

**Responses to Comments on  
Landscape and Visual Impact Assessment Report for S16 Planning Application  
( Intensification Scheme) (Issue 2)**

1. Chief Town Planner/Urban Design and Landscape, Planning Department [from Mr. Jeff LEUNG via email dated 24 May 2022] ..... 1

1. Chief Town Planner/Urban Design and Landscape, Planning Department [from Mr. Jeff LEUNG via email dated 24 May 2022]

Comments	Responses
<p><b>Urban Design and Visual</b></p> <p>2. Being located on the vegetated hillslope, the Site is surrounded by some rural settlements/low-rise residential developments (ranging from about 18mPD to 39mPD in BHs) from its southwest to northwest in Tan Kwan Tsuen across Yuen Long Highway, Tan Kwai Tsuen South Fresh Water Service Reservoir and Tan Kwai Tsuen Salt Water Service Reservoir to its north and natural hillside from its east to south (with peak elevation up to about 300mPD) near Tai Lam Country Park.</p> <p>3. The proposed scheme with maximum BH of 193m/240mPD and three about 120m to 160m-long podium structures on the site formation levels ranging from 42mPD to 82mPD, is not fully in keeping with the existing surrounding rural character and natural hillside topography. In a wider context, the Hung Shui Kiu New Development Area (HSK NDA) as well as the Yuen Long South Development Area (YLS DA) comprising planned high-rise residential and commercial developments with BH restrictions up to 200mPD and 160mPD respectively are located to the further northwest and northeast of the Site. The proposed maximum BH is even taller than the BH restriction of 200mPD for the town centre of the HSK NDA which will form the Regional Economic and Civic Hub for the North West New Territories.</p> <p>4. The Consultant may consider providing further information/justifications for optimisation of proposed site coverages and BHs, any measures to break down the mass and height of the podium structures (e.g. to explore separate non-domestic block(s) as per the indicative scheme in support of the</p>	<p>2. Noted.</p> <p>3. Noted</p> <p>4. As the proposed building and podium are still under investigation stage, detailed information and justifications for the optimization of site coverages and building heights will be provided in the next detailed design stage.</p>

Comments	Responses
<p>previous zoning amendments for the proposed development 1, and to explore lower floor-to-floor heights of the podium structures in Phases 1 and 3 (which are 5.6m and 5.43m respectively), etc..</p> <p>5. According to the submission, details of both the proposed scheme (e.g. BHs of the podium structure to the east of Block 1, refuse collection points to the north of Block 2 and south of Block 4, and footbridges, etc.) and conforming scheme (e.g. the extent/delineation of the podium structures) are not clearly illustrated in the relevant layouts/sections. Please rectify.</p>	<p>5. Noted and revised accordingly. Please refer to revised Figure 1.1 and Figure 1.2.</p>
<p>VIA (Appendix F):</p> <p>8. General – According to Para. 3.8.3 of the VIA and as indicated in our previous comments, the additional visual impacts (e.g. “negligible”, “slightly adverse” or “moderately adverse” etc.) should be rated based on the comparison between the baseline scheme and proposed scheme. Therefore, ratings of visual impacts separately for the baseline scheme in the text and the ratings of visual impacts for the proposed scheme in both the text and Tables 3.2, 3.3 &amp; 3.6 would be confusing. In view of the above, please provide the ratings of additional visual impacts for all VPs and rectify the relevant discussions in the VIA, as appropriate.</p> <p>9. While ratings of additional visual impacts for all VPs are still pending, please find our suggestions on VPs 1, 10 &amp; 11 as examples for your reference. Further comments might be provided upon receipt of ratings of additional visual impacts for all VPs:</p> <p>a. <b>VP1</b> – Instead of describing the change in visual impacts from “slight adverse” to “slight to moderate adverse” for VP1 (Para 3.7.2 refers), please consider rating the additional visual</p>	<p>8. Noted and revised accordingly. Please refer to table 3.2.</p> <p>9. Noted and section 3.7 is revised accordingly.</p>

Comments	Responses
<p>impacts between the two schemes for VP1 as “<b>slightly adverse</b>” with reference to the relevant photomontages (Figure 3.2.a refers).</p> <p>b. <b>VPs 10 &amp; 11</b> – With reference to the relevant <b>photomontages</b> (Figures 3.2.j &amp; 3.2.k [<i>missing in this FI submission</i>] refer), the proposed scheme will cause <b>noticeable additional blockage of open sky</b> comparing to the baseline scheme. In view of the above, the statement that “the unmitigated visual impact... is expected to have <b>no major difference</b> between two schemes” seems to be not justified (Paras. 3.7.15 &amp; 3.7.17 refer). In view of the above, please consider rating the additional visual impacts between the two schemes for VPs 10 &amp; 11 as “<b>moderately adverse</b>”.</p> <p>10. <b>Photomontages</b> – Inaccuracies are still found in photomontages at VP9 (Figure 3.2i). The residential blocks in the proposed scheme <b>shall appear higher</b> which would cause more additional blockage of open sky view at this VP. Also, the photomontages at VP11 are missing in this VIA (i.e. Figure 3.2k). Please supplement.</p>	<p>10. Noted and VP9 is revised accordingly.</p>



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## 1 INTRODUCTION

### 1.1 Background and Project Description

1.1.1 As a prevailing policy to increase land supply to meet the housing demand in the short, medium and long terms, the Government has identified sites in various districts with the potential to be developed for residential use. Amongst others, a site near Tan Kwai Tsuen (the Site), Yuen Long has been identified for public housing development.

