	<i>Ligustrum sinense</i> * 山指甲	1000	20	1360	1588
B	<i>Melastoma sanguineum</i> * 毛棧	1000	20	1360	1587
C	<i>Rhaphiolepis indica</i> * 車輪梅	1000	20	1360	1587
D	<i>Rhododendron simsii</i> * 紅杜鵑	1000	20	1360	1587
E	<i>Rhodomyrtus tomentosa</i> * 桃金娘	1000	20	1360	1587

NATIVE SPECIES \*

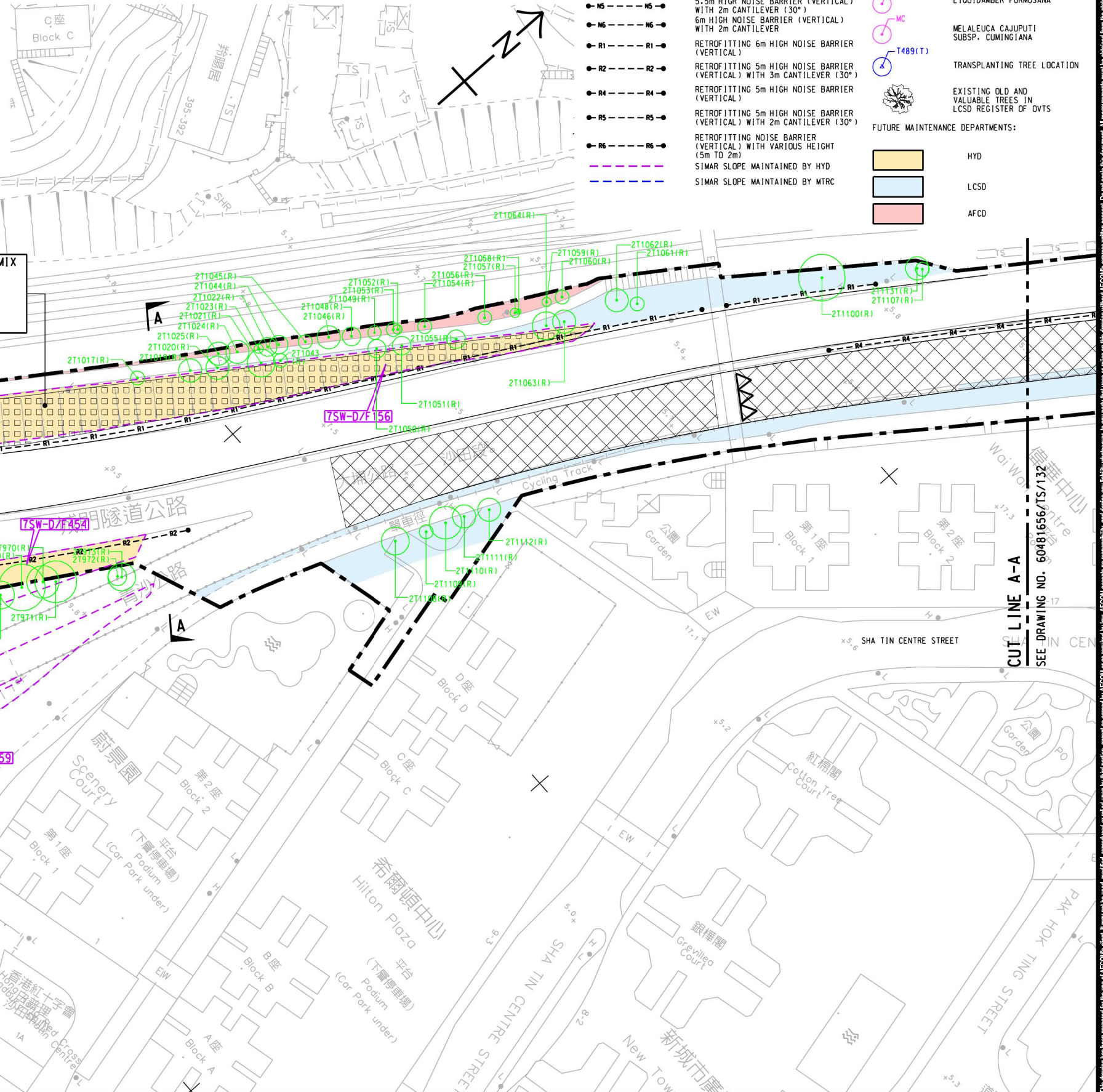
**NOTE:**

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60481656/TS/132-137.

**LEGEND:**

- SITE BOUNDARY
- BOUNDARY OF EXPRESSWAY
- NOISE BARRIER WITH VARIOUS HIGH (10.7m TO 8.5m) WITH 2m CANTILEVER (30°) AT BOTH SIDES
- 1.2m HIGH NOISE BARRIER ON PARAPET (VERTICAL)
- 5m HIGH NOISE BARRIER (VERTICAL)
- 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- 5.5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- 6m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER
- RETROFITTING 6m HIGH NOISE BARRIER (VERTICAL)
- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 3m CANTILEVER (30°)
- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL)
- RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
- RETROFITTING NOISE BARRIER (VERTICAL) WITH VARIOUS HEIGHT (5m TO 2m)
- SIMAR SLOPE MAINTAINED BY MTRC

- NOISE BARRIER (SEMI ENCLOSURE) WITH 2m CANTILEVER (30°)
- WOODLAND SHRUB MIX ON REGISTERED SIMAR SLOPE MAINTAINED BY HYD
- WOODLAND WHIP TREE MIX ON REGISTERED SIMAR SLOPE MAINTAINED BY HYD
- DIRECTION SIGN
- TREE TO BE RETAINED
- COMPENSATORY TREES:
  - LIQUIDAMBER FORMOSANA
  - MELALEUCA CAJUPUTI SUBSP. CUMINGIANA
  - TRANSPLANTING TREE LOCATION
  - EXISTING OLD AND VALUABLE TREES IN LCSD REGISTER OF OVTS
- FUTURE MAINTENANCE DEPARTMENTS:
  - HYD
  - LCSD
  - AFCD



**AECOM**

**PROJECT**  
WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION

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

**CONSULTANT**  
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**ISSUE/REVISION**

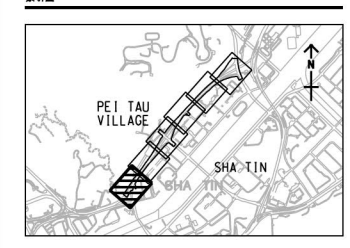
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METRES

**KEY PLAN** A1 1:40000



**PROJECT NO.** 60481656

**CONTRACT NO.** CE 33/2015 (HY)

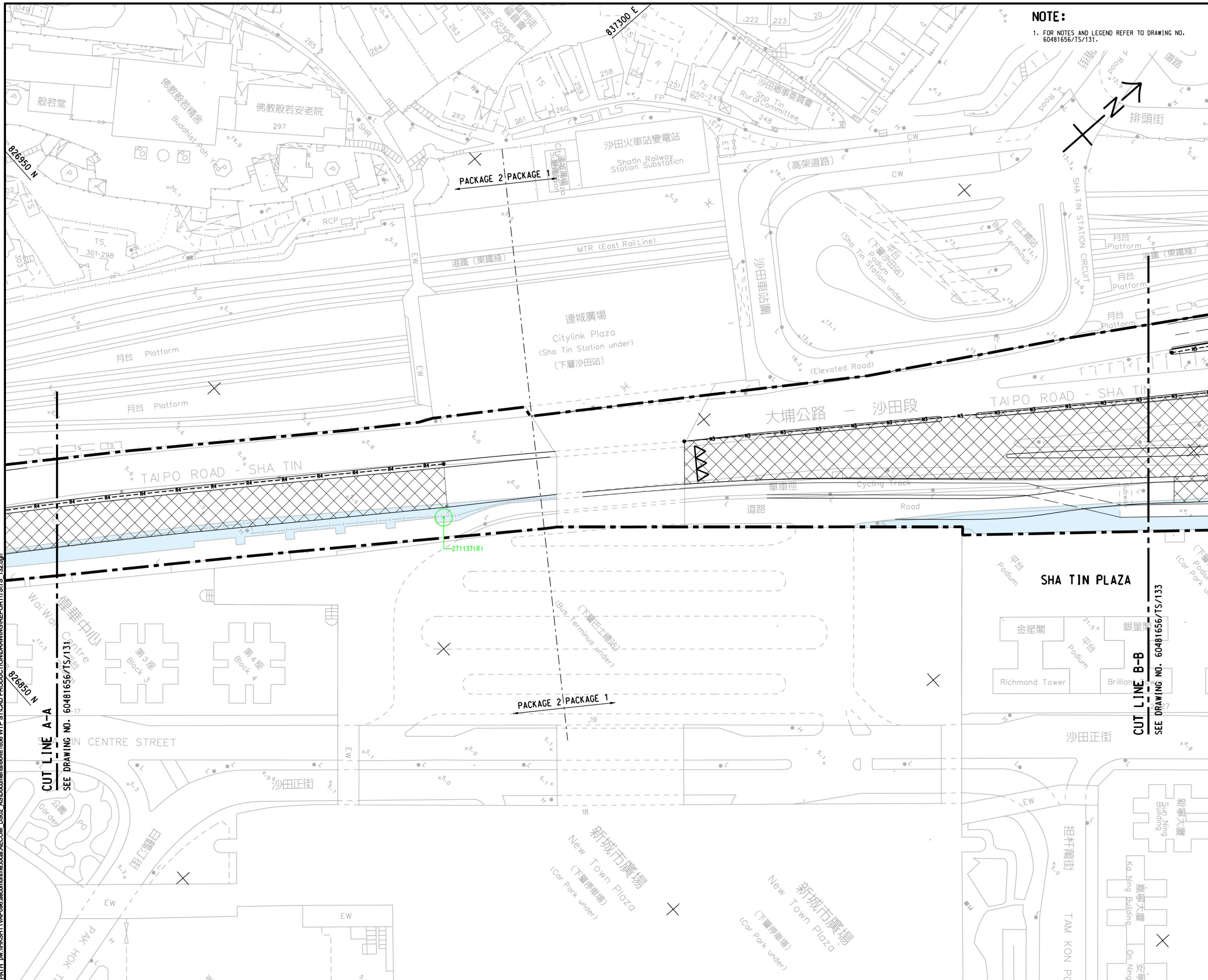
**SHEET TITLE**  
TRANSPLANTATION AND COMPENSATORY PLANTING PLAN

**SHEET NUMBER**  
60481656/TS/131

SHEET 1 OF 7

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**NOTE:**  
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/TS/131.

**AECOM**

**PROJECT**  
 項目  
**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

**CLIENT**  
 業主  
**CEDD** 土木工程拓展署  
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**ISSUE/REVISION**  
 修訂

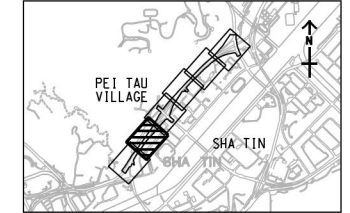
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**STATUS**  
 階段

**SCALE**  
 比例  
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**DIMENSION UNIT**  
 尺寸單位  
 METRES

**KEY PLAN** A1 1:40000  
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**PROJECT NO.**  
 項目編號  
 60481656

**CONTRACT NO.**  
 合約編號  
 CE 33/2015 (HY)

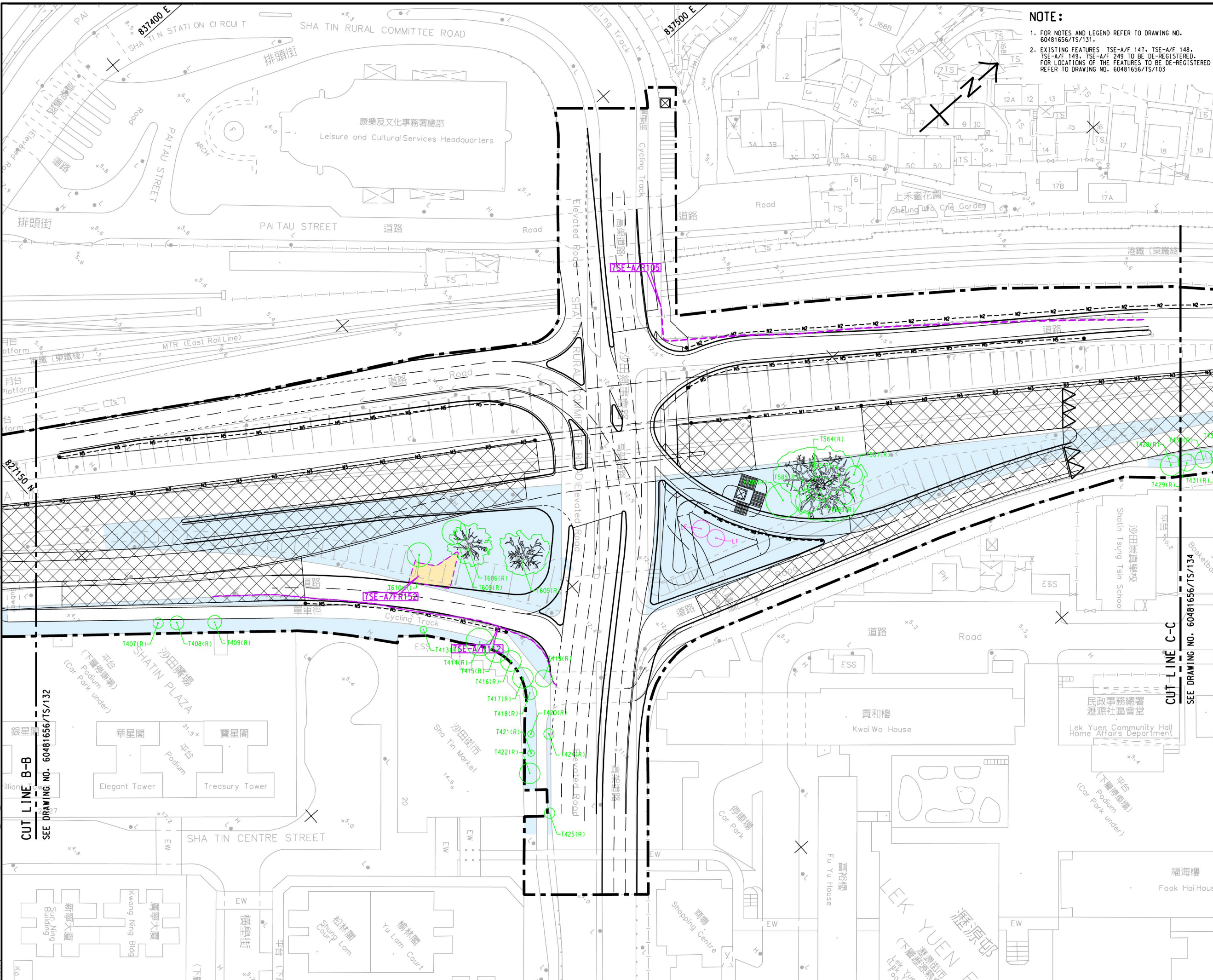
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 圖紙名稱  
**TRANSPLANTATION AND COMPENSATORY PLANTING PLAN**

**SHEET NUMBER**  
 圖紙編號  
 60481656/TS/132

SHEET 2 OF 7

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ISO A1 594mm x 841mm  
 Approved:  
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 Designer:  
 Project Management Initials:  
 2017/19/14  
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**NOTE:**

- FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/TS/131.
- EXISTING FEATURES T5E-A/F 147, T5E-A/F 148, T5E-A/F 149, T5E-A/F 249 TO BE DE-REGISTERED. FOR LOCATIONS OF THE FEATURES TO BE DE-REGISTERED REFER TO DRAWING NO. 60481656/TS/103

**AECOM**

**PROJECT**  
 項目  
**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

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

**CONSULTANT**  
 工程顧問公司  
**AECOM Asia Company Ltd.**  
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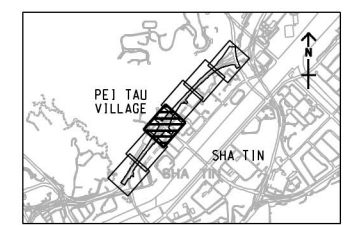
**ISSUE/REVISION**  
 修訂

IR	DATE	DESCRIPTION	CHK.

**STATUS**  
 階段

**SCALE**  
 比例  
 A1 1:500

**DIMENSION UNIT**  
 尺寸單位  
 METRES



**PROJECT NO.**  
 項目編號  
 60481656

**CONTRACT NO.**  
 合約編號  
 CE 33/2015 (HY)

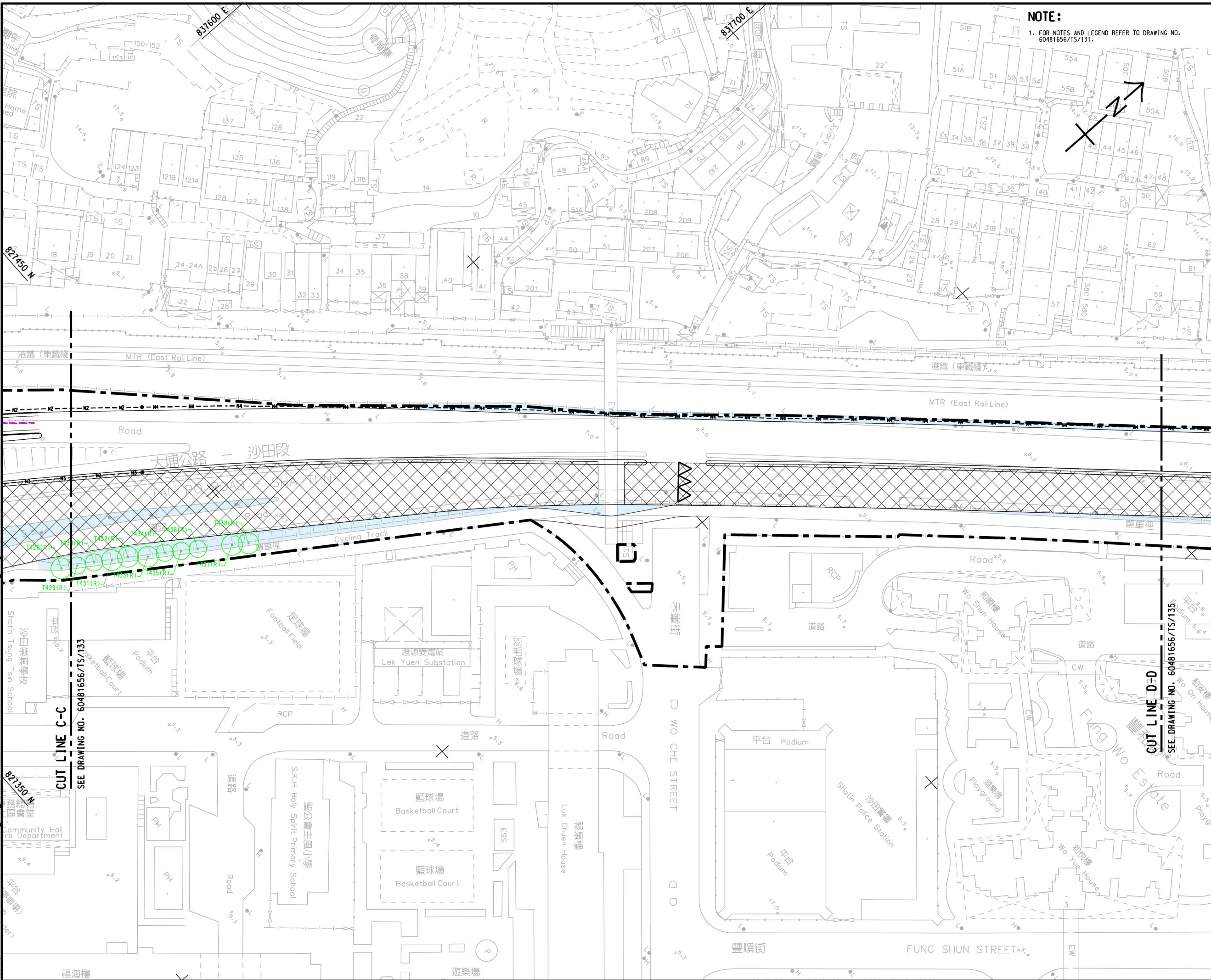
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 圖紙名稱  
**TRANSPLANTATION AND COMPENSATORY PLANTING PLAN**

**SHEET NUMBER**  
 圖紙編號  
 60481656/TS/133

SHEET 3 OF 7

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2017/01/16  
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**PROJECT**  
項目

# WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION

**CLIENT**  
業主

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

**CONSULTANT**  
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**ISSUE/REVISION**  
修訂

IR	DATE	DESCRIPTION	CHK.