1.1.2 Binnies Hong Kong Limited was commissioned by CEDD under Agreement No. CE 92/2017 (CE) in May 2018 to undertake the Investigation, Design and Construction Phases for site formation and infrastructural works (the Project) for supporting public housing development and the associated GIC facilities (the Development) at the Site. The proposed general layout plan (conforming scheme) is shown in Figure 1.2.

1.1.3 In accordance with the “Tong Yan San Tsuen Outline Zoning Plan No. S/YL-TYST/14”, the current land use zoning of the Application Site is “Residential (Group A)2” (“R(A)2”). Under the 'Remarks' column in the Notes for R(A) use, for R(A)2, no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 6.5, and maximum building height of 205mPD, or the plot ratio and height of the existing building, whichever is the greater.

1.1.4 In view of the acute shortage of housing, the domestic PR of the Site is proposed to be intensified to 6.5 with an aim to increase flat production. The new proposed general layout plan (Intensification Scheme) is shown in Figure 1.1. There will be change in site configuration and building height from the conforming scheme. The Site will provide a total of 7,420 public housing units with planned population intake from 2030 by phases. An “Application for Permission under Section 16 of the Town Planning Ordinance” is being prepared for the Proposed Development in order to obtain planning permission from the Town Planning Board for minor relaxation of the following restrictions:

- Maximum plot ratios:
  - Phase 1: from 6.5 to 7.0  
(i.e. domestic PR of 6.5 and non-domestic PR of 0.5)
  - Phase 2: from 6.5 to 7.2  
(i.e. domestic PR of 6.5 and non-domestic PR of 0.7)
  - Phase 3: from 6.5 to 7.3

(i.e. domestic PR of 6.5 and non-domestic PR of 0.8)

- Maximum building height: from 205 mPD to 240 mPD
  - Phase 1: from 205 mPD to 240 mPD
  - Phases 2 and 3: from 205 mPD to 235 mPD

1.1.5 The design and construction of the public housing development will be undertaken separately by Housing Department (HD). The most up-to-date development design information available from HD will be used and assessed in this Landscape and Visual Impact Assessment (LVIA). A notional development layout plan is given in **Annex A**.

1.1.6 A summary of the development schedule of the proposed development under intensification scheme are shown in **Table 1.1**.

**Table 1.1 - Development Schedule of the Proposed Development**

	Proposed Public Housing Development
	Intensification Scheme
<b>Site Area - m2 (about)</b>	48,765
<b>Plot Ratio</b>	
Domestic (Phase 1 to 3)	6.5
Non Domestic (Phase 1)	0.5
Non Domestic (Phase 2)	0.7
Non Domestic (Phase 3)	0.8
<b>Domestic Gross Floor Area (GFA) - m2 (about)</b>	316,973
<b>Total Non-Domestic GFA- m2 (about)</b>	33,357
<b>Proposed Building Height</b>	
Phase1	from 205 mPD to 240mPD
Phase 2	from 205 mPD to 235 mPD
<b>No. of Flats</b>	
PRH	5,450
SSF	1,970
Total No. of Flats	7,420
<b>Anticipated Population</b>	
Persons per Flat	2.7
Total Population	20,034

## **1.2 EIAO Implications**

1.2.1 In accordance with Clause 2.12 of the Brief of the Agreement, the works of the project are not designated projects under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The boundaries of works under the Project also fall outside the sensitive areas stipulated in Schedule 2, Part 1, Item Q.1 of the EIAO.

## **1.3 Purpose of the Report**

1.3.1 This LVIA has been carried out as one of the tasks of the Study. Although the proposed works under the Project and the proposed public housing development are not designated projects, an elaborated LVIA is prepared for the purpose of assessing the environmental impacts and performance from landscape and visual perspectives.

1.3.2 The environmental legislations, standards and guidelines below are used as reference for this LVIA:

- Environmental Impact Assessment Ordinance (Cap.499.S.16) - Technical Memorandum on EIA Process (EIAO-TM), particularly Annexes 10 and 18;
- Environmental Impact Assessment Ordinance Guidance Note No. 8/2010;
- Town Planning Ordinance (Cap. 131);
- Forests and Countryside Ordinance (Cap 96) and its subsidiary legislation - the Forestry Regulations;
- Country Parks Ordinance (Cap 208);
- The Protection of Endangered Species of Animals and Plants Ordinance (Cap 586);
- DEVB TC(W) 3/2012 on “Site Coverage for Government Building Projects”
- DEVB TCW No. 6/2015 - Maintenance of Vegetation and Hard Landscape Features;
- ETWB TCW No. 29/2004 - Registration of Old and Valuable Trees, and Guidelines for their Preservation;
- DEVB TC(W) No. 7/2015 - Tree Preservation;
- WBTC No. 7/2002 - Tree Planting in Public Works;
- Guidelines on Tree Preservation during Development
- Hong Kong Planning Standards and Guidelines;
- Town Planning Board Guidelines No. 41 – Guidelines on submissions of Visual Impact Assessment for Planning Applications to the Town Planning Board (“TPB PG No. 41”);
- Land Administration Office Instruction (LAOI) Section D-12 - Tree Preservation;
- Study on Landscape Value Mapping of Hong Kong;
- DEVB TCW No. 2/2012 - Allocation of Space for Quality Greening on Roads;
- EIAO Guidance Note No. 8/2010 - Preparation of Landscape and Visual Impact Assessment under the EIAO;
- GEO Publication No. 1/2011 - Technical Guidelines on Landscaping Treatment

for Slopes;