**STATUS**  
階段

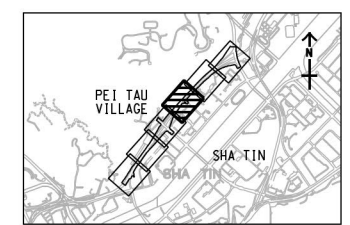
**SCALE**  
比例

A1 1:500

**DIMENSION UNIT**  
尺寸單位

METRES

**KEY PLAN** A1 1:40000  
索引圖



**PROJECT NO.**  
項目編號

60481656

**CONTRACT NO.**  
合約編號

CE 33/2015 (HY)

**SHEET TITLE**  
圖紙名稱

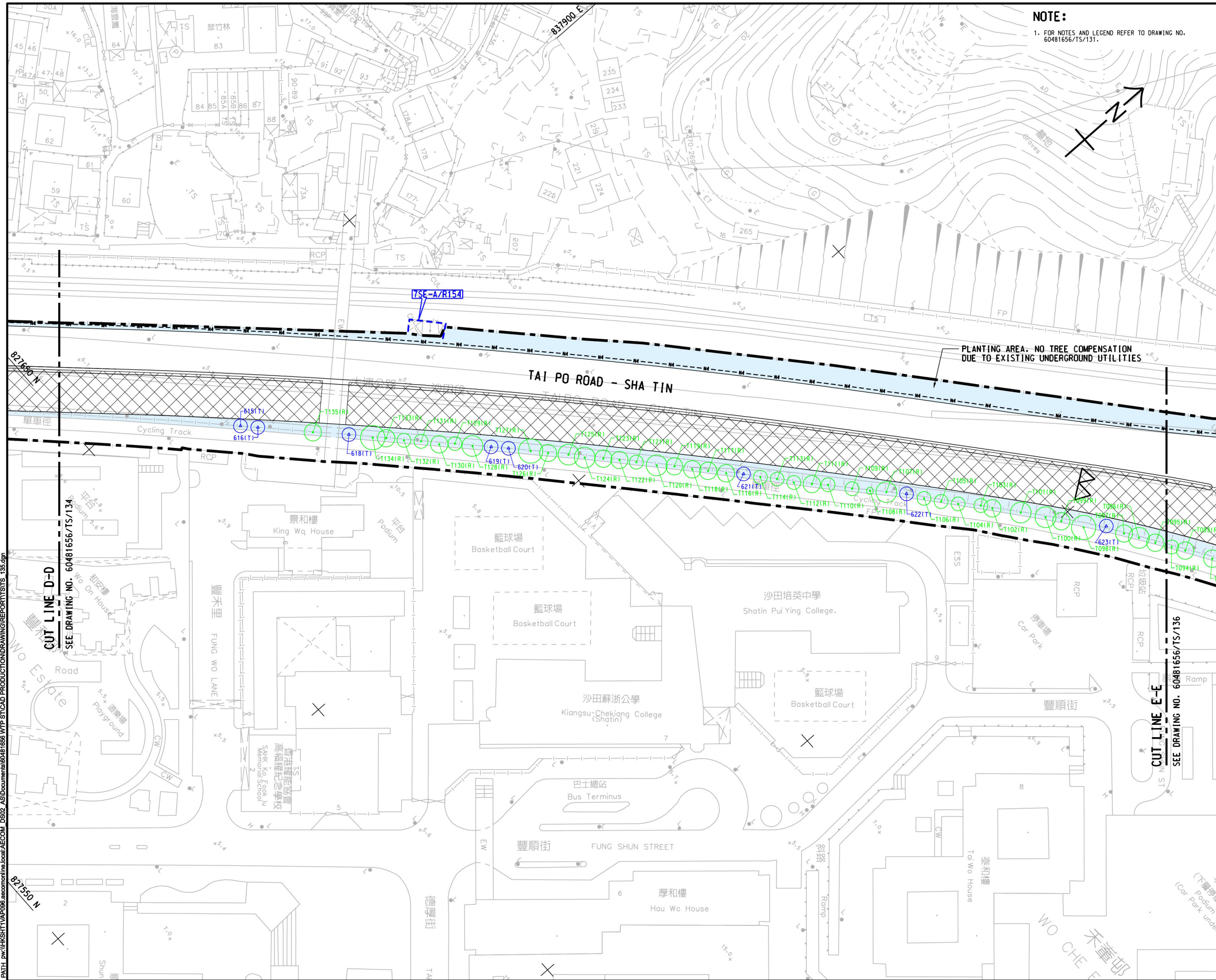
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**SHEET NUMBER**  
圖紙編號

60481656/TS/134

ISO A1 594mm x 841mm  
 Approved:  
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 Designer:  
 Project Management Initials:

2017/7/27  
 PLOT File by: WJMT  
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**NOTE:**  
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/TS/131.

**AECOM**

**PROJECT**  
 項目  
**WIDENING OF TAI PO ROAD (SHA TIN SECTION) - DESIGN AND CONSTRUCTION**

**CLIENT**  
 業主  
**CEDD** 土木工程拓展署  
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**ISSUE/REVISION**  
 修訂

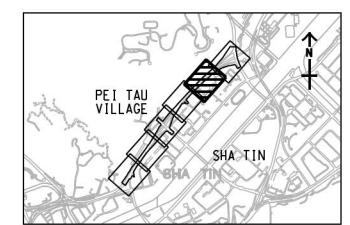
IR	DATE	DESCRIPTION	CHK.

**STATUS**  
 階段

**SCALE**  
 比例  
 A1 1:500

**DIMENSION UNIT**  
 尺寸單位  
 METRES

**KEY PLAN** A1 1:40000  
 索引圖



**PROJECT NO.**  
 項目編號  
 60481656

**CONTRACT NO.**  
 合約編號  
 CE 33/2015 (HY)

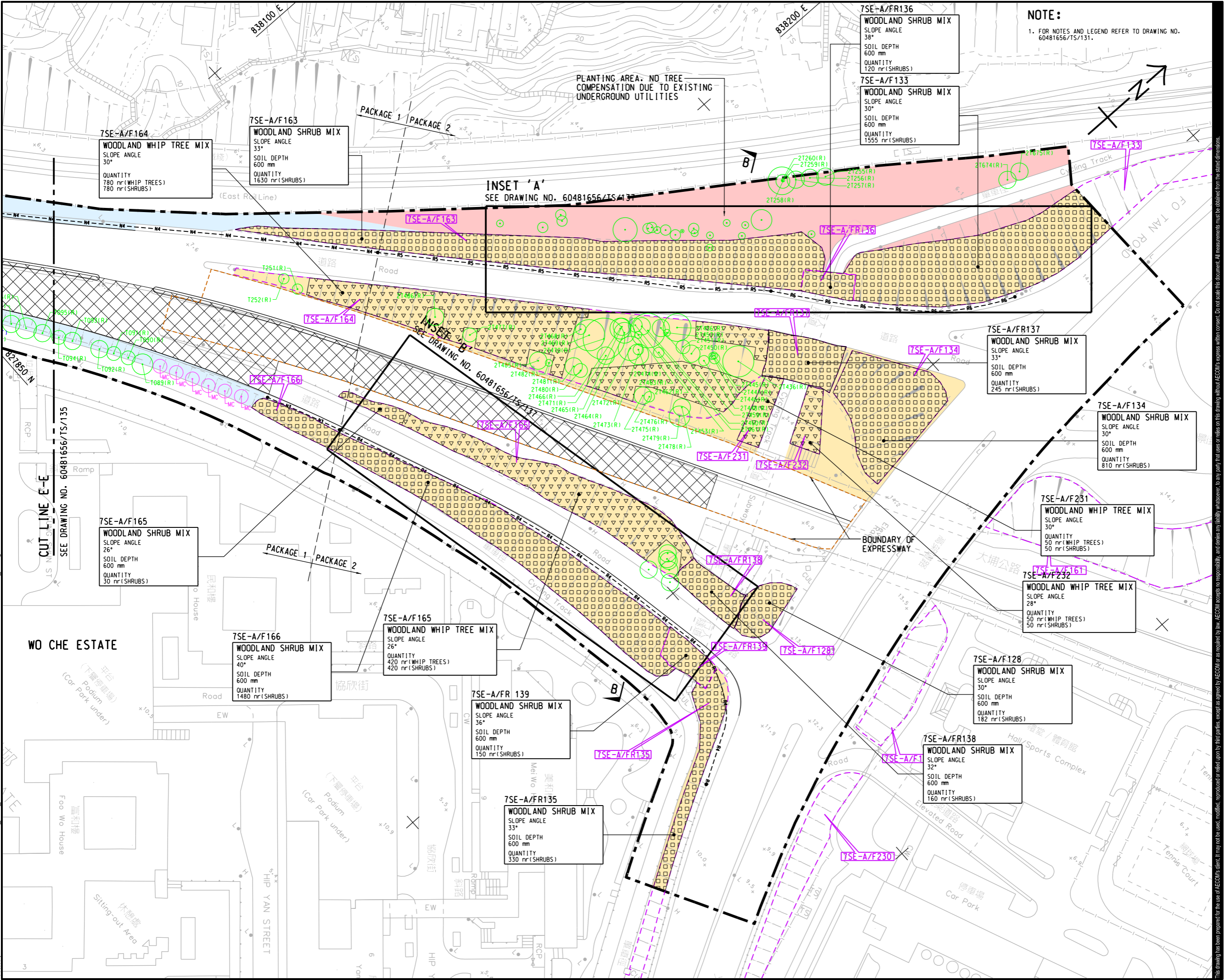
**SHEET TITLE**  
 圖紙名稱  
**TRANSPLANTATION AND COMPENSATORY PLANTING PLAN**

**SHEET NUMBER**  
 圖紙編號  
 60481656/TS/135

SHEET 5 OF 7

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**NOTE:**  
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/TS/131.

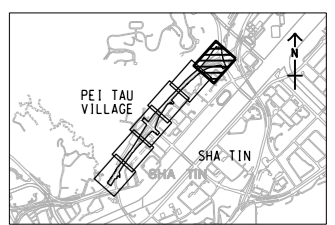
**ISSUE/REVISION**

NO.	DATE	DESCRIPTION	CHK.

**SCALE**      **DIMENSION UNIT**

A1 1: 500      METRES

**KEY PLAN**    A1 1: 40000



**PROJECT NO.**      **CONTRACT NO.**

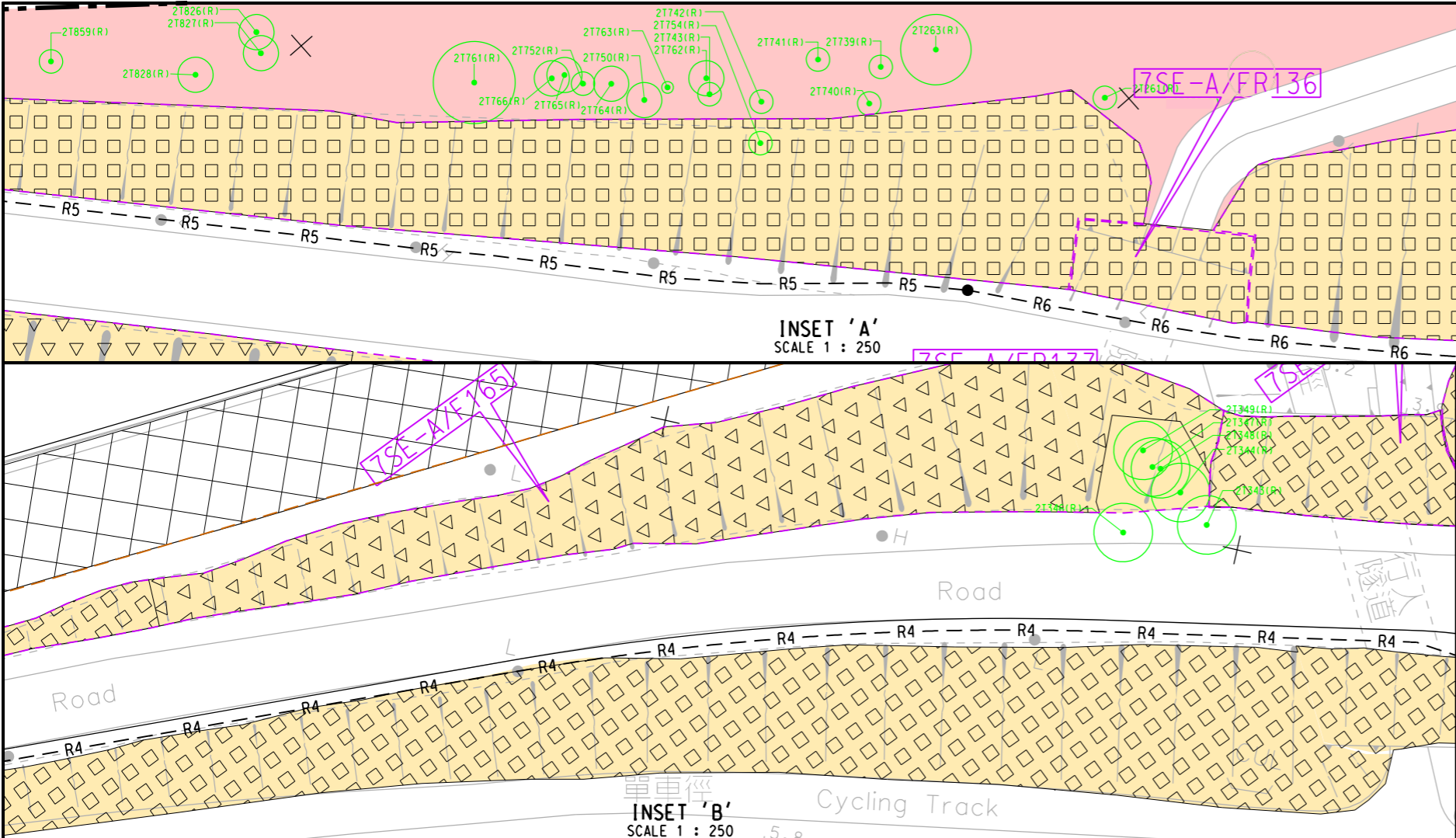
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**SHEET TITLE**  
 TRANSPLANTATION AND  
 COMPENSATORY PLANTING PLAN

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ISO A1 594mm x 841mm  
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 Checked:  
 Designer:  
 Project Management Initials:  
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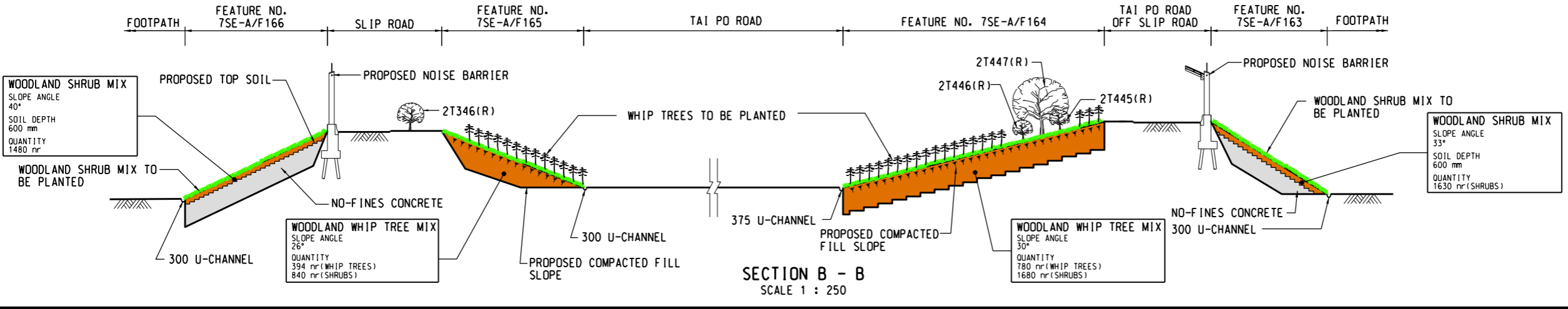
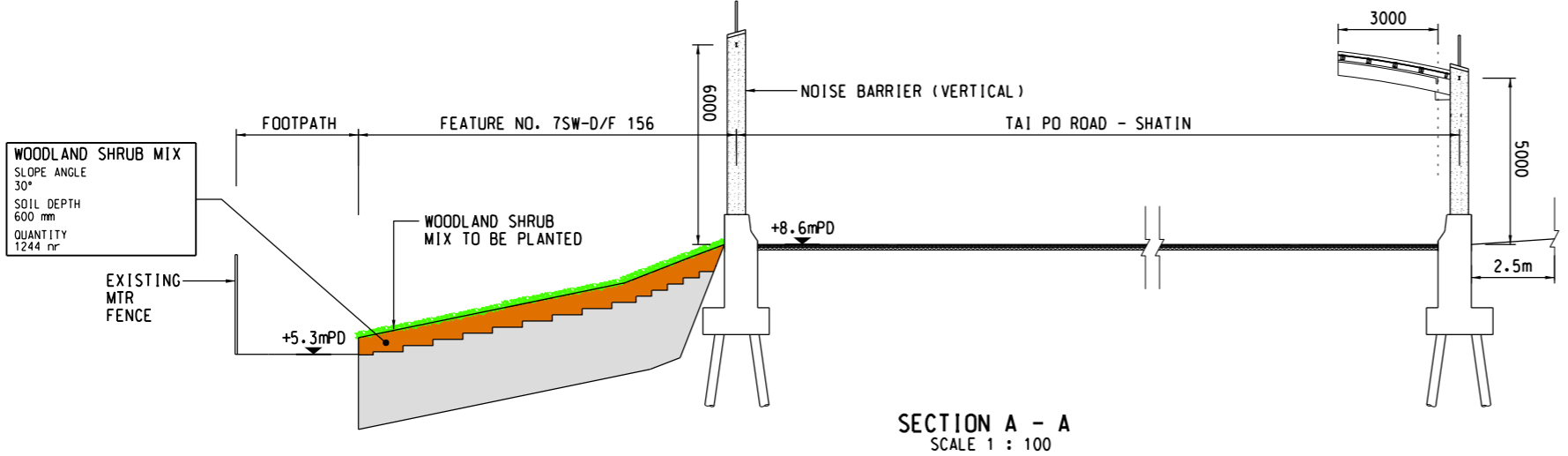


**NOTES:**

- FOR SLOPE ANGLE REFER TO DRAWING NOS. 60481656/TS/109.
- BIODEGRADABLE EROSION MAT TO BE APPLIED ON MODIFIED HYD'S SIMAR SLOPES.
- HYDROSEEDING TO BE APPLIED ON TOP OF WOODLAND WHIP TREE MIX AND WOODLAND SHRUB MIX TO BE PLANTED.