- HyD Guidelines HQ/GN/13 - Interim Guidelines for Tree Transplanting Works under HyD's Vegetation Maintenance Ambit;
- HyD Guidelines HQ/GN/15 - Guidelines for Greening Works along Highways; and
- HyD Technical Circular No. 3/2008 - Independent Vetting of Tree works under the Maintenance of HyD

## **1.4 Structure of this Report**

1.4.1 The report contains the following sections in addition to this introduction:

Section 2 - Landscape Impact Assessment

Section 3 - Visual Impact Assessment

Section 4 – Conclusion

## 2 LANDSCAPE IMPACT ASSESSMENT (LIA)

### 2.1 Assessment Area

2.1.1 The Landscape Assessment Area includes areas within 500m extended from the boundary of the proposed project which is illustrated in **Figure 2.1**.

### 2.2 Assessment Methodology

2.2.1 The assessment of landscape impacts has involved the following procedures:

- **Identification of the baseline landscape resources (LRs) and landscape character areas (LCAs) found within the Assessment Area.** This is achieved by site visits and desk-top study of topographical maps, information databases and photographs.
- **Assessment of the degree of sensitivity to change of the identified LRs and LCAs.** This is influenced by a number of factors including whether the resource/character is common or rare, whether it is considered to be of local, regional, national or global importance, whether there are any statutory or regulatory limitations/ requirements relating to the resource, the quality of the resource/character, the maturity of the resource, and the ability of the resource/ character to accommodate change. The sensitivity of each LR and LCA is classified as follows:
  - **High:** Landscape resource or area has a distinctive character or is of high importance and sensitive to relatively small changes.
  - **Medium:** Landscape resource or area has a moderately valued landscape character that is reasonably tolerant to change.
  - **Low:** Landscape resource or area has a low-valued landscape character that is highly tolerant to change.
- **Identification of potential sources of landscape impacts.** These are the various elements of the construction works and operational procedures that will generate landscape impacts.
- **Identification of the magnitude of change.** The magnitude of the change depends on a number of factors including the physical extent of the impact, the landscape and visual context of the impact, the compatibility of the project with the surrounding landscape; and the time-scale of the impact - i.e. whether it is temporary (short, medium or long term), permanent but potentially reversible, or permanent and irreversible. Landscape impacts have been quantified wherever possible. The magnitude of change is classified as follows:



- **Large:** Landscape resource or area will cause a major change
  - **Intermediate:** Landscape resource or area will cause a moderate change
  - **Small:** Landscape resource or area will cause a slight change
  - **Negligible:** Landscape resource or area will cause no discernible change
- **Identification of potential landscape mitigation measures.** These may take the form of adopting alternative designs or revisions to the basic engineering and architectural design to prevent and/or minimise negative impacts; remedial measures such as colour and textural treatment of building features; and compensatory measures such as the implementation of landscape design measures (e.g. tree planting, creation of new open space etc) to compensate for unavoidable negative impacts and to attempt to generate potentially positive long term impacts.
  - **Prediction of the Impact Significance.** The evaluation of the sensitivity and magnitude of change on various LRs and LCAs is conducted in a logical, reasonable and consistent manner for both construction and operational phases. Each LR and LCA is given a degree of impact significance depending on the severity of sensitivity and magnitude. The impact significances are defined as follows:

**Table 2.1 - Sensitivity and Magnitude of Change on the Degree of Impact Significance**

<b>Magnitude of Change</b>	Large	<b>Moderate</b>	<b>Moderate / Substantial</b>	<b>Substantial</b>
	Intermediate	<b>Slight / Moderate</b>	<b>Moderate</b>	<b>Moderate / Substantial</b>
	Small	<b>Slight</b>	<b>Slight / Moderate</b>	<b>Moderate</b>
	Negligible	<b>Insubstantial</b>	<b>Insubstantial</b>	<b>Insubstantial</b>
		Low	Medium	High
<b>Receptor Sensitivity (of Landscape Resource, Landscape Character Area or VSR)</b>				

Note:

- Substantial – Adverse / beneficial impact where the Project would cause significant deterioration or improvement.
- Moderate – Adverse / beneficial impact where the Project would cause noticeable deterioration or improvement.
- Slight – Adverse / beneficial impact where the Project would cause barely noticeable deterioration or improvement.
- Insubstantial – The Project would cause no discernible change

## 2.3 Baseline Study

2.3.1 The baseline study was conducted within the Landscape Assessment Area (**Figure 2.1**) to identify existing landscape resources and landscape character areas. The aerial view of the landscape assessment area is illustrated in **Figure 2.1a**.

### **Landscape Resources (LRs)**

2.3.2 A total of 17 LR were recorded in the landscape baseline study. The Locations of these LR are mapped in **Figure 2.2**, while their photo-views are illustrated in **Figures 2.5a-d**.