FOR HYD'S SIMAR SLOPE TO BE AFFECTED BY SLOPE UPGRADING WORKS AND CORRESPONDING SLOPE ANGLE REFER TO BELOW TABLE:

FEATURE NO.	SLOPE ANGLE
7SE-A/F128	30
7SE-A/F133	30
7SE-A/F134	30
7SE-A/F135	33
7SE-A/F136	38
7SE-A/F137	33
7SE-A/F138	32
7SE-A/F139	36
7SE-A/F163	33
7SE-A/F164	30
7SE-A/F165	26
7SE-A/F166	40
7SE-A/F231	30
7SE-A/F232	28
7SW-D/F156	30
7SW-D/F454	28



**ISSUE/REVISION**

I/R	DATE	DESCRIPTION	CHK.

**STATUS**  
階段

**SCALE**  
比例

**DIMENSION UNIT**  
尺寸單位

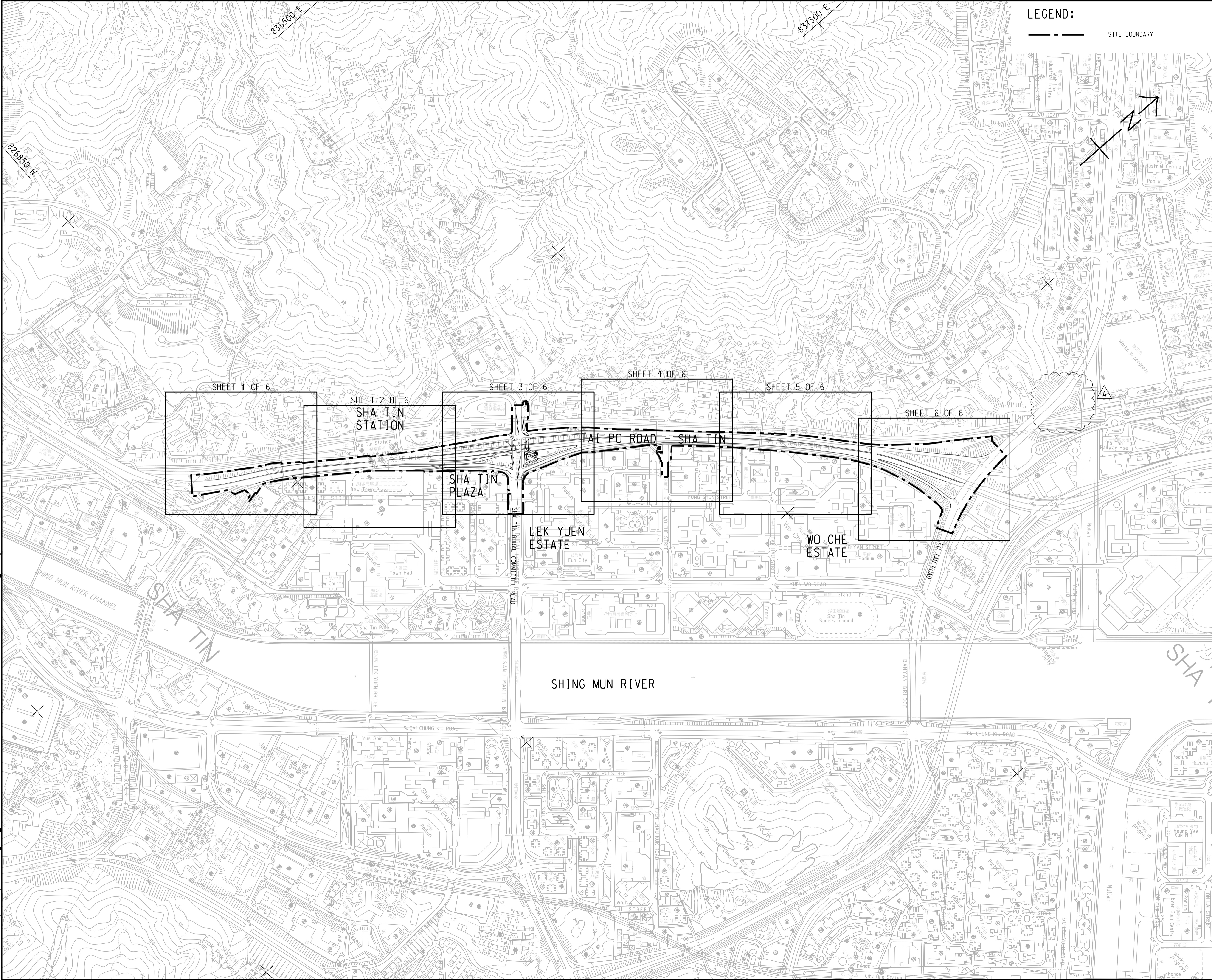
A1 AS SHOWN METRES

**KEY PLAN**  
索引圖

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# APPENDIX A

Plot File by: aecom\p013015\...  
 2/22/2018  
 WTP ST/CAD PRODUCTION/DRAWING/CONTRACT/C1/1000/C1\_1000.dgn  
 Project Management Initials: Designer: FMSC Checked: BCC Approved: CWN  
 ISO A1 594mm x 841mm



**LEGEND:**  
 - - - - - SITE BOUNDARY

**AECOM**

**PROJECT**  
 項目  
**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

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

**CONSULTANT**  
 工程顧問公司  
**AECOM Asia Company Ltd.**  
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**ISSUE/REVISION**  
 修訂

I/R	DATE	DESCRIPTION	CHK.
A	FEB. 18	TENDER ADDENDUM NO.2	BBC
-	JAN. 18	TENDER DRAWING	BCC

**STATUS**  
 階段

**SCALE**  
 比例  
 A1 1 : 4000

**DIMENSION UNIT**  
 尺寸單位  
 METRES

**KEY PLAN**  
 索引圖

**PROJECT NO.**  
 項目編號  
 60481656

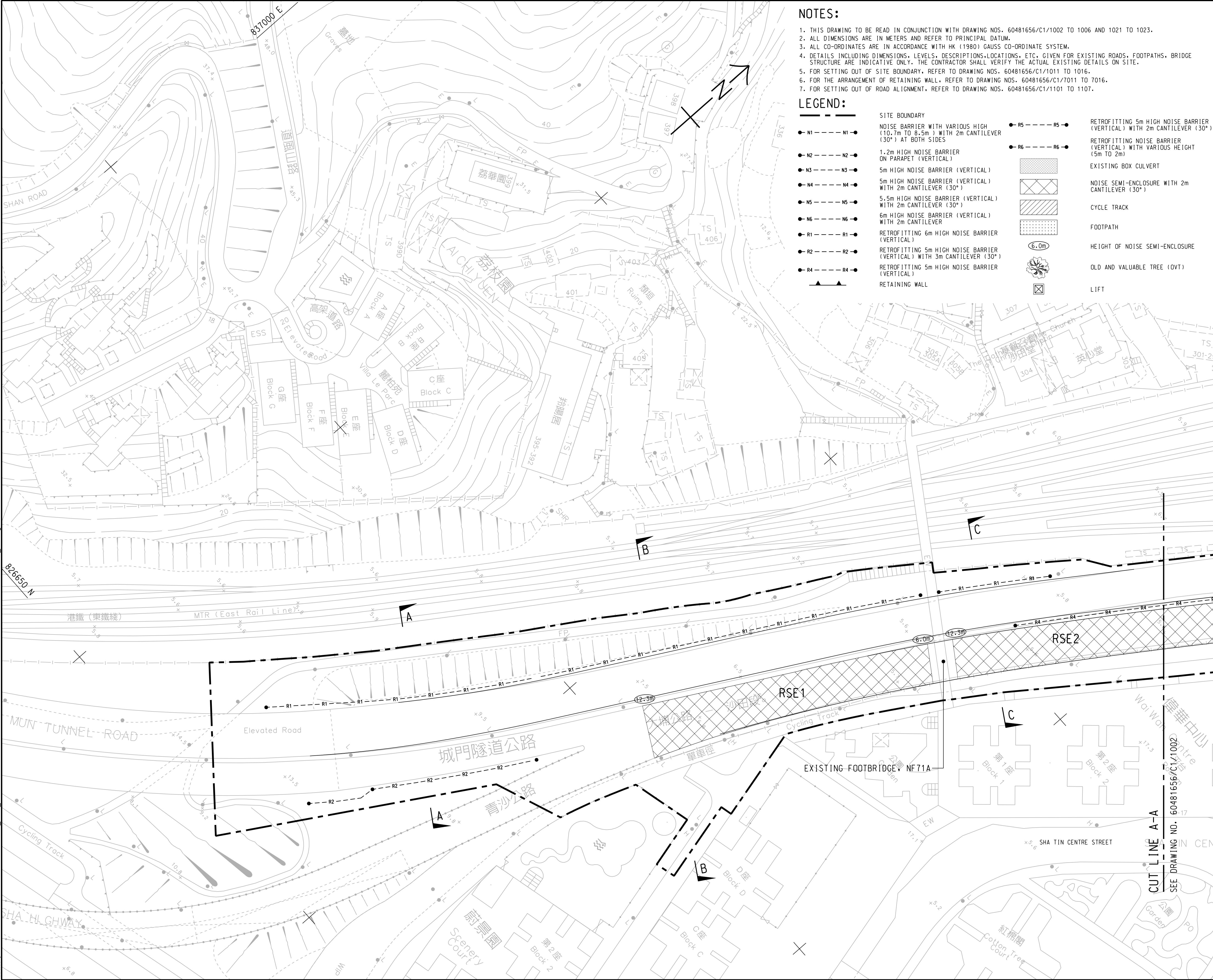
**CONTRACT NO.**  
 合約編號  
 NE/2017/05

**SHEET TITLE**  
 圖紙名稱  
 KEY PLAN

**SHEET NUMBER**  
 圖紙編號  
 60481656/C1/1000A

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Project Management Initials:   
 Designer: FMSC   
 Checked: BCC   
 Approved: CWN   
 ISO A1 594mm x 841mm   
 16/12/2018   
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**NOTES:**

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60481656/C1/1002 TO 1006 AND 1021 TO 1023.
2. ALL DIMENSIONS ARE IN METERS AND REFER TO PRINCIPAL DATUM.
3. ALL CO-ORDINATES ARE IN ACCORDANCE WITH HK (1980) GAUSS CO-ORDINATE SYSTEM.
4. DETAILS INCLUDING DIMENSIONS, LEVELS, DESCRIPTIONS, LOCATIONS, ETC. GIVEN FOR EXISTING ROADS, FOOTPATHS, BRIDGE STRUCTURE ARE INDICATIVE ONLY. THE CONTRACTOR SHALL VERIFY THE ACTUAL EXISTING DETAILS ON SITE.
5. FOR SETTING OUT OF SITE BOUNDARY, REFER TO DRAWING NOS. 60481656/C1/1011 TO 1016.
6. FOR THE ARRANGEMENT OF RETAINING WALL, REFER TO DRAWING NOS. 60481656/C1/7011 TO 7016.
7. FOR SETTING OUT OF ROAD ALIGNMENT, REFER TO DRAWING NOS. 60481656/C1/1101 TO 1107.

**LEGEND:**

<ul style="list-style-type: none"> <li>● N1 --- N1 ● NOISE BARRIER WITH VARIOUS HIGH (10.7m TO 8.5m) WITH 2m CANTILEVER (30°) AT BOTH SIDES</li> <li>● N2 --- N2 ● 1.2m HIGH NOISE BARRIER ON PARAPET (VERTICAL)</li> <li>● N3 --- N3 ● 5m HIGH NOISE BARRIER (VERTICAL)</li> <li>● N4 --- N4 ● 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)</li> <li>● N5 --- N5 ● 5.5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)</li> <li>● N6 --- N6 ● 6m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER</li> <li>● R1 --- R1 ● RETROFITTING 6m HIGH NOISE BARRIER (VERTICAL)</li> <li>● R2 --- R2 ● RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 3m CANTILEVER (30°)</li> <li>● R4 --- R4 ● RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL)</li> <li>▲▲▲ RETAINING WALL</li> </ul>	<ul style="list-style-type: none"> <li>● R5 --- R5 ● RETROFITTING 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)</li> <li>● R6 --- R6 ● RETROFITTING NOISE BARRIER HEIGHT (5m TO 2m)</li> <li>EXISTING BOX CULVERT</li> <li>NOISE SEMI-ENCLOSURE WITH 2m CANTILEVER (30°)</li> <li>CYCLE TRACK</li> <li>FOOTPATH</li> <li>6.0m HEIGHT OF NOISE SEMI-ENCLOSURE</li> <li>OLD AND VALUABLE TREE (OVT)</li> <li>LIFT</li> </ul>
--	--



**PROJECT**  
項目

**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

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

**CONSULTANT**  
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**ISSUE/REVISION**  
修訂

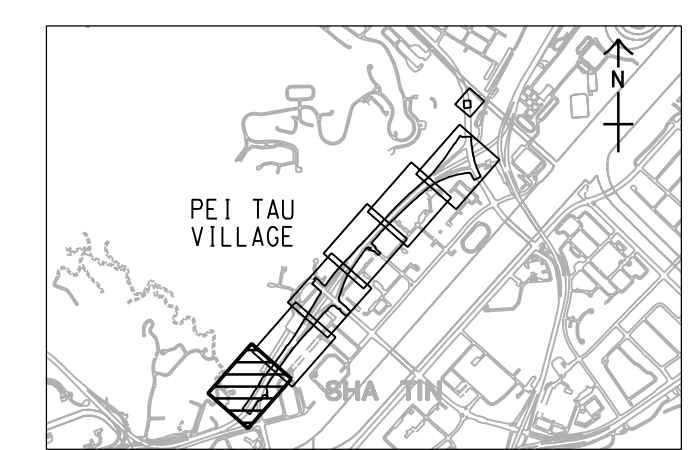
I/R	DATE	DESCRIPTION	CHK.
-	JAN. 18	TENDER DRAWING	BCC

**STATUS**  
階段

**SCALE**  
比例  
A1 1:500

**DIMENSION UNIT**  
尺寸單位  
METRES

**KEY PLAN** A1 1:40000  
索引圖



**PROJECT NO.**  
項目編號  
60481656

**CONTRACT NO.**  
合約編號  
NE/2017/05

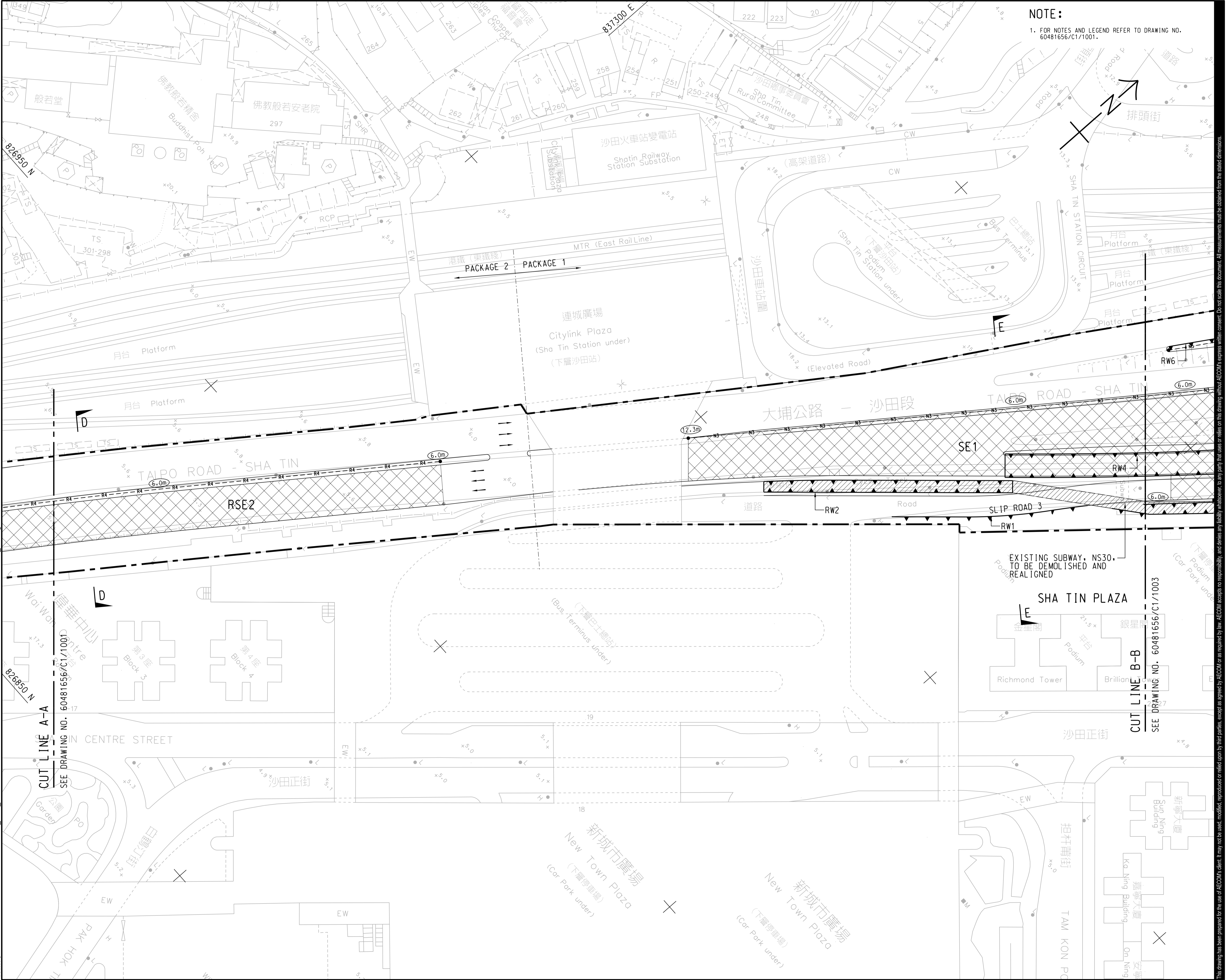
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圖紙名稱  
GENERAL LAYOUT PLAN

**SHEET NUMBER**  
圖紙編號  
60481656/C1/1001

SHEET 1 OF 6

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 Project Management Initials: Designer: FMSC Checked: BCC Approved: CWN  
 ISO A1 594mm x 841mm



**NOTE:**  
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.



**PROJECT**  
 項目

**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

**CLIENT**  
 業主



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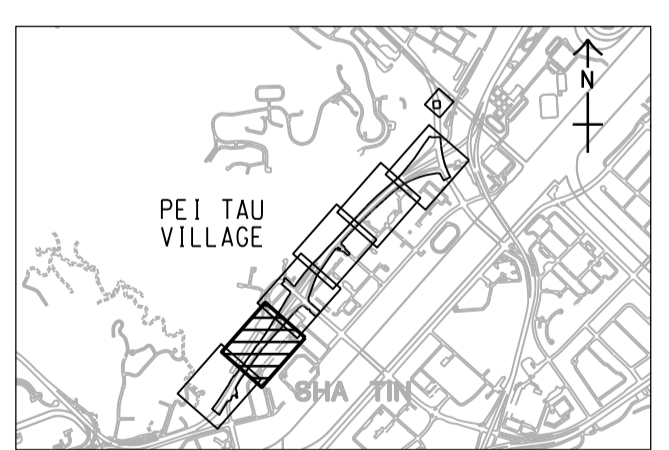
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I/R	DATE	DESCRIPTION	CHK.
-	JAN. 18	TENDER DRAWING	BCC
			CHK.

**STATUS**  
 階段

**SCALE**  
 比例

**KEY PLAN** A1 1:40000  
 索引圖



**PROJECT NO.**  
 項目編號

**SHEET TITLE**  
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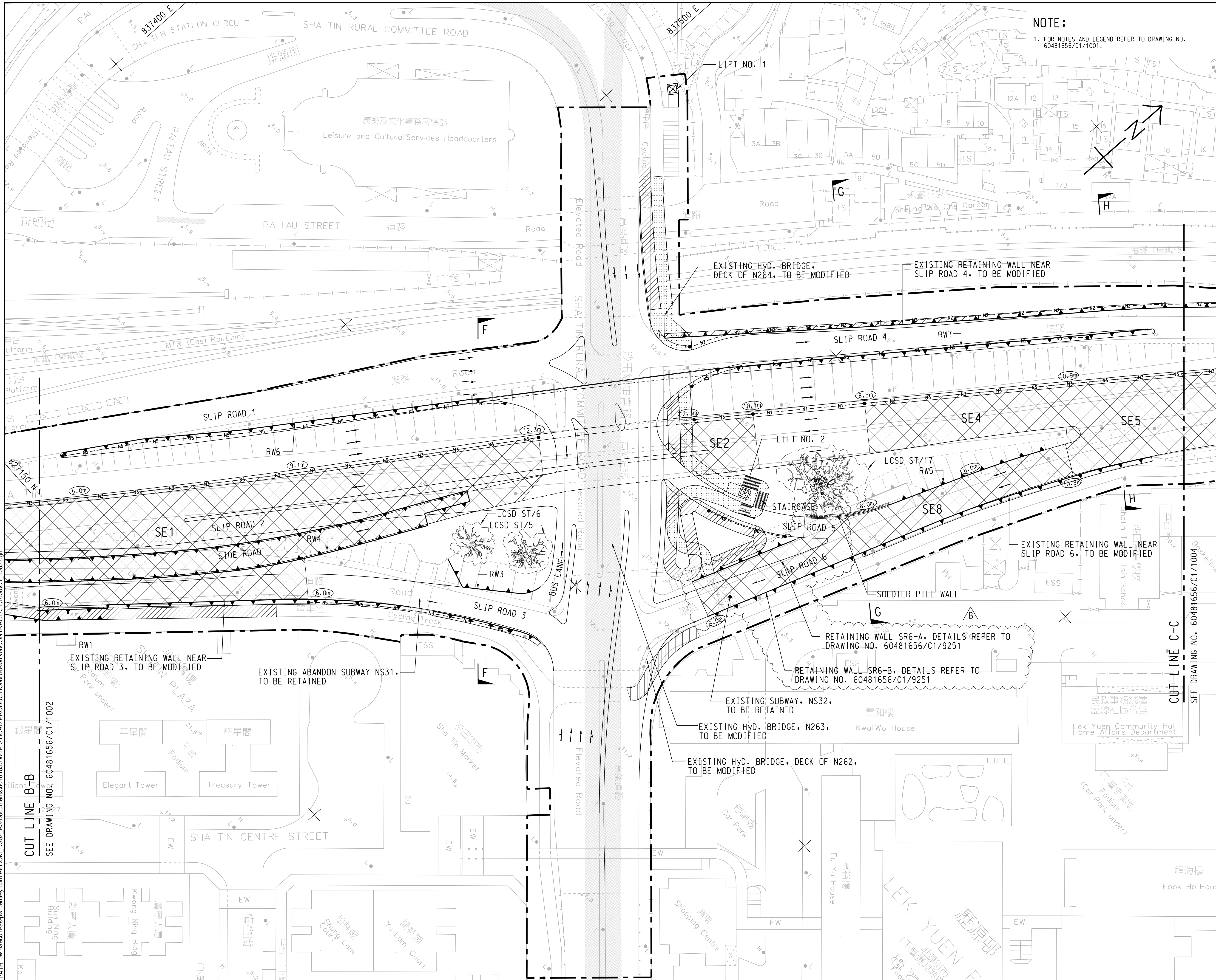
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**CONTRACT NO.**  
 合約編號

SHEET 2 OF 6

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 2018/2/27  
 Project Management Initials: Designer: FMSJ Checked: BCC Approved: CWN  
 ISO A1 594mm x 841mm



**NOTE:**  
 1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.

**AECOM**

**PROJECT**  
 項目

**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

**CLIENT**  
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**CEDD** 土木工程拓展署  
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REV	DATE	DESCRIPTION	CHK.
B	FEB. 18	TENDER ADDENDUM NO. 2	BCC
A	FEB. 18	TENDER ADDENDUM NO. 1	BCC
-	JAN. 18	TENDER DRAWING	BCC

**STATUS**  
 階段

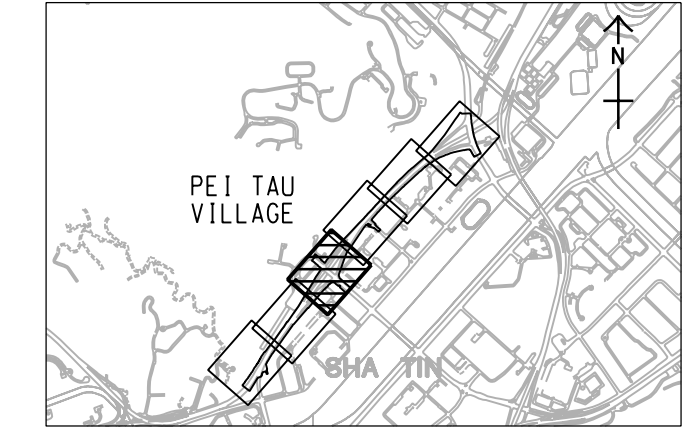
**SCALE**  
 比例

A1 1: 500

**DIMENSION UNIT**  
 尺寸單位

METRES

**KEY PLAN** A1 1: 40000  
 索引圖



**PROJECT NO.**  
 項目編號

60481656

**CONTRACT NO.**  
 合約編號

NE/2017/05

**SHEET TITLE**  
 圖紙名稱

GENERAL LAYOUT PLAN

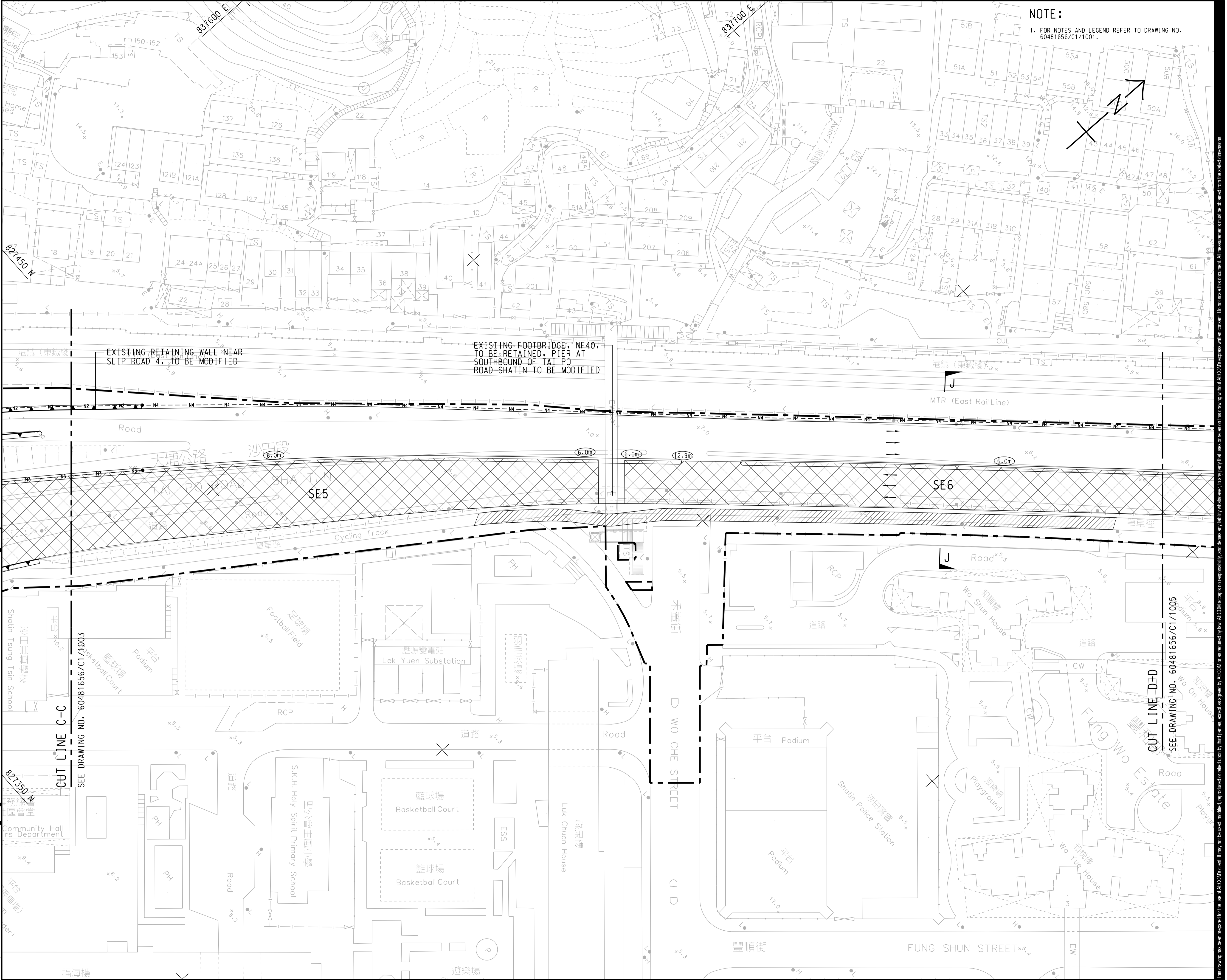
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60481656/C1/1003B

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 Project Management Initials: Designer: FMSK Checked: BCC Approved: CWN  
 ISO A1 594mm x 841mm



NOTE:  
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.

**AECOM**

PROJECT  
項目

**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

CLIENT  
業主

**CEDD** 土木工程拓展署  
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-	JAN. 18	TENDER DRAWING	BCC

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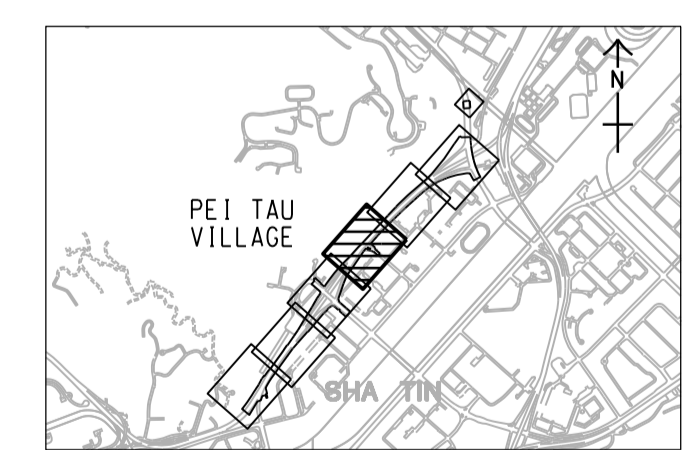
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KEY PLAN  
索引圖

A1 1:40000



PROJECT NO.  
項目編號

60481656

CONTRACT NO.  
合約編號

NE/2017/05

SHEET TITLE  
圖紙名稱

GENERAL LAYOUT PLAN

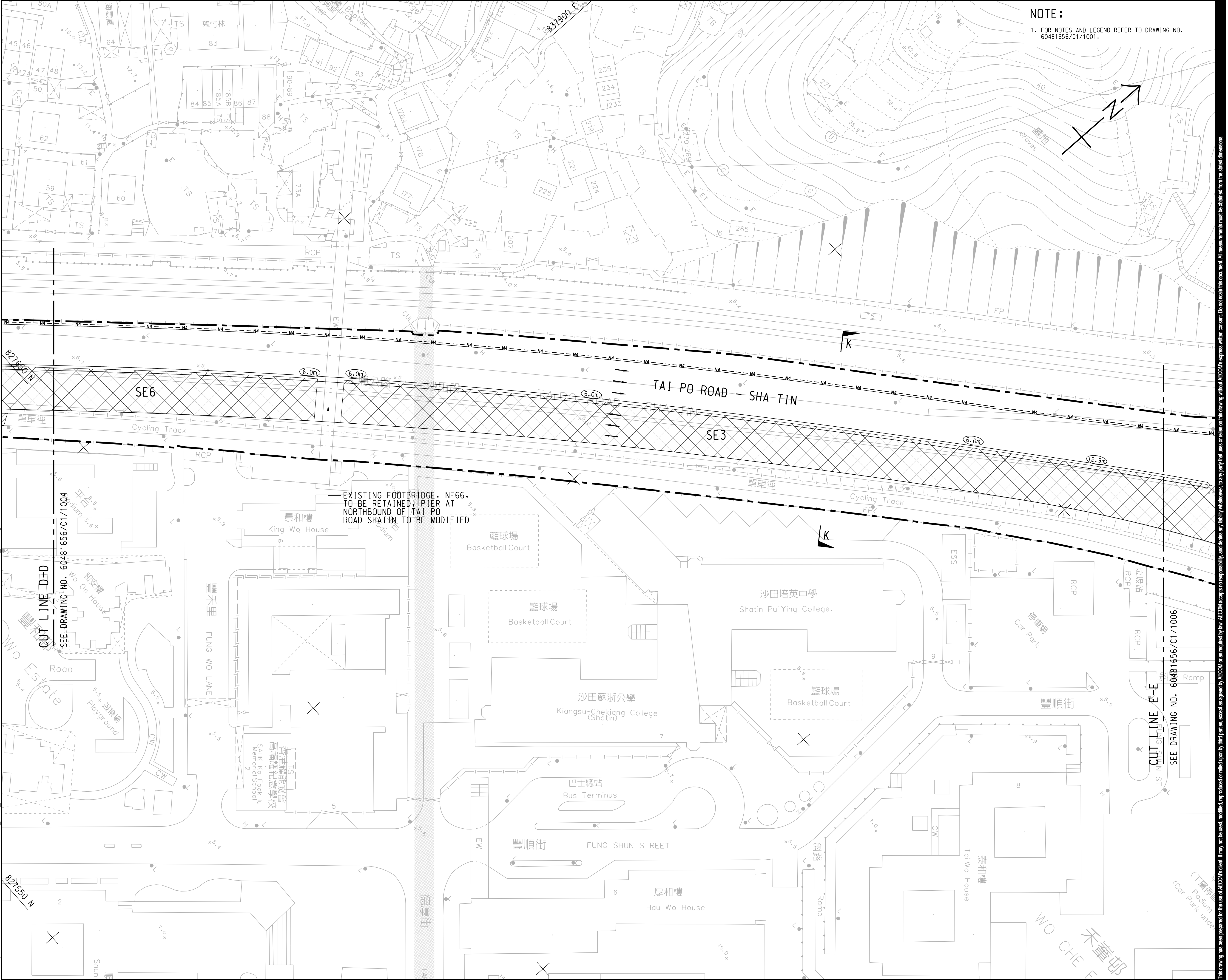
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 Project Management Initials: Designer: FMSC Checked: BCC Approved: CWN  
 ISO A1 594mm x 841mm



NOTE:  
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PROJECT  
 項目

**ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)**

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

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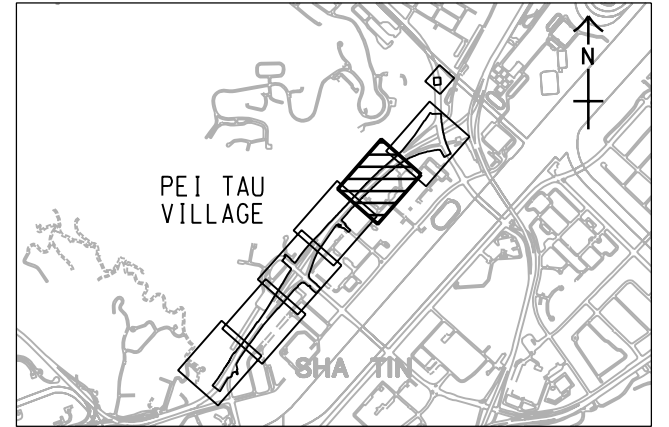
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PROJECT NO.  
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CONTRACT NO.  
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 NE/2017/05