2.3.3 The identified landscape resources, together with their sensitivity, are described below:

2.3.4 **LR1 - Mixed Woodland** - the vegetation is formed by the mixture of self-seeded pioneer species and fruit trees planted by local villagers. Six pieces of mixed woodland areas were found. This LR is about 6.76ha in total size and contains about 2,700 trees. The average height of trees ranges from about 5m to 18m with trunk diameter of about 150-350mm, which indicating a semi-mature condition. All the trees were lack of either agricultural or arboricultural maintenance. The overall quality of the LR is medium. Dominant tree species include *Aporosa dioica*, *Celtis sinensis*, *Litsea glutinosa*, *Litsea monopetala*, *Macaranga tanarius*, *Mallotus paniculatus*, *Ficus variegata*, *Dimocarpus longan* and *Artocarpus heterophyllus*. All the recorded plants were common species without particular protection nor conservation status. Although not uncommon locally or regionally, its distribution and coverage are restricted due to development pressure. For LR with semi-mature trees, the ability to accommodate change is low after considering their comparatively longer duration of establishment than other type of vegetation. Due to the low ability to accommodate change and restricted availability of this type of resource, the significance of change of this LR is considered to be high and medium for local and regional context respectively. The sensitivity of this landscape resource is therefore considered to be High (**Table 2.2**).

2.3.5 **LR2 - Plantation Woodland** - this type of LR refers to the wooded areas formed by active afforestation programme. This LR is about 52.37ha in size and contains about 9,000 trees. The average height of trees ranges from 6m to 20m with trunk diameter of about 140-300mm, which indicating a semi-mature condition. The overall quality of the LR is medium. Majority of the tree species are common exotics, which includes *Acacia auriculiformis*, *Acacia confusa*, *Castanopsis fissa*, *Casuarina equisetifolia*, *Lophostemon confertus*, *Pinus elliottii*. Both the recorded

plants and the LR are common locally and regionally. For plantation with semi-mature introduced trees, the ability to accommodate change is considered as medium for their comparatively longer duration of establishment than other vegetation through active planting but shorter than natural colonisation of native trees. Taking into this LR provide considerable extent of landscape amenity locally and regionally, the significance of its change is considered medium for both local and regional contexts. The sensitivity of this landscape resource is therefore considered to be High (**Table 2.2**)

2.3.6 **LR3 - Landscape Plantation** - this LR refers to the soft landscaping areas created for enhancing local amenity of residential estates and civil infrastructure. This LR is about 11.16ha in size and contains about 1,850 trees while the average height of trees ranges from 6m to 18m with trunk diameter of about 150-270mm, which indicating a semi-mature condition. Some extent of vegetation management is provided and the quality of the LR is medium in overall. Recorded plant species include *Acacia confusa*, *Aleurites moluccana*, *Bauhinia spp.*, *Calliandra haematocephala*, *Casuarina equisetifolia*, *Hibiscus rosa-sinensis*, *Lagerstroemia speciosa*, *Livistona chinensis*, *Melaleuca cajuputi*, *Schefflera arboricola*, *Spathodea campanulate*. Both the plants and the LR are common locally or regionally. Neither rare nor protected species were identified. For landscape plantation with semi-mature trees, the ability to accommodate change is considered as medium for their comparatively longer duration of establishment than other type of vegetation such as shrubs and groundcovers. Although this LR is artificially established and maintained, it acts as a key landscape element to soften the hard structures and provide certain amenity to the public. The significance of its change is considered to be medium both locally and regionally. The sensitivity of this landscape resource is therefore considered to be High (**Table 2.2**).

2.3.7 **LR4 - Shrubland** - this LR is about 6.73ha in size which situates on hillside near the two Tan Kwai Tsuen Water Service Reservoirs. The quality of the LR is medium. Vegetation is dominated by common shrubs including *Baekkea frutescens*, *Cocculus orbiculatus*, *Eurya nitida*, *Ilex asprella*, *Ilex asprella*, *Litsea rotundifolia*, *Psychotria asiatica*, *Phyllanthus cochinchinensis*, *Rhaphiolepis indica*, *Rhodomyrtus tomentosa*, *Melastoma sanguineum*, *Rhus succedanea*, *Ficus variolosa* and *Cratoxylum cochinchinense*. All the recorded plants are common species. The presence of graves indicates certain extent of human disturbance. The ability to accommodate change is high as shrubland could be recovered in shorter time after common disturbance of hill fires. The significance of its change would bring medium effect to the local and regional landscape. The

- sensitivity of this landscape resource is Medium (**Table 2.2**).
- 2.3.8 **LR5 - Hillside Grassland** - this LR is about 51.43ha in size which found on the mountain range east of the landscape assessment area. Vegetation comprises common grasses, herbs and some low shrubs including *Arundinella setosa*, *Cocculus orbiculatus*, *Dicranopteris pedata*, *Miscanthus sinensis*, *Neyraudia reynaudiana*, *Rhodomyrtus tomentosa* and *Rhus succedanea*. All are common plant species. The quality of the LR was observed to be medium. Grassland is the first stage in natural succession and very common locally or regionally. Its presence indicates either high frequency of hill fires or poor soil which render these grasslands turn into next stage of shrubland. Hillside grassland can be quickly recovered after disturbance and the ability to accommodate change is hence high. Its greenery is one of the key elements to the hillside landscape, the significance of its change is considered as medium. The sensitivity of this landscape resource is Medium (**Table 2.2**).
- 2.3.9 **LR6 - Orchard** - this LR is about 3.68ha in size and the recorded fruit tree species include *Artocarpus heterophyllus*, *Carica papaya*, *Clausena lansium*, *Eriobotrya japonica*, *Litchi chinensis*, *Mangifera indica*, *Manilkara zapota*, *Psidium guajava* and *Syzygium jambos*. About 400 trees were located in this LR and the average height of trees ranges from about 4m to 12m. All of them are common plant species and orchard is also common locally and regionally. This is a type of manmade LR and the observed quality is low. This artificial land use has high ability to accommodate change and provide limited landscape significance to the local and regional areas. The sensitivity of this artificial landscape resource is Low (**Table 2.2**).
- 2.3.10 **LR7 - Low-lying Grassland** - this LR contains three pieces of grasslands of about 6.79ha in total size at Yick Yuen Tsuen, Chung Uk Tsuen and Tai Tao Tsuen. Recorded plant species are common ground cover grasses and herbs such as *Axonopus compressus*, *Bidens alba*, *Chloris barbata*, *Cynodon dactylon*, *Dichanthium annulatum*, *Eleusine indica*, *Gnaphalium pennsylvanicum*, *Imperata cylindrical*, *Kyllinga nemoralis*, *Oxalis debilis*, *Panicum maximum*, *Sporobolus fertilis*, *Wedelia trilobata*, *Youngia japonica* etc. About 25 trees and 12 trees of average height ranging from about 6-12m were scattered within the grasslands at Chung Uk Tsuen and Tai Tao Tsuen respectively, while the Yick Yuen Tsuen grassland contains only ground cover plants. Tree species contains mainly common pioneers in rural areas or invasive species on disturbed areas such as *Celtis sinensis*, *Macaranga tanarius*, *Melia azedarach* and *Leucaena leucocephala*. All the recorded plants are common. The observed quality of the LR is low. Same to hillside grassland (LR5), this LR is first stage of natural succession and the anticipated ability to accommodate change is high. The significance of