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 GENERAL LAYOUT PLAN

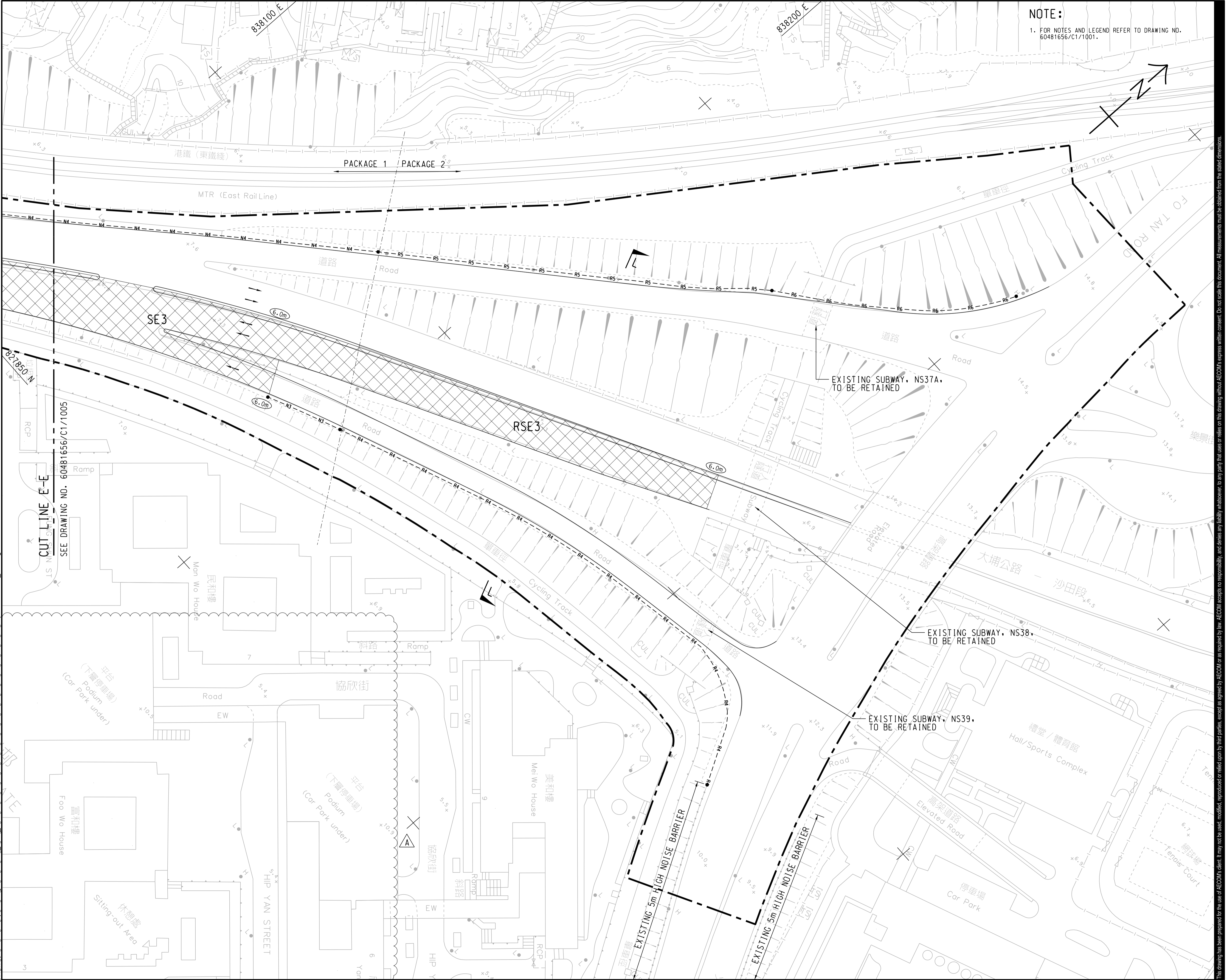
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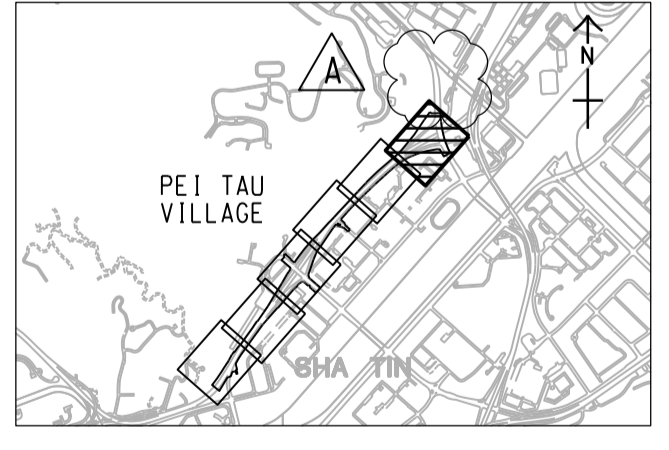
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**PROJECT**  
 ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)  
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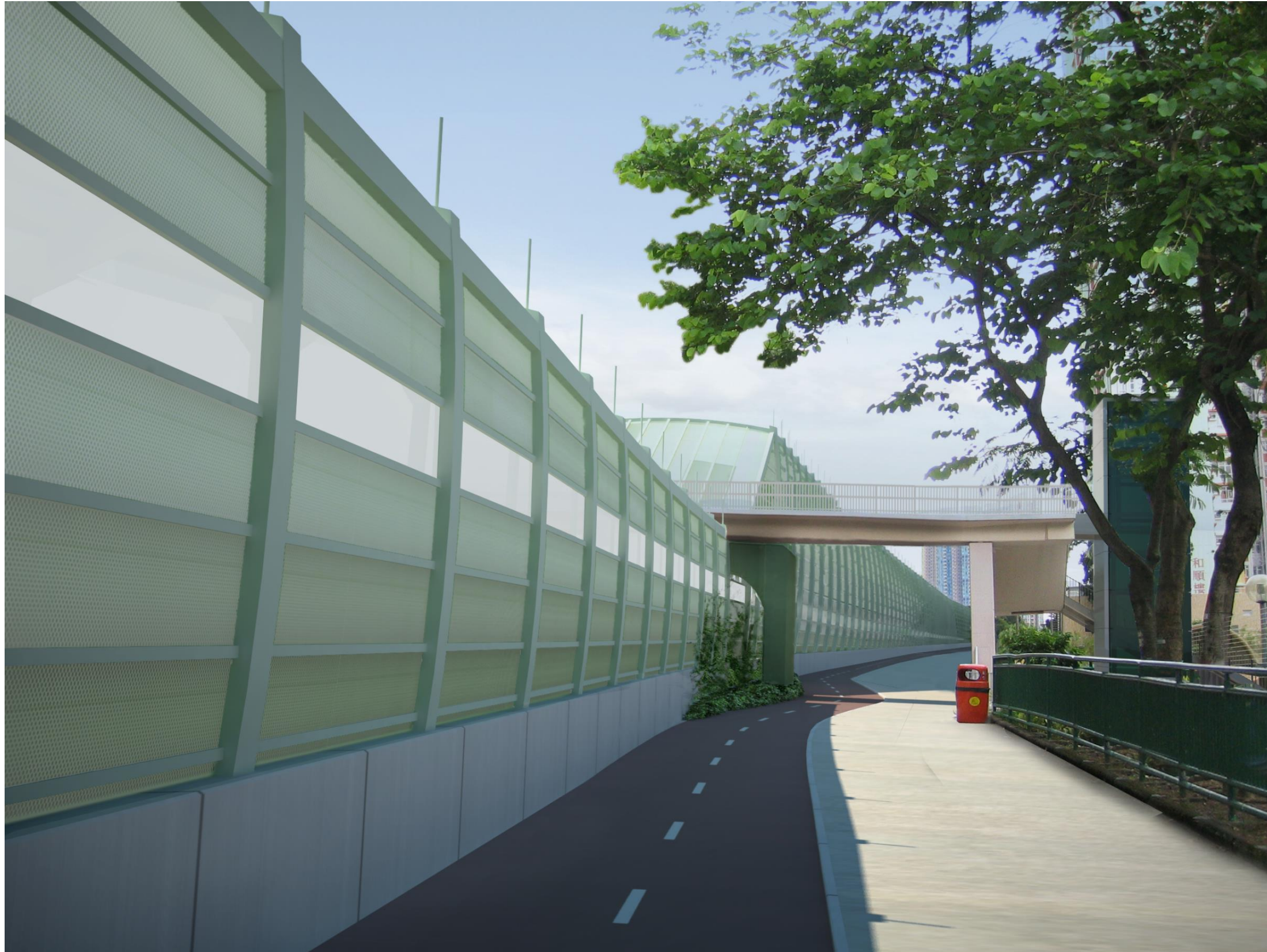
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 圖紙名稱  
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# APPENDIX B



View 1: Proposed Diamond Shaped Interchange at Junction of Tai Po Road (TPR) / Sha Tin Rural Committee (STRC Road)



View 2: Photomontage of Footbridge NF40



View 3: Photomontage of Semi-Noise Enclosure near Lek Yuen Estate and Fung Wo Estate



View 4: Photomontage of Long Profile Noise Barrier and Semi-Noise Enclosure



View 5: Photomontage of Noise Barrier and Semi-Noise Enclosure near Scenery Court



View 6: Photomontage of Noise Barrier and Semi-Noise Enclosure along Tai Po Road near Fo Tan Road



# APPENDIX C

## Summary of Tree Survey and Treatment Recommendations

Tree Recommendation (nos.)			
	<b>VEP-514/2016</b> (Approved Report for Tree Removal and Transplant Application (Draft) (Ref. C07) – Issue 1 (2016.12))	<b>Landscape Plan</b> (Approved Report for Tree Removal and Transplant Application (Ref. C07) – Issue 3 (2018.01)) <b>(Still Valid)</b>	<b>Justification for the changes</b>
Fell	657	887	
Retain	370	219	An additional trees to be felled due to: <ul style="list-style-type: none"> <li>- Conflict with noise barrier foundation and retaining wall</li> <li>- Soil fill slopes changed to no-fine concrete fill slopes</li> </ul>
Transplant	88	8	Additional trees to be felled due to: <ul style="list-style-type: none"> <li>- Low suitability for transplanting due to poor amenity value, poor form, poor health condition and/or poor structural condition of existing trees</li> </ul>
Total Surveyed Trees	1115	1114	

# APPENDIX D



# APPENDIX E



中國中鐵-中鐵一局-振華工程聯營  
CHINA RAILWAY CONSTRUCTION CORPORATION LIMITED - CHINA RAILWAY FIRST GROUP - ZHENHUA ENGINEERING JOINT VENTURE

Contract No. NE/2017/05  
Road Widening and Retrofitting Noise Barriers on  
Tai Po Road  
(Sha Tin Section)

Contractor's  
General Submission  
(CGS)

To : The Supervisor's Delegate (CRE) - Mr. Yu Hon Wing, Albert

Title of Submission :	Tree Preservation and Protection Plan	
Submission Ref. No. :	CCZJV/CGS/000005/D	
Outgoing Log No. :	CCZJV/OUT/2018/12/01.02/000817	
Specification Reference :	GS and PS Sections 3 & 26	
Drawing Reference :	60481656/C1/1751-1757	
Location of Works :	Whole Site	
Attachment :	Yes	Revision No.: <u>  D  </u>

Submission for Acceptance of:  
(Please check the box(es) as appropriate.)

- |                                       |  |
|---------------------------------------|--|
| <input type="checkbox"/> Drawings     | <input type="checkbox"/> Method Statement                    |
| <input type="checkbox"/> Programme    | <input checked="" type="checkbox"/> Others: <u>As titled</u> |
| <input type="checkbox"/> Test Results |  |

**Description of Contents :**

Referring to the e-mails enclosing the comments of the ET dated 3 December 2018, we are pleased to submit herewith the revised tree preservation and protection plan.

Purpose of Submission : For Approval

From: Construction Manager

Name: Wilkie Wu


Signature :

Date: 06-Dec-2018

	Vincent Cheung / Aaron Au	Yeung Kwok Fung
Sub-Contractor ref	Originator	Reviewed By

**Distribution / Remarks :**

Supervisor (AECOM) - Mr. Ng Chung Wai, Conrad






CHINA RAILWAY - CHINA RAILWAY FIRST GROUP ZHEN HUA ENGINEERING JOINT VENTURE		
 中國中鐵-中鐵一局-振華工程聯營 CHINA RAILWAY - CHINA RAILWAY FIRST GROUP - ZHEN HUA ENGINEERING JOINT VENTURE	<b>CONTRACT NO. NE/2017/05</b> <b>Road Widening and Retrofitting Noise Barriers on Tai Po Road (Sha Tin Section)</b>	Document No. TPPP/001
	<b>Tree Preservation and Protection Plan</b>	Revision D



Civil Engineering and Development Department  
The Government of the Hong Kong Special Administrative Region

## Tree Preservation and Protection Plan

Document No. CCZJV/TPPP/001D

	Prepared by:	Reviewed by:			Approved by:
<b>Name</b>	Vincent CHEUNG	Aaron AU	Kwok Fung YEUNG	Alvin CHAN	Wilkie WU
<b>Position</b>	Graduate Engineer	Construction Works Manager	Senior Construction Works Manager	Site Agent	Construction Manager
<b>Signature</b>					
<b>Date:</b>	3-12-2018	3.12.18.	3/12/2018	6/12/18	6/12/18

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REVISION HISTORY		
REV	REV DATE	DESCRIPTION OF CHANGES
A	18-09-18	First Issue (Preliminary)
B	09-11-18	Clause 3.1 (v) and Section 7 added
C	29-11-18	IEC and ET comments incorporated
D	03-12-18	ET comments incorporated

NOTE:

Revision A denotes the First Issue of the Tree Preservation and Protection Plan. Any revision made further to this document will be updated numerically (e.g. Rev. B, Rev. C, etc.)

# 1 Introduction

## 1.1 Background

- 1.1.1 The existing Tai Po Road (Sha Tin Section) (hereafter referred as TPR-ST) is an essential primary distributor road linking Northeast New Territories with Kowloon and Tsuen Wan. The TPR-ST widening from existing dual 2-lane to dual 3-lane carriageway, together with associated traffic improvement, road reconstruction works, retrofitting of barriers and enclosures, are to cope with the continuous increase of the traffic demand and excessive traffic noise.
- 1.1.2 TPR-ST will be retrofitted with noise barriers and enclosures in order to address the traffic noise impact on residents along the section of Tai Po Road from Scenery Court near Sha Tin Centre Street to Wo Che Estate near Fo Tan Road.
- 1.1.3 The Contract No. NE/2017/05 - Road Widening and Retrofitting Noise Barriers on Tai Po Road (Sha Tin Section) (hereafter referred as the Contract) was awarded to China Railway – China Railway First Group – Zhen Hua Engineering Joint Venture and commenced in July 2018.
- 1.1.4 As per Section 3.7.5 Environmental Review Report (ERR), existing trees shall be preserved as much as possible and a detailed tree preservation and transplanting proposals shall be submitted to relevant government departments for approval. In compliance, this Tree Preservation and Protection Plan (hereafter referred as the Plan) was prepared specific for the Contract.

## 1.2 Description of the Project

- 1.2.1 The Project is to widen the existing TPR-ST between Sha Tin Rural Committee Road (STRC Road) near Sha Tin Plaza and Fo Tan Road near Man Wo House of Wo Che Estate and the associated works.
- 1.2.2 The scope of Works under the Project mainly comprises:
- Widening and reconstruction of about 1.1 km of TPR-ST between STRC Road and Fo Tan Road from existing dual 2-lane to dual 3-lane carriageway;

- Modification of the existing interchange at TPR-ST and STRC Road;
- Reprovision of the at grade separated cycle track and footpath at the junction of TPR-ST and footpath at junction of TPR-ST and STRC Road ancillary to the Project;
- Provision of noise mitigation measures including cantilevered vertical noise barriers and noise enclosures;
- Modification of the existing footbridge (NF40) at Wo Che Street for the widening of TPR-ST;
- Modification of the existing footbridge (NF66) connecting between Ha Wo Che and Wo Che Estate for the road widening works; and
- Construction of retaining walls, associated drainage works, landscape works, lighting works, traffic control and surveillance system

1.2.3 The general layout of the Project is shown at **Appendix A**.

### **1.3 Relevant Legislations and Guidelines**

1.3.1 The following relevant standards and guidelines are applied in the preparation of this plan:-

- BS 3998:2010 Tree Work Recommendation;
- BS 4428 Code of Practice for General Landscape Operation (excluding hard surfaces);
- BS 5837:2012 Trees in relation to Design, Demolition and Construction Recommendations;
- General Specification for Civil Engineering 2006 Sections 3 and 26;
- Particular Specification for this Contract Sections 3 and 26;
- Guideline on Tree Preservation during Development issued by DevB (GLTM);
- Guideline on Tree Transplanting issued by DevB (GLTM);
- Guideline on Tree Stump Treatment issued by DevB (GLTM);
- General Guideline on Tree Pruning issued by DevB (GLTM);
- Guidelines for Tree Risk Assessment and Management Arrangement (8<sup>th</sup> Edition) by DevB (GLTM);
- DEVB TC(W) No. 7/2015 - Tree Preservation;
- ETWB TCW No. 29/2004 - Registration of Old and Valuable Trees, and Guidelines for their Preservation; and
- Contract Drawings.

## 1.4 Key Issues

1.4.1 The trees at the Site may be at risk of being damaged due to construction operations. The general precautionary measures to preserved and protect the trees are the following, which are detailed in Sections 4 and 5 of this Plan.

- (a) Mobilisation of construction plant within the Site area can potentially lead to crown, stem and root damage on retained trees;
- (b) Trees with low canopies over the area of works may require access facilitation pruning;
- (c) Tree protection zones shall be established to designate the root protection area and protect stems and crowns;
- (d) Before plant or equipment is permitted on site, protective fencing shall be erected to fence off the tree protection zones of trees which are to be retained; and
- (e) Protective fencing shall be securely fixed to static fence.

## 2 Tree Surgery Works

To enhance the health and the appearance of the preserved trees, advance tree surgery works may be required prior to any construction activity. The following tree surgery work may be required subject to the advice of the Qualified Arborist or the Independent Tree Specialist. Tree surgery may include the following measures:

- (a) Removal of broken, damaged and diseased branches;
- (b) Removal of weak or crossing branches to ensure a well-balanced crown;
- (c) Protection by fencing;
- (d) Securing of trees with cables throughout the construction period.

## 3 Tree Removal

Tree removal, either by felling or transplanting, may be required to complete the works. The protocols for tree removal are discussed in the succeeding sections.