- its change is considered to be low locally and regionally. The sensitivity of this landscape resource is Low (**Table 2.2**).
- 2.3.11 **LR8 - Agricultural Land** - this LR contains five small isolated agricultural lands of about 4.16ha in total size. The large piece is located at Fui Sha Wai to the north which is outside the project areas. Plants are all common crops and vegetables. The observed quality of the LR is low. This is wholly manmade land use and able to be re-created easily, therefore, the ability to accommodate change is high. The significance of its change in local or regional landscape is low. The sensitivity of this landscape resource is Low (**Table 2.2**).
- 2.3.12 **LR9 - Pond** - this LR contains one small isolated abandoned fishpond at Fui Sha Wai. It is of about 0.25ha in size. The quality of the pond was observed to be medium. Ponds are not uncommon in NWNT, but its waterscape value is considered to be of medium importance in local landscape. Along the southern bund of the abandoned fishpond, about 6 trees of average height of about 4-6m were observed which contains *Celtis sinensis*, *Macaranga tanarius*, *Litsea glutinosa* and *Melia azedarach*. All plants are common species. The ability to accommodate change is medium. As these two small ponds are the only LR providing pond waterscape, the significance of its change is considered to be low in local context, but low in regional context due to insignificant proportion in the NWNT. The sensitivity of this landscape resource is Medium (**Table 2.2**).
- 2.3.13 **LR10 - Stream** - this LR is a natural stream network comprising the two main streams: viz. Hung Shui Kiu (HSK) Stream (about 650m in length with an average width of about 12m) and Tan Kwai Tsuen (TKT) Stream (about 550m in length with an average width of about 6m). The lower courses of these streams had been completely channelized for drainage purpose and to be treated as a separate **LR11**. Two small tributaries (named as northern tributary (NT) and southern tributary (ST) in **Figure 2.2** for ease of reference) are located within the Southern Portion. The HSK and TKT streams are permanent streams while ST and NT are seasonal with only intermittent water flow. ST and NT are about 250m and 220m in length while the average width of ST and NT are about 1-1.5m and 1.5-2m respectively. Despite the downstream section of HSK and TKT streams were found slightly polluted by domestic discharged from adjacent villages, the overall quality of the two streams is high. The ST is a secondary tributary of the TKT Stream while the NT is a tertiary tributary of the HSK Stream. Most of the section of the ST was found drying out due to unstable water feeding. The overall quality of ST is medium with only minor modification by local villagers for farmland irrigation. The condition of NT is comparatively much worse due to its

location inside a village. The stream banks of NT are moderately modified and the water was continuously polluted by the direct domestic discharge from the immediate adjacent village areas. The quality of NT is considered to be low. This LR is not uncommon but the stream scene of these medium sized water courses is considered to of medium importance to local landscape. As stream is rather difficult to be replicated, the ability to accommodate change is considered low. The significance of its change is considered to be high in both local and regional contexts due to its importance in the landscape. The overall sensitivity of this landscape resource is High (**Table 2.2**).

- 2.3.14 **LR11 - Drainage Channel** - this is the artificially maintained watercourses located downstream of LR10 which had been completely channelized for drainage purpose (about 1100m in length). This is a very common LR and of high ability to accommodate change. The quality of this LR within the assessment area is low. Considering the completely concrete hard structure of the channel, the significance of its change is considered to low locally or regionally. The sensitivity of this landscape resource is Low (**Table 2.2**).
- 2.3.15 **LR12 - Trees on Wasteland** - the wasteland is about 1.15ha in size locating at Shui Fu Road, Tan Kwai Tsuen. The LR currently is overgrown with about 200 the exotic invasive tree species *Leucaena leucocephala*, of average height ranging from about 6m to 12m, indicating its young age. This species is very common in disturbed areas. The ability to accommodate change is high as *Leucaena leucocephala* is well-known fast grown plants. Despite some greenery could be provided, the significance of the change of this recognised undesirable tree species is considered to low either locally or regionally. The sensitivity of this landscape resource is Low (**Table 2.2**).
- 2.3.16 **LR13 - Trees in Village Areas** - this LR refers to the trees scattered within the local rural villages. The area of the LR is about 68.52ha in size, which contains about 4,850 trees. The average height of trees ranges from about 5m to 10m with trunk diameter 150-380mm, which indicating a semi-mature condition. Trees are all common and widespread species, including *Artocarpus heterophyllus*, *Carica papaya*, *Clausena lansium*, *Eriobotrya japonica*, *Litchi chinensis*, *Mangifera indica*, *Bridelia tomentosa*, *Celtis sinensis*, *Macaranga tanarius*. The quality of the LR is low due to common phenomenon of lacking or improper maintenance of vegetation. This type of LR is very common the NWNT and NENT. The anticipated ability to accommodate change is medium. As this LR could provide amenity to the local public and also certain softening effect to the building structures of the village areas, the significance of its change would bring