### **3.1 Felling**

3.1.1 Site clearance shall be carried out in stages to suit the actual clearance requirement as works progress. The following requirements shall be in respect:

- (a) Fell only those trees earmarked under the Contract and labelled for felling on the Site;
- (b) Take all necessary precautions to protect the people engaged in the tree felling work as well as the people and property in the vicinity;
- (c) Adopt working methods that avoid any damage to adjacent plants to be retained, including damage to their root systems;
- (d) Completely remove the tree to be felled including the stumps and rootballs except, in the opinion of the *Project Manager*, removal of stumps and rootballs is not necessary;
- (e) Fell the trees by cutting them near the ground, with their stumps ground rather than pulled;
- (f) Properly dispose of all debris, cut wood, and roots from the Site as soon as possible;
- (g) Reinstate where appropriate the ground around the adjacent plants to be retained to ensure their continued healthy growth and stability; and
- (h) Commence to fell trees as relevant method statement accepted by *Project Manager*.

### **3.2 Transplanting**

3.2.1 The following requirements shall be in respect, either within or off the Site:

- (a) Transplant only those trees earmarked under the Contract and labelled for Transplanting on the Site;
- (b) Commence any work related to tree transplanting on the Site only after the *Project Manager* is satisfied that the requirements are stipulated for completion before tree transplanting work commences; and
- (c) Preserve and transplant the trees as all transplanting method and procedure accepted by *Project Manager*.

### **3.3 Unplanned Tree Removal**

3.3.1 Where it is found necessary for the completion of the Works to remove, either by felling or by transplanting, any trees other than those earmarked

under the Contract and labelled purposes on the Site or those directed or approved purposes during the progress of the Works by the *Project Manager*. The following requirements shall be in respect:

- (a) Report to the *Project Manager* the necessity on such tree removal;
- (b) Provide all reasonable assistance as required by the *Project Manager* in the tree survey and the justification for the proposed tree removal with substantiation and the necessary details including method statement, site formation plan and engineering drawings, for the *Project Manager's* preparation work of the tree felling or transplanting application for the tree removal; and
- (c) Fell or transplant the trees only after the approval from the *Project Manager* for the corresponding tree removal has been given.

## 4 Preservation and Protection of Old and Valuable Trees (OVTs)

### 4.1 Existing condition of OVTs

Three registered OVTs were identified within the Site boundary. They are T605(R)-LCSD ST/5 (*Bischofia polycarpa* 重陽木), T606(R)-LCSD ST/6 (*Bischofia polycarpa* 重陽木) and T584(R)-LCSD ST/17 (*Ficus annulata* 環紋榕). Photographic records showing conditions of existing OVTs are shown in **Appendix B**.

- (a) T605(R)-LCSD ST/5 (*B. polycarpa* 重陽木)

T605(R)-LCSD ST/5 is a mature *B. polycarpa* with 14m tall, 14m crown spread and 527mm DBH. The tree is in general good form with normal foliage density, colour and leaf size of its species and age. The branches, crown and trunks are in good condition and without significant structural defect. No girdling surface roots are observed. Both form and health of the tree are in good condition with balanced form. It is observed that the main trunk is slightly leaning towards one side. The overall amenity value is medium.

- (b) T606(R)-LCSD ST/6 (*B. polycarpa* 重陽木)

T606(R)-LCSD ST/6 is a mature *B. polycarpa* with 13m tall, 13m

crown spread and 520mm DBH. The tree is in general good form with normal foliage density, colour and leaf size of its species and age. The branches, crown and trunks are in good condition and without significant structural defect. Codominant trunks are observed but without any cracks. No girdling surface roots are observed. Both form and health of the tree are in good condition with balanced form. It is observed that the main trunk is slightly leaning towards one side. The overall amenity value is medium.

(c) T584(R)-LCSD ST/17 (*F. annulata* 環紋榕)

T584(R)-LCSD ST/17 is a mature *F. annulata* with 16.5m tall, 30m crown spread and 1686mm DBH. The tree is in general good form with normal foliage density, colour and leaf size of its species and age. A few epicormics on the branches are observed. The surface roots are in good condition with no girdling surface roots. There is only minor restriction of the root area roots by the adjacent drainage. Both form and health of the tree are in good condition with balanced form. The overall amenity value is considered high.

## 4.2 Preparation of Tree Protection Works for OVTs

- 4.2.1 An Initial survey report for the OVTs including an initial tree survey and, an initial site survey and initial soil tests of their tree protection zones shall be submitted pursuant to PS Appendix 26.5.
- 4.2.2 Photographic record of whole tree, crown, trunk, root collar, ground condition and special feature, imprinted with date shall be enclosed in the survey report.
- 4.2.3 Pruning works shall not be carried out unless it is required under the Contract or directed by the *Project Manager*.
- 4.2.4 The extent of pruning shall be agreed between the Independent Tree Specialist and the *Project Manager* on site.

## 4.3 Aftercare to OVTs

- 4.3.1 Tree protection zone shall be encompassing along its dripline and extending vertically to 2m upward beyond the top of the tree and 2m downward beyond the ground level at trunk base.

- 4.3.2 Protective fences of 2m height using water filled barriers with fence shall be erected on perimeter of the tree protection zone with access opening at access path as shown in **Appendix C**.
- 4.3.3 Regular monitoring shall be performed pursuant to PS Appendix 26.6.
- 4.3.4 As soon as in the opinion of the *Project Manager*, the works other than Aftercare to OVTs have been completed, the *Project Manager* shall notify in writing of the date for commencement of the Aftercare to OVTs.

#### **4.4 Protection of Tree Root for OVTs**

- 4.4.1 No root pruning shall be allowed for all the OVTs to minimize any potential adverse impact to the OVTs.
- 4.4.2 The soil above the root shall be removed by hand tools.
- 4.4.3 A protective geotextile membrane, which has high textile strength and can allow free flow of water and air, shall laid on top of the root to avoid potential damage of tree root surface by abrasion as advised by the Independent Tree Specialist.

### **5 Preservation and Protection of Preserved Trees**

#### **5.1 Planning**

##### 5.1.1 Tree Survey

- (a) The tree survey record shall cover all existing trees present within the Site or within 2 m of the site boundary and any other trees likely to be affected by the Works. The tree survey record shall be in the format of which shall be agreed by the *Project Manager / Supervisor* before submission of the report:
  - (i) A tree survey plan showing the locations of all existing individual trees identifying:
    - (i) Trees which are earmarked under the Contract for retention at their existing locations,
    - (ii) Trees which are earmarked under the Contract for transplanting,
    - (iii) Trees which are earmarked under the Contract for felling and
    - (iv) Any other trees which have not been reported/identified under the



Contract and their treatment has yet to be instructed by the *Project Manager / Supervisor*,

- (b) A tree schedule for all the trees comprising the following information of each individual tree:
  - (i) Botanical name of the tree species and the identity code/number as shown on the tree survey plan and marked on the Site,
  - (ii) Diameter at breast height of the tree,
  - (iii) Tree crown spread,
  - (iv) Tree height,
  - (v) Condition of the tree including its form and health, and
  - (vi) Existing ground level at the trunk base of trees which have not been reported/identified under the Contract
- (c) Photographic record for each individual tree complying with the following:
  - (i) All photographs shall be date-stamped to indicate the dates that the photographs are taken and shall be well-annotated, and
  - (ii) The photograph of each tree shall show clearly the whole tree as far as possible, the identification number of the tree, and the status of the tree as identified by the labelling system.

#### 5.1.2 Labelling of Trees

- (a) A labelling system to identify trees of different status shall be complying with the following:
  - (i) The identification labelling systems for different tree status shall be in different colours and be clearly distinguishable,
  - (ii) The tree identification number of each tree shall be clearly shown on the label.
  - (iii) The identification labelling system for the preserved trees shall be made of durable materials that are non-injurious to the trees, be placed at a position not easily accessible but clearly visible to the public, and be attached in such a manner that allows for the growth of the trees and does not injure the trees,
  - (iv) The identification labelling system and the on-site status identification of trees shall be agreed by the *Project Manager / Supervisor* and installed before commencing site clearance, demolition, construction of permanent or temporary works, and any other site operations which may affect the trees, and

- (v) The identification labels of the preserved trees shall be removed upon completion of the Works, or earlier if so directed by the *Project Manager / Supervisor*.

## 5.2 Pre-construction

### 5.2.1 Pre-commencement meeting

- (a) Method statements for particular works, such as tree felling and tree transplanting, shall obtain the acceptance of the *Project Manager / Supervisor* before commencement of the works.
- (b) A pre-commencement meeting for such particular work shall be held to all supervisors and workers to introduce the relevant method procedures, and the safety precaution and the environment concerns.

### 5.2.2 Designation of Tree Protection Zones (TPZs)/Tree Protection Area/Construction Exclusion Zone

Tree Protection Zone (TPZ) is the minimum area around a tree considered to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. Under general circumstances, the boundary of the TPZ is defined by tree canopy dripline and the TPZ is the entire area within the dripline.

In establishing the TPZs the following measures are considered:

- (a) The Tree Protection Zone is within the tree protection fencing and designed to protect the functional minimum of tree root mass in order to ensure that the trees survive the construction process.
- (b) It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.
- (c) The followings shall be restricted within Tree Protection Zone
  - (i) No mechanical excavation
  - (ii) No excavation by any other means
  - (iii) No hand digging
  - (iv) No ground level changes whatsoever.
  - (v) No storage of plant or materials.
  - (vi) No storage or handling of any chemicals.
  - (vii) No vehicular access

### 5.2.3 Establishment of Tree Protection Fences

TPZs must be enclosed by sturdy fences that can withstand impacts from construction activities. In erecting tree protection fences the following measures are followed:

- (a) Tree protection fencing consists of water filled barriers and shield panels shall be erected to suit the actual site condition that advised by the competent personnel, e.g. Qualified Arborist, as accepted by the *Project Manager / Supervisor* as shown in Appendix C.
- (b) Once the protection measures are installed and erected in position the fenced area is to be considered sacrosanct and must not be removed or altered in anyway without the prior agreement from the Qualified Arborist and the *Project Manager / Supervisor*.
- (c) Before erection of the protection fencing, the route of the barrier shall be set out on site in order to confirm the protection area.
- (d) After erection of the protection fencing, inspection trench shall be carried out by hand dig before any excavation commences; the presence of any significant roots will notify the Qualified Arborist and the *Project Manager / Supervisor*, where considered appropriate for seeking advice.

### 5.2.4 Protective Hessian/Hessian and Plank Armouring

If erection of protective fencing is not practicable or the preserved tree grows on a retaining structure, alternative tree protective measures should be considered such as:

- (a) Temporary protective hessian armouring shall be provided around tree trunks to protect the preserved trees, that advised by the Qualified Arborist, as shown in **Appendix D**.
- (b) When instructed by the *Project Manager / Supervisor* and agreed by the Qualified Arborist, temporary protective hessian and plank armouring shall be provided as an alternative to the same trees for enhanced protection.

## 5.3 Construction

### 5.3.1 Protection Measures of Preserved Trees

Trees in the boundary and within the vicinity of the Site may be exposed to physical damage, changes in ground levels, excavation and trenching, drilling, instability, pests, and pruning during construction period. Measures to protect the preserved trees from these impacts are detailed in the succeeding section.

- (a) Physical damage
- (i) Temporary protective fencing shall be provided along perimeter of tree protection zone to keep plants away.
  - (ii) Erection of the temporary protective fencing shall be completed before commencing of site clearance, demolition, construction of permanent or other temporary works, and any other site operations that may affect the trees.
  - (iii) Temporary protective armouring and application of the temporary protective mulching before commencing site clearance, demolition, construction of permanent or other temporary works, and any other site operations that may affect the trees.
- (b) Changes in ground levels
- (i) No change of the existing ground levels shall be allowed within the tree protection zones of the preserved trees unless the Contract explicitly requires such changes without the *Project Manager's* approval.
  - (ii) Where it is necessary for completion of the Works, for temporarily or permanently changing the existing ground level around a preserved tree within the corresponding tree protection zone, a detailed design and a method statement to accommodate the change in the existing ground level around the tree shall be submitted for acceptance of the *Project Manager*.
- (c) Excavation and trenching
- (i) Without the *Project Manager's* prior approval, no excavation within the tree protection zones of the preserved trees shall be carried out unless the Contract explicitly requires such excavation work to be carried out. For the approved excavation work within the tree protection zones, the following requirements shall be comply with:
    - Obtain agreement from the *Project Manager* about the detailed locations and extent of the excavations before

- commencing any excavation work,
- Carry out the following work before commencing any cutting work to the aerial roots or underground roots of the preserved trees:
    - Determine the locations of the major roots and the bulk of their absorbing roots so as to keep the cutting of tree roots to a minimum and to preserve the tap roots, sinker roots and support roots of the trees in any circumstances,
    - Obtain agreement from the *Project Manager* about the extent of root cutting on the Site, and
  - Submit to the *Project Manager* photographic records showing the condition of the affected trees and the agreed extent of excavations and root cuttings as marked on the Site before commencing the excavation work and root-cutting work and thereafter submit photographic records showing the condition of the affected trees and the progress of the excavation work and root-cutting work at weekly intervals until backfilling of the excavation is complete,
  - Pile the excavated materials outside the tree protection zones to reduce soil compaction,
  - Carry out the excavation work carefully so as not to damage the bark and root collars of the preserved trees,
  - Maintain balanced moisture content in the trees and in the soil after backfilling of the excavation, by carrying out necessary precautionary measures such as crown thinning, watering and mulching, and
  - Move the temporary protection fencing to the edge of the intended excavation area, between the excavation area and the rest of the tree protection zone, during the duration of excavation work, and move back the same to its original location after backfilling.
  - Excavate the service trench on the paved side of the tree if one exists
- (ii) The following precautions shall be taken when carrying out excavation that involves cutting of the roots of the preserved trees:
- Excavation shall be carried out using only hand-held tools such as hoe and spade, but not mechanical diggers or

bulldozers,

- Whenever roots are encountered and before root cutting is carried out, soil shall be carefully forked away from the roots using hand-held tools up to the edge along which root cutting is required,
- Root cutting shall be carried out carefully using sterilised hand-held pruning tools, and roots greater than 25 mm in diameter shall be pruned carefully so as not to result in shattered and frayed roots,
- Any roots damaged during excavation shall be cut back cleanly with sharp tools to undamaged tissue and treated with an approved fungicidal dressing before backfilling,
- All cut and exposed roots shall be prevented from drying out during excavation by adopting the following measures until backfilling, unless otherwise agreed by the *Project Manager* :
  - Wrap the tap roots, sinker roots, support roots, and roots with diameter exceeding 50 mm with hessian, straw or other porous, absorbent fabric once they are exposed,
  - Hang thick hessian or other porous, absorbent fabric from top of the cut surface over the exposed roots and soil immediately after root cutting, and
  - Mist the hessian or fabric in a frequency that keeps the roots and the soil at the cut surface moist all the time,
- The hessian, straw or other porous, absorbent fabric and the hessian or fabric shall be removed immediately before backfilling, and
- Excavations shall be backfilled with soil mix incorporated with slow release fertiliser at a rate as agreed by the *Project Manager* to a level equivalent to the original soil level at the root collar after settlement.

(d) Drilling

- (i) Without the *Project Manager*'s prior approval, no drilling, such as soil nailing and drilling for bore holes, rock bolts or dowels, within the tree protection zones of the preserved trees shall be carried out unless the Contract explicitly requires such drilling work within the tree protection zones. For the approved drilling work within the tree protection zones, the following requirements

shall be comply with:

- Obtain agreement from the *Project Manager* about the detailed locations and extent of the drill holes before commencing any drilling work.
  - Carry out the following before commencing any cutting work to the aerial roots or underground roots of the preserved trees:
  - Determine the locations of their major roots and the bulk of their absorbing roots so as to keep the cutting of tree roots to a minimum and to preserve the tap roots, sinker roots and support roots of the trees in any circumstances,
  - Obtain agreement from the *Project Manager* about the extent of root cutting on the Site,
  - Carry out the drilling work carefully so as not to damage the branches, foliage, trunk, bark and root collars of the preserved trees when gaining access for, supporting, mobilising, positioning and operating the drilling rig, and
  - Maintain balanced moisture content in the trees and in the soil after the drilling work, by carrying out necessary precautionary measures such as crown thinning, watering and mulching.
- (iii) The following precautions shall be taken when carrying out drilling work that involves cutting of the roots of the preserved trees:
- Drilling work and root cutting work shall be carried out carefully,
  - Roots greater than 25 mm in diameter shall be pruned carefully in order to prevent shattered and frayed roots, and
  - Any roots damaged during drilling shall be cut back cleanly with sharp tools to undamaged tissue and treated with an approved fungicidal dressing.

(e) Instability

- (i) Where the Works involve cutting of any major roots or other major parts of the preserved trees or any other works that may jeopardise the stability of the preserved trees, all necessary physical support measures that will ensure the stability of the preserved trees shall be installed.
- (ii) The physical support measures for the preserved trees shall be

installed securely before commencing root cutting, tree pruning or any other works that may affect the stability of the trees. Before commencing installation of these measures, the method statements of these measures shall be submitted to the *Project Manager* for approval.

- (f) Control of pest and disease
  - (i) All necessary precautionary measures shall be taken to protect the preserved trees from pest and disease attack and all necessary control measures to eradicate pest and disease from the infected trees in the execution of the Works. Regularly check for any pest and disease attack shall be conducted particularly during known periods of activity and shall report to the *Project Manager* on any such occurrence.
  - (ii) Before commencing application of the pest and disease control measures, the method statements of the control measures shall be submitted to the *Project Manager* for approval.
- (g) Pruning
  - (iii) Pruning to the preserved trees shall not be carried out unless the pruning work is required under the Contract or is directed by the *Project Manager*. The *Project Manager* shall be notified any preserved trees whose branches interfere with the Works and thus require pruning. Pruning shall only commence after the *Project Manager's* approval has been obtained.

### 5.3.2 Arboricultural Monitoring and Tree Inspection

- (a) The preserved trees shall be closely monitored during the construction and establishment period. An Independent Tree Specialist shall be engaged to carry out regular monitoring the tree protection works for preserved trees on site as well as all requirements as stated in the contract provisions and to ensure that all tree protection measures recommended are fully executed during the construction and establishment period.

## 5.4 Post-construction

### 5.4.1 Evaluation

- (a) A final survey report for the OVTs including a final tree survey and, a



final site survey and final soil tests of their tree protection zones shall be submitted pursuant to PS Appendix 26.7.

- (b) Photographic record of whole tree, crown, trunk, root collar, ground condition and special feature, imprinted with date shall be enclosed in the survey report.

#### 5.4.2 Removal of Protective Measures

- (a) Temporary protective fencing from the Site shall be removed upon completion of the Works or earlier if so directed by *Project Manager*.
- (b) Temporary protective armouring shall be removed from the Site upon completion of the Works, or earlier if so directed by the *Project Manager / Supervisor* and the Qualified Arborist.
- (c) All physical supports for the preserved trees shall be removed from the Site upon completion of the Works, or earlier if so directed by the *Project Manager*.

#### 5.4.3 Handing over to maintenance unit

- (a) During the post construction period before hand-over to the maintenance department, which is identified upon mutual agreement, and/or before the end of the establishment period, the project department should continue the tree preservation programme for the retained trees and/or trees transplanted, such as monitoring and maintenance, and ensure that all necessary protective measures are in place. Remedial and/or mitigation measures such as tree surgery works, aeration of compacted soils and mulching, etc. should be performed as necessary. In any event, the project department should continue to maintain the vegetation until it is properly handed over to a maintenance party.

## 6 Repair of Damaged to Preserved Trees

### 6.1 Replacement Planting

6.1.1 Replacement planting of the damaged trees and any other affected plants shall be provided under the following circumstances:

- (a) In the opinion of the *Project Manager* the damaged trees or other affected plants are dead; and

- (b) In the opinion of the *Project Manager*, the trees/plants have been substantially damaged, resulting in one or more of the following conditions:
- (i) That imminent death of the trees or other affected plants within the coming growing season is predicted;
  - (ii) That the structural integrity of the damaged trees or other affected plants is permanently compromised and consequently the trees or other affected plants become an irreparable public hazard
  - (iii) That any major parts of the damaged trees or other affected plants have been lost and consequently their form, habit and balance have been grossly altered so that their function cannot be reasonably recovered or the trees or other affected plants are causing harm to other preserved trees.

## **6.2 Soil Re-profiling**

- 6.2.1 Any post development landscaping will avoid soil re - grading and disturbance within the root protection area as far as possible. If cultivation is required and it does not exceed a depth of 50mm, it will be undertaken using hand tools. Both hard and soft landscaping works will be the last stage of the development. Any agreed soil re- profiling required to achieve the finished levels around trees will be carried out by hand using top soil. In order to facilitate final surface treatments, it may be necessary to remove the tree protection measures.
- 6.2.2 A minimum of seven days notice will be given to the *Project Manager / Supervisor* prior to the removal of tree protection measures.
- 6.2.3 Under no circumstances will the soil levels be altered within root protection area after protection measures have been removed.

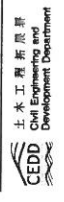
**APPENDIX A**  
**GENERAL LAYOUT OF TAI PO ROAD**  
**(SHA TIN SECTION)**



PROJECT

ROAD WIDENING AND  
RETROFITTING  
NOISE BARRIERS  
ON TAI PO ROAD  
(SHA TIN SECTION)

CLIENT



土木工務發展部  
Civil Engineering and  
Development Department

CONSULTANT

AECOM Asia Company Ltd.  
www.aecom.com

SUB-CONSULTANTS

20170101

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
A	FEB 18	TENDER ADDENDUM NO 2	BBC
B	JAN 18	TENDER DRAWING	BCC
			CHK

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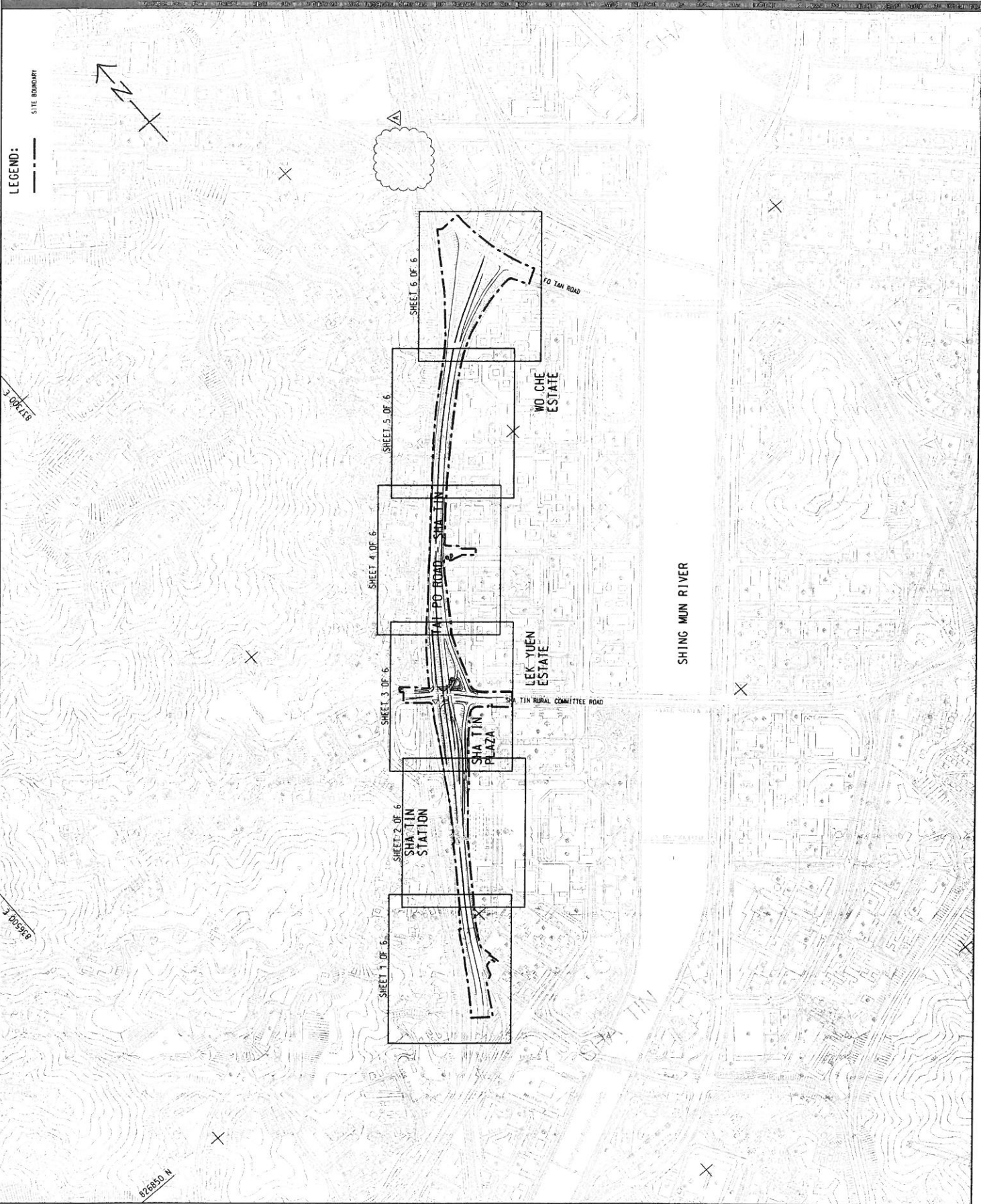
KEY PLAN

PROJECT NO.  
60481656

CONTRACT NO.  
NE/2017/05

SHEET TITLE  
KEY PLAN

SHEET NUMBER  
60481656/C1/1000A



LEGEND:

--- SITE BOUNDARY

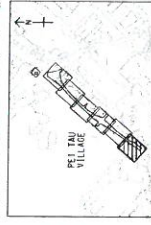
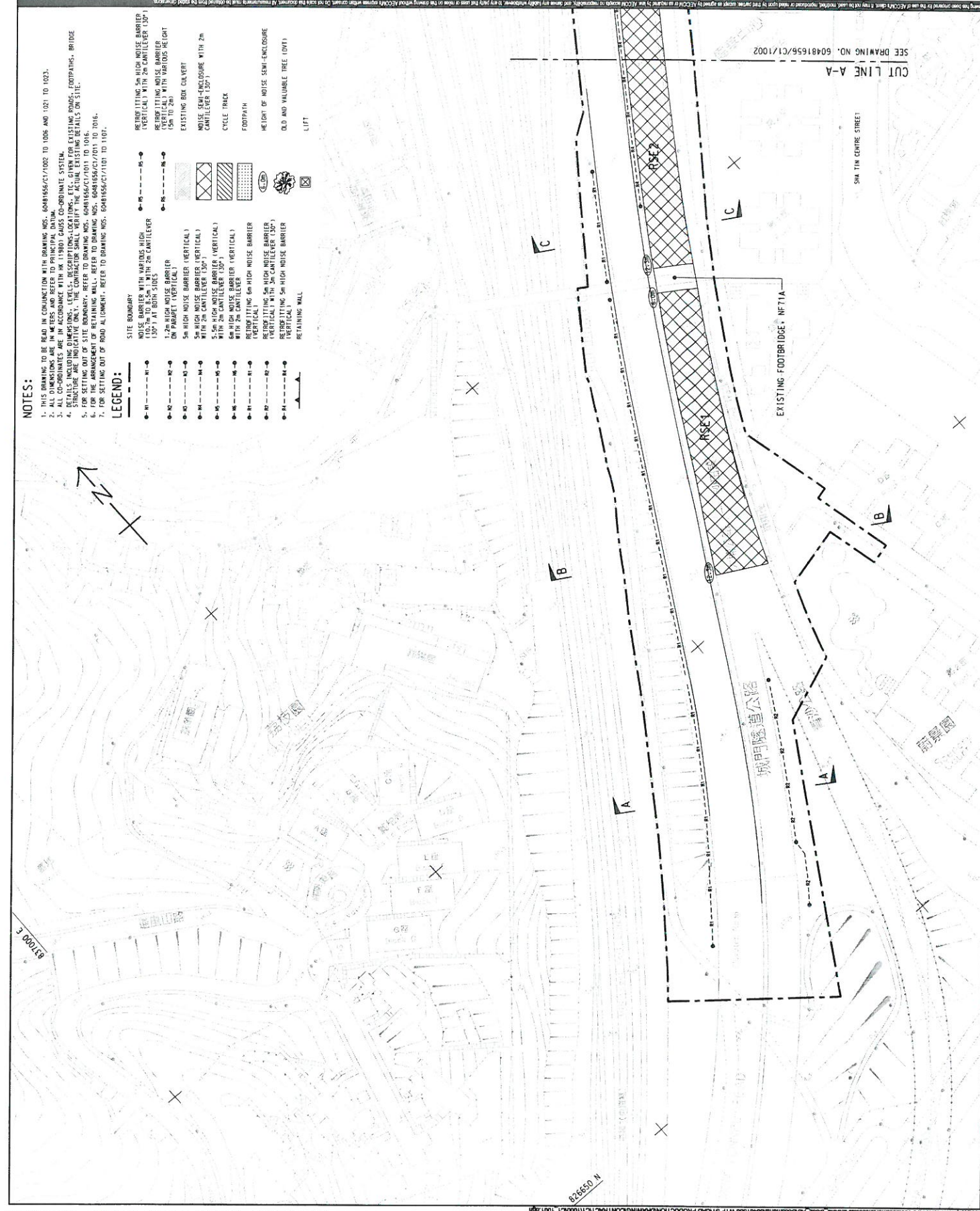


ROAD WIDENING AND RETROFITTING NOISE BARRIERS ON TAI PO ROAD (SHA TIN SECTION)

土水工程新廣亨  
Civil Engineering and Development Department

AECOM Asia Company Ltd.  
www.aecom.com

- NOTES:**
- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60481656/C1/1002 TO 1006 AND 1021 TO 1023.
  - ALL DIMENSIONS ARE IN METERS AND REFER TO PRINCIPAL DATUM.
  - ALL STRUCTURES SHALL BE CONSTRUCTED ACCORDANCE WITH HK 13800 CROSS COORDINATE SYSTEM.
  - STRUCTURES INCLUDING DIMENSIONS INDICATIVE ONLY. THE CONTRACTOR SHALL VERIFY THE ACTUAL EXISTING DETAILS ON SITE.
  - FOR SETTING OUT OF SITE BOUNDARY, REFER TO DRAWING NOS. 60481656/C1/1011 TO 1016.
  - FOR THE ARRANGEMENT OF RETAINING WALL, REFER TO DRAWING NOS. 60481656/C1/1011 TO 1016.
  - FOR SETTING OUT OF ROAD ALIGNMENT, REFER TO DRAWING NOS. 60481656/C1/1001 TO 1107.
- LEGEND:**
- SITE BOUNDARY
  - NOISE BARRIER WITH VARIOUS HIGH (1.0m TO 0.5m) WITH 2m CANTILEVER (30° AT BOTH SIDES)
  - NOISE BARRIER WITH VARIOUS HIGH (1.5m TO 2m) WITH 1.5m/0.5m CANT (ON PARALLEL / VERTICAL)
  - 5m HIGH NOISE BARRIER (VERTICAL)
  - 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
  - 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
  - 5m HIGH NOISE BARRIER (VERTICAL) WITH 2m CANTILEVER (30°)
  - RETROFITTING 6m HIGH NOISE BARRIER (VERTICAL)
  - RETROFITTING 5m HIGH NOISE BARRIER WITH 2m CANTILEVER (30°)
  - RETROFITTING 5m HIGH NOISE BARRIER WITH 2m CANTILEVER (30°)
  - RETROFITTING 5m HIGH NOISE BARRIER WITH 2m CANTILEVER (30°)
  - RETAINING WALL



**IS/REVISION**

NO.	DATE	DESCRIPTION	BY	CHECK
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**STATUS**

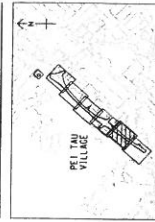
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SHEET NUMBER: SHEET 1 OF 6  
60481656/C1/1001

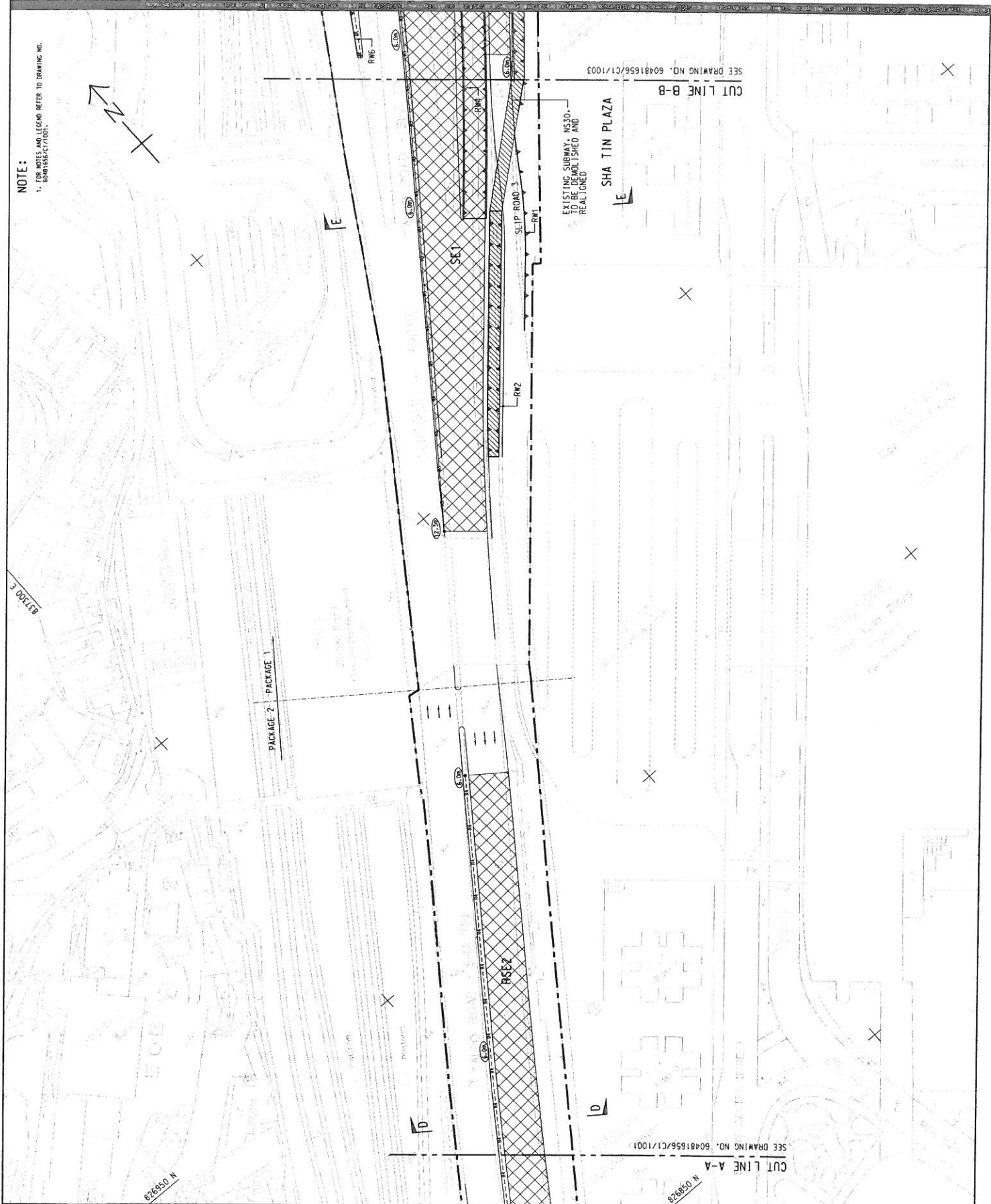
SEE DRAWING NO. 60481656/C1/1002  
CUT LINE A-A

SHA TIN CENTRE STREET

NO.	DATE	DESCRIPTION	BY	CHK
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2	12/01/17	REVISION	YH	YH