- medium effect to the local and regional areas. The sensitivity of this landscape resource is Medium (**Table 2.2**).
- 2.3.17 **LR14 - Trees in Disused Quarry** - this LR is located within the disused quarry of about 0.31ha in size and contains about 65 trees. Most of the trees are self-seeded pioneer species and the exotic invasive species *Leucaena leucocephala*. The tree height ranges from about 6-8m. This resource is not rare and the quality observed is low due to lack of suitable vegetation maintenance. The expected ability to accommodate change is high due to the fast-growing habit of the invasive species *Leucaena leucocephala*. Despite some greenery could be provided, considering the dominance of the recognised undesirable trees, the significance of the change of is considered to low either locally or regionally. The sensitivity of this landscape resource is Low (**Table 2.2**).
- 2.3.18 **LR15 - Incense Tree** - Incense tree (*Aquilaria sinensis*) is a locally common tree species but considered as a species of conservation interest. This species has been listed in AFCD's publication *Rare and Precious Plants of Hong Kong* and also scheduled under Cap. 586 - *The Protection of Endangered Species of Animals and Plants Ordinance*. A total of four individuals were identified in the landscape baseline study. Three of which are located within the proposed project footprint. The overall quality of the trees is medium. Apart from its conservation importance, the species is also recognised to be of amenity value in landscape. The ability to accommodate change is considered to be low. Considering the protection status, the significance of the change of is considered to high both locally or regionally. The sensitivity of this landscape resource is High (**Table 2.2**).
- 2.3.19 **LR16 - Pitcher Plant** - Pitcher Plant (*Nepenthes mirabilis*) is a locally common herb species but considered as a species of conservation interest. This species has been recorded in AFCD's publication *Rare and Precious Plants of Hong Kong* and also scheduled under Cap. 586 - *The Protection of Endangered Species of Animals and Plants Ordinance* and Cap. 96 - *Forests and Countryside Ordinance*. A total of 24 colonies were identified in the landscape baseline study. All other recorded individuals are located outside the project limit. The overall quality of the plants found in the baseline is high and this plant is also recognised to be of amenity importance to the landscape. The ability to accommodate change is considered to be low. The sensitivity of this landscape resource is High (**Table 2.2**).
- 2.3.20 **LR17 - Red Azalea** - Red Azalea (*Rhododendron simsii*) is a locally very common shrub species but considered as a species of conservation interest. This species has been scheduled under Cap. 96 - *Forests and*

*Countryside Ordinance.* A total of about 10 individuals were identified in the landscape baseline study. All the recorded individuals are located outside the project limit. The quality of the plants observed is medium, while the expected ability to accommodate change is medium. The sensitivity of this landscape resource is Medium (**Table 2.2**).

2.3.21 The sensitivity of all LR and LCAs are summarised in the **Table 2.2**.



### Landscape Character Areas (LCAs)

- 2.3.22 A total of 2 LCAs are identified in the landscape baseline study. The location plan of LCAs is given in **Figure 2.4**, while their photo-views are illustrated in **Figures 3.6**.
- 2.3.23 The identified landscape character areas, together with their sensitivity, are described below:
- 2.3.24 **LCA1 - Sub-urban Fringe Landscape** - This LCA is characterised by the large mixed areas of rural villages, medium rising residential estates, and associated public infrastructure. This LCA is about 259.54ha in size and is a very common type of character landscape in NWNT along the Castle Peak Road. Major landscape resources inside this LCA are trees in village areas (LR13) and landscape plantation (LR3) of about 68.52 ha and about 11.16 ha respectively and comprise about 6,700 trees. The approx. 1.1 km long drainage channel identified as LR11 provide certain extent of waterscape to the region. The quality of LCA is considered to be low due to large areas of fragmented and unplanned distribution of different sub-urban land-uses. This LCA has been established over 70 years and considered as a mature landscape. The rarity is low due to high commonness of this landscape character. Sub-urban fringe has got a high ability to accommodate change. The significance of its change would bring medium effect to the region. The sensitivity of this landscape resource is Medium (**Table 2.2**).
- 2.3.25 **LCA2 - Hillside Landscape** - This LCA refers to the largely continuous hillside areas along the south-eastern portion of the landscape assessment area (**Figure 2.4**) and is about 116.19ha in size. Plantation woodland (LR2) of about 52.37 ha and hillside grassland (LR5) of about 51.43ha are two dominant landscape resources found in this LCA. In terms of tree quantity, the LCA contains about 11,000 trees which provide a large and contiguous greenery to the Hung Shui Kiu area. Burial grounds and graves can be found scattered in this landscape indicating some extent of human disturbance. The overall quality of the LCA is high. This landscape character is not rare but considered to be of medium importance to local landscape. Due to the natural topography of the LCA, the ability to accommodate change is low. The significance of its change is considered to medium locally and regionally. The sensitivity of this landscape resource is High (**Table 2.2**).
- 2.3.26 The sensitivity of all LRs and LCAs are summarised in the **Table 2.2**.