**NOTE:**  
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.



SEE DRAWING NO. 60481656/C1/1001  
CUT LINE A-A

N 056928

SEE DRAWING NO. 60481656/C1/1003  
CUT LINE B-B

EXISTING SUBWAY NS30  
TO BE DEMOLISHED AND  
REALIGNED

SHA TIN PLAZA

SLIP ROAD 3

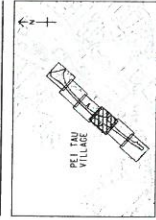
PACKAGE 2 - PACKAGE 1

Disturbance

10m/10m

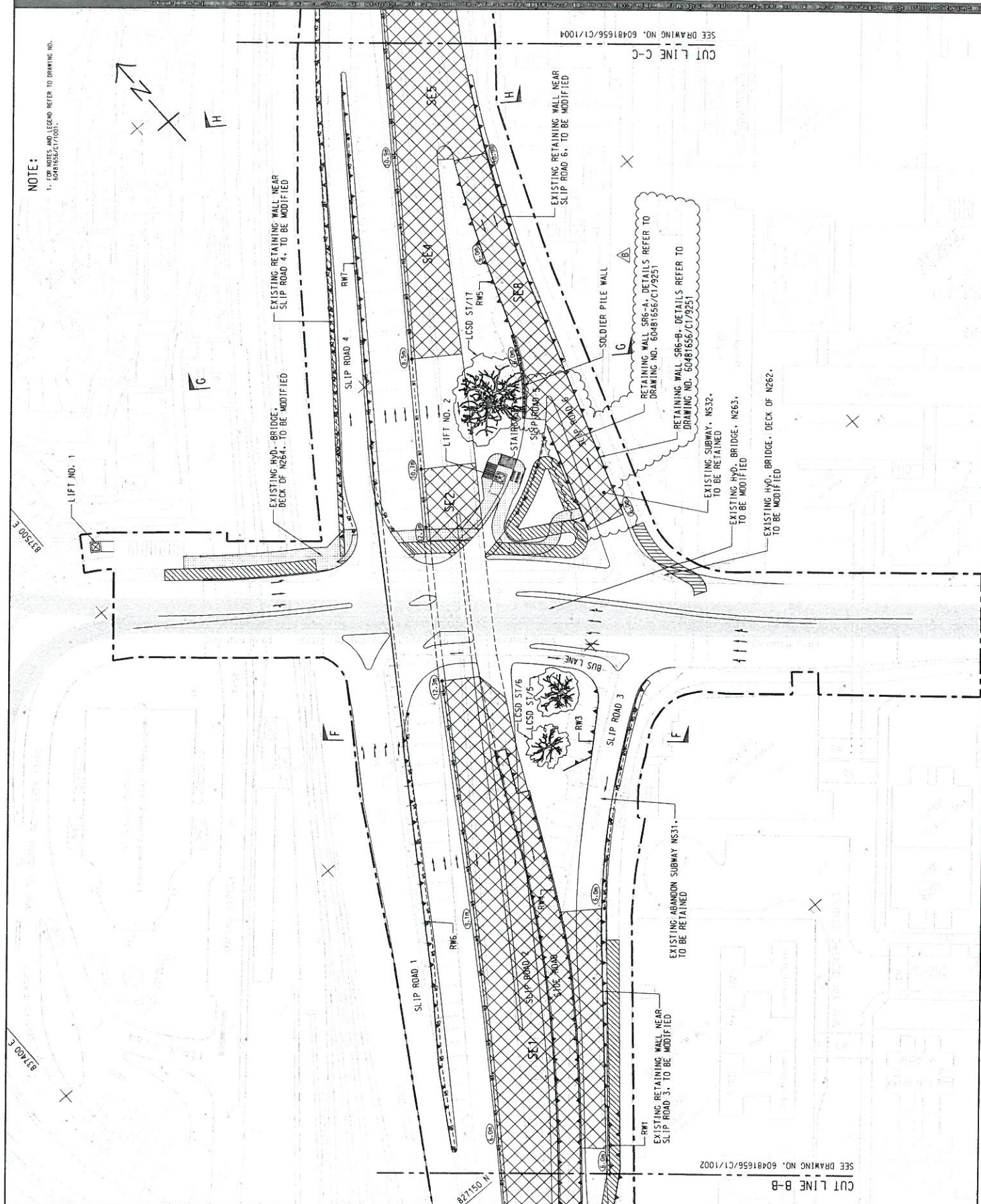
N 056928

NO.	DATE	DESCRIPTION	CHK	APP
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-	JAN. 18	TENDER DRAWING	BCC	
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DATE				
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CHK				
APP				



**NOTE:**

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.



SEE DRAWING NO. 60481656/C1/1004

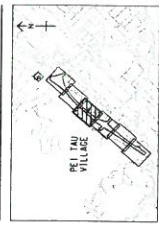
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SEE DRAWING NO. 60481656/C1/1002

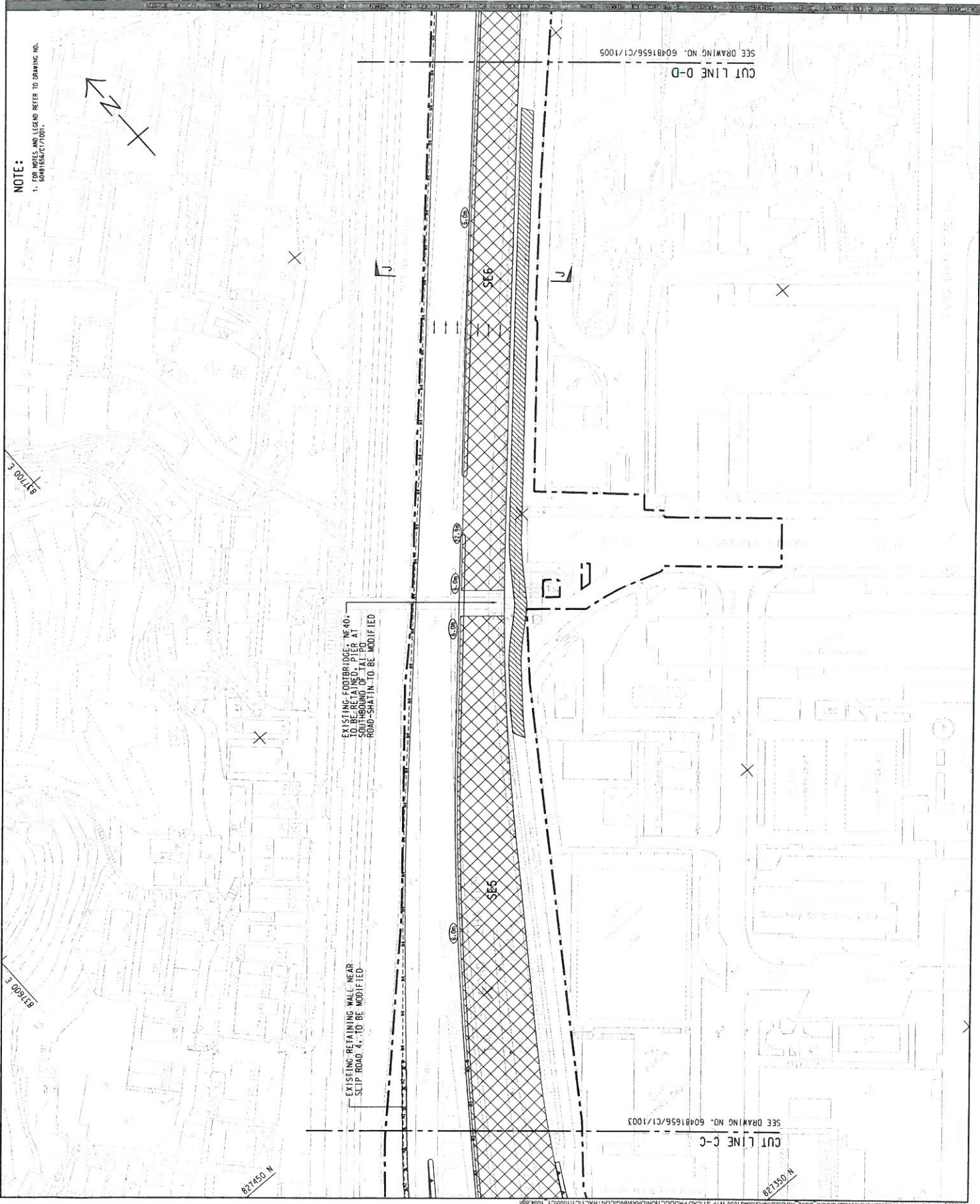
CUT LINE B-B

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SCALE  
DRAWING SCALE: 1:500  
DIMENSION UNIT: METRES  
KEY PLAN A11:40000



NOTE:  
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C1/1001.



EXISTING FOOTBRIDGE: N° 40, TO BE RETAINED. PIER AT SOUTH-SOUD OF CUT D-D ROAD-SHA TIN TO BE MODIFIED

EXISTING RETAINING WALL NEAR SLIP ROAD 4, TO BE MODIFIED

CUT LINE D-D  
SEE DRAWING NO. 60481656/C1/1005

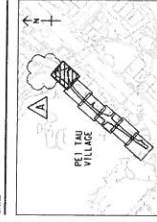
CUT LINE C-C  
SEE DRAWING NO. 60481656/C1/1003





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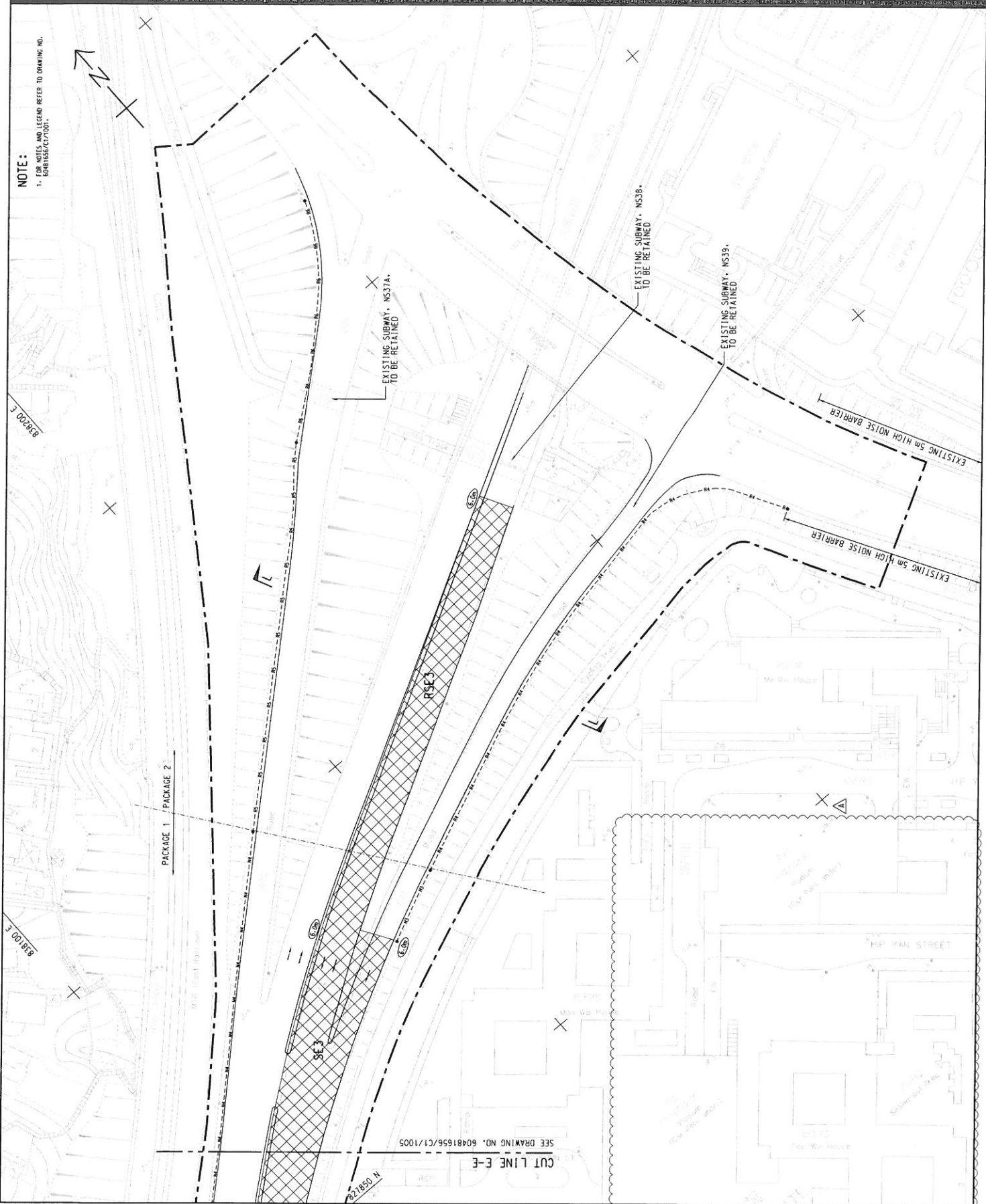
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PROJECT NO.	CONTRACT NO.
60481656	NE/2017/05

SHEET TITLE	SHEET NUMBER
GENERAL LAYOUT PLAN	6 OF 6

NOTE:  
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60481656/C/1001.



SEE DRAWING NO. 60481656/C/1005

CUT LINE E-E

**APPENDIX B**

**CONDITION OF EXISTING OLD AND VALUABLE**

**TREES (OVT)**

Photo 1: LCSD ST/5



Photo 2: LCSD ST/6



Photo 3: LCSD ST/5 & LCSD ST/6



Photo 4: LCSD ST/17



Photo 5: LCSD ST/17



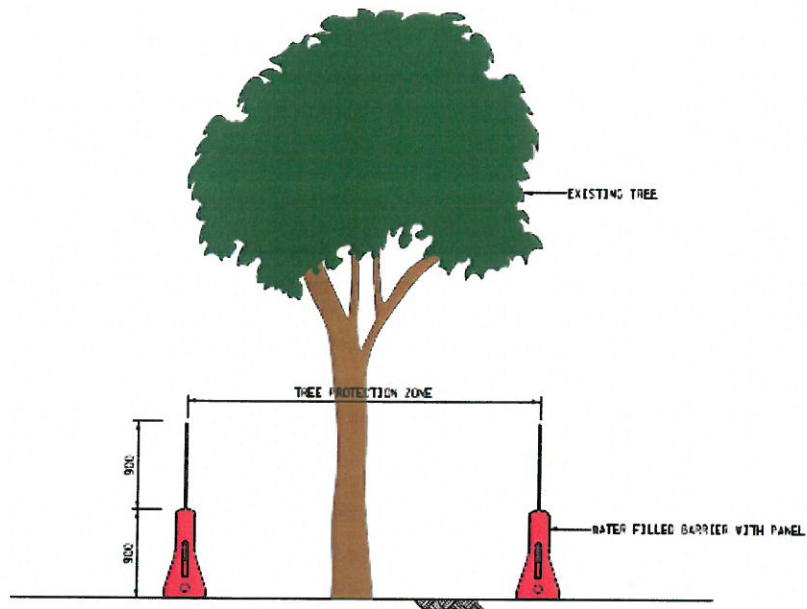


Photo 6: LCSD ST/17

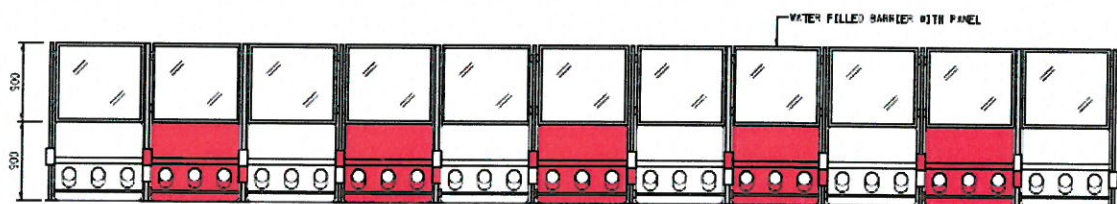


## **APPENDIX C**

### **TYPICAL DETAILS OF TREE PROTECTION ZONE**



**Section of Tree Protection Zone**



**Arrangement of Tree Protection Zone**

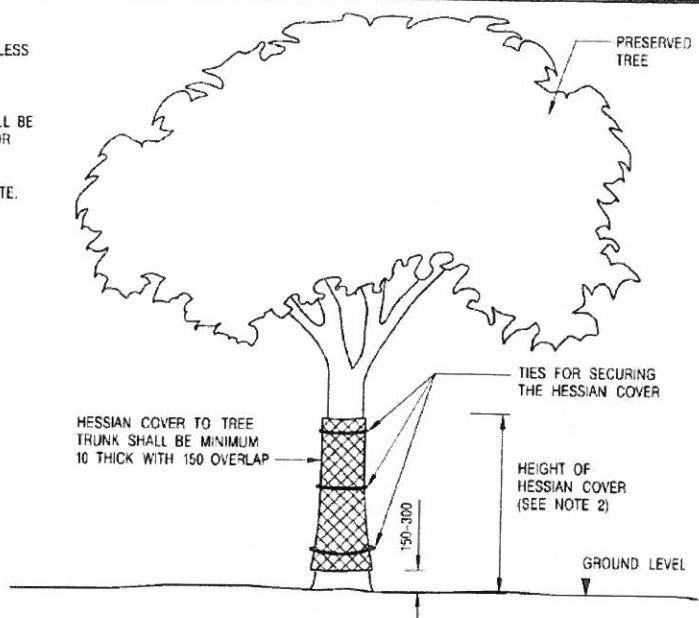
**APPENDIX D**  
**HESSIAN AND PLANK ARMOURING**

**NOTES:**

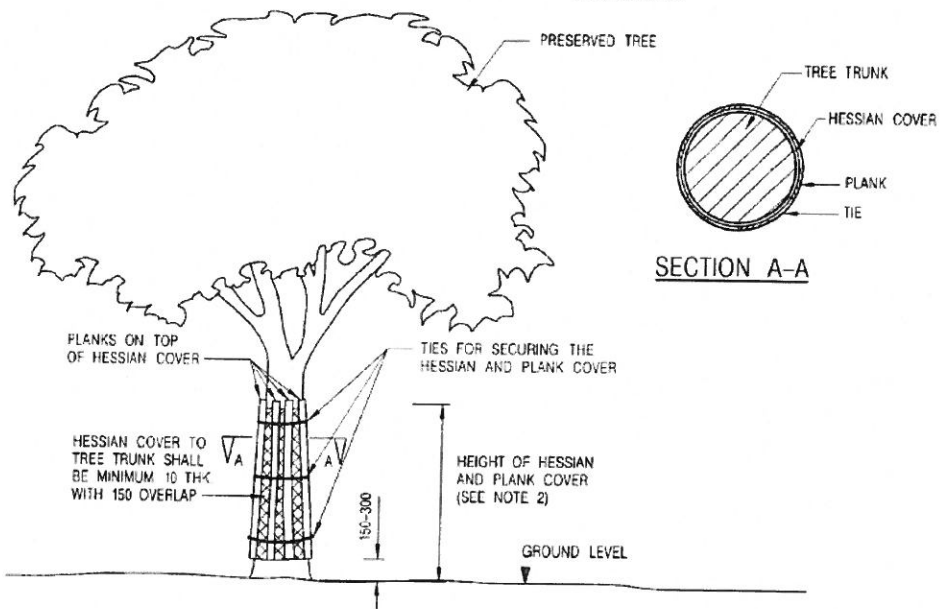
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

2. HEIGHT OF \*HESSIAN COVER / HESSIAN AND PLANK COVER TO THE TRUNK SHALL BE 1500 MIN., BUT THE REQUIRED HEIGHT FOR DIFFERENT INDIVIDUAL TREES SHALL BE DETERMINED BY THE \*ARCHITECT / ENGINEER / SUPERVISING OFFICER ON SITE.

\* DELETE WHICHEVER IS INAPPROPRIATE



**TEMPORARY PROTECTIVE HESSIAN  
 ARMOURING TO PRESERVED TREE**  
 (DIAGRAMMATIC)



**TEMPORARY PROTECTIVE HESSIAN AND PLANK  
 ARMOURING TO PRESERVED TREE**  
 (DIAGRAMMATIC)