### Tree Survey Findings

- 2.3.27 In order to have an estimation of quantity of trees to be affected and the presence of any important trees of concerned species, a broad bush tree survey in form of tree group and individual survey was conducted in 2022. The survey coverage includes all assessment area.
- 2.3.28 The tree preservation and removal proposal (TPRP) and tree survey were approved on 6 June 2022 by CEDD Tree Works Vetting Panel under Agreement No. CE 92/2017 (CE) Site Formation and Infrastructure Works for Public Housing Development near Tan Kwai Tsuen, Yuen Long – Investigation, Design and Construction.
- 2.3.29 No registered or potentially registrable OVTs were identified.
- 2.3.30 One Incense Tree (also reported as LR15) were identified within the project limit. This species has been recorded in AFCD's publication *Rare and Precious Plants of Hong Kong* and also scheduled under Cap. 586 - *The Protection of Endangered Species of Animals and Plants Ordinance*.
- 2.3.31 The approved TPRP and tree survey are presented in **Annex B**.

**Table 2.2: Sensitivity of LRs and LCAs**

ID No.	LR / LCA	Quality of existing landscape (Low, Medium, High)	Importance / Rarity of landscape elements (Low, Medium, High)	Ability to accommodate change (Low, Medium, High)	Maturity of Landscape (Young, Semi-mature, Mature)	Significance of Change in local context (Low, Medium, High)	Significance of Change in regional context (Low, Medium, High)	Sensitivity (High, Medium, Low)
LR1	Mixed Woodland	Medium	Medium	Low	Semi-mature	High	Medium	High
LR2	Plantation Woodland	Medium	Medium	Medium	Semi-mature	Medium	Medium	High
LR3	Landscape Plantation	Medium	Medium	Medium	Semi-mature	Medium	Medium	High
LR4	Shrubland	Medium	Low	Medium	Young	Medium	Medium	Medium
LR5	Hillside Grassland	Medium	Low	Medium	Young	Medium	Medium	Medium
LR6	Orchard	Low	Low	High	Young	Low	Low	Low
LR7	Low-lying Grassland	Low	Low	High	Young	Low	Low	Low
LR8	Agricultural Land	Low	Low	High	Young	Low	Low	Low
LR9	Pond	Medium	Medium	Medium	Mature	Low	Low	Medium
LR10	Stream	High	Medium	Low	Mature	High	High	High
LR11	Drainage Channel	Low	Low	High	Young	Low	Low	Low
LR12	Trees on Wasteland	Low	Low	High	Young	Low	Low	Low
LR13	Trees in Village Areas	Low	Low	Medium	Young	Medium	Medium	Medium
LR14	Trees in Disused Quarry	Low	Low	High	Young	Low	Low	Low
LR15	Incense Tree	Medium	High	Low	Semi-mature	High	High	High
LR16	Pitcher Plant	High	High	Low	Semi-mature	Medium	Low	High
LR17	Red Azalea	Medium	Low	Medium	Semi-mature	Medium	Low	Medium
LCA1	Sub-urban Fringe Landscape	Low	Low	Medium	Mature	Medium	Medium	Medium
LCA2	Hillside Landscape	Medium	Medium	Low	Mature	High	Medium	High

## **2.4 Potential Sources of Landscape Impact**

2.4.1 Potential sources of impacts during the construction and operation phases would include the following:

2.4.2 Sources of construction phase landscape impact will be:

- Site clearance works;
- Removal of existing trees on site;
- Site formation works and infrastructural works;
- Presence of incomplete structures;
- Importation and storage of construction equipment and plant

2.4.3 Sources of operational phase landscape impact will be:

- Presence of a new public housing estates, new GIC facilities and the associated infrastructure in the landscape

2.4.4 All the detailed discussion of landscape impact of each landscape resources (LRs) covered under the project footprint (including the sites for proposed public housing development, GIC facilities and the associated infrastructure such as the access roads) shall be referred to the approved Final Preliminary Landscape and Visual Impact Assessment 190421/B&V/033/Issue 3 of Agreement No. CE 31/2015 (CE) Site Formation and Infrastructure Works for the Development near Tan Kwai Tsuen, Yuen Long – Feasibility Study in 2017.

2.4.5 Detailed discussion of landscape impact on each LR for proposed **public** housing development footprint is given in next **Section 3.5**.

## **2.5 Impact Assessment**

2.5.1 The anticipated magnitude of change due to the proposed **public** housing development is summarized in **Table 2.3**.

Table 2.3: Magnitude of change for LR and LCAs

ID No.	LR / LCA	Scale of Works (Negligible/ Small/ Medium/ Large)	Reversibility (Reversible, Irreversible)	Compatibility with surrounding landscape (Low, Medium, High)	Duration of impacts (Short, Medium, Long, permanent)		Magnitude of Change (Negligible, Small, Intermediate, Large)	
					Construction	Operation	Construction	Operation
<b>LR and LCA potentially to be affected by the proposed project</b>								
LR1	Mixed Woodland	Medium	Irreversible	Medium	Short	permanent	Intermediate	Intermediate
LR2	Plantation Woodland	Medium	Irreversible	Medium	Short	Permanent	Intermediate	Intermediate
LR3	Landscape Plantation	Small	Irreversible	Medium	Short	permanent	Intermediate	Intermediate
LR4	Shrubland	Small	Irreversible	Medium	Short	permanent	Intermediate	Intermediate
LR6	Orchard	Small	Irreversible	Medium	Short	permanent	Small	Small
LR8	Agricultural Land	Negligible	Irreversible	Medium	Short	permanent	Negligible	Negligible
LR10	Stream	Small	Irreversible	Medium	Short	permanent	Small	Small
LR13	Trees in Village Areas	Medium	Irreversible	Medium	Short	permanent	Small	Small
LR15	Incense Tree	Small	Reversible	Medium	Short	permanent	Intermediate	Intermediate
LCA1	Sub-urban Fringe Landscape	Medium	Irreversible	Medium	Short	permanent	Intermediate	Intermediate
LCA2	Hillside Landscape	Medium	Irreversible	Medium	Short	permanent	Intermediate	Intermediate
<b>LR / LCA not affected by the proposed project</b>								
LR5	Hillside Grassland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR7	Low-lying Grassland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR9	Pond	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR11	Drainage Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR12	Trees on Wasteland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR14	Trees in Disused Quarry	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR16	Pitcher Plant	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR17	Red Azalea	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: n/a = not applicable

## 2.6 Unmitigated Impacts on Landscape Resources (LRs) - Construction Phase

- 2.6.1 Totally 9 LR (LR1-4, LR6, LR8, LR10, LR13 and LR15) were identified potentially to be affected by the proposed Project. (Figure 2.3).
- 2.6.2 **LR1 - Mixed Woodland** - the onsite portion of this LR is about 1.49ha in size and of medium sensitivity. As the onsite portion will wholly fall within the project footprint, all the recorded 272 trees inside the about 1.49ha LR would be affected and required to be removed due to unavoidable direct conflicts with the Project. The Impact Significance before mitigation is **Substantial** (adverse).
- 2.6.3 **LR2 - Plantation Woodland** - the onsite portion of this LR is about 4.11ha in size which contains about 495 trees and of medium sensitivity. In terms of area, about 4.01ha of the LR will be impacted and about 0.10ha could be avoided under the latest project layout. Among the recorded 495 trees, about 20 trees of which could be retained in-situ and the other about 475 trees inside the LR would be affected, and required to be removed due to unavoidable direct conflicts with the Project. The Impact Significance before mitigation is **Substantial** (adverse).
- 2.6.4 **LR3 - Landscape Plantation** - the onsite portion of this LR is about 0.7ha in size which contains about 25 trees and of medium sensitivity. All trees in LR3 would be affected by the Project and required to remove. The Impact Significance before mitigation is moderate (adverse).
- 2.6.5 **LR4 - Shrubland** - the onsite portion of this LR is about 2.03ha in size and of low sensitivity. This vegetation of this LR is characterised by the dominance of shrub species of typical height ranging from about 0.5-1.5m and no trees were observed. In terms of area, about 0.07ha of the onsite shrubland could be retained while the other about 1.96ha will be in direct conflict with the project and need to be cleared. Taking into account the affected portion is about 30% of this LR available in the region and the actual removal of about 1.96ha of the LR, the Impact Significance before mitigation is **moderate** (adverse).
- 2.6.6 **LR6 - Orchard** - there will be two areas of orchard affected by the project. Both the two orchards are located within the site. The size of the onsite LR is about 0.85ha and of low sensitivity. About 0.76 ha of the orchard area will be affected and about 0.10ha could be preserved. Among the recorded 57 trees inside the LR, about 10 trees are proposed to be retained while the other about 47 trees will require removal due to unavoidable direct conflicts with the Project. Most of them are fruit trees

- planted by the local villagers. The Impact Significance to this manmade LR before mitigation is anticipated **slight** (adverse).
- 2.6.7 **LR8 - Agricultural Land** - there will be only one piece of the agricultural land to be affected by the project at the site. The affected area is very small in size (about 0.16ha) and of low sensitivity. As the whole onsite portion will fall within the project footprint, vegetation clearance is required. The vegetation to be affected are only the crops such as common vegetable turnip, tomato, taro, strawberry, etc planted by the farmers. Taking into account the small size and low sensitivity of the LR, the Impact Significance before mitigation is **insubstantial**.
- 2.6.8 **LR10 - Stream** - the major stream courses of this LR i.e. Hung Shui Kiu Stream (about 650m in length and 12m in width) and Tan Kwai Tsuen Stream (about 550m in length with 6m in width) will be wholly avoided. Only two small tributaries (NT: about 250m long and 1.5-2m wide and ST: about 205m long and 1-1.5m wide) inside the Southern Portion will be affected by the project, and one of them currently is moderately polluted by direct domestic wastes discharged from the adjacent village. A short section of about 15m of ST will be avoided from the Project. Although these two tributaries are part of the LR, their landscape significance is not comparable to the main streams due to their very small size and lower quality. Taking into account the limited extent of the affected portion and the effective avoidance measures, the Impact Significance before mitigation is **moderate** (adverse).
- 2.6.9 **LR13 - Trees in Village Areas** - the onsite portion of this LR is about 2.31 ha in size and of medium sensitivity. The whole onsite portion will be affected by the Project and therefore all the recorded trees of about 145 nos. inside the LR would be affected and required to removal due to unavoidable direct conflicts with the Project. The trees are mainly self-seeded pioneer species and fruit trees such as *Artocarpus heterophyllus*, *Carica papaya*, *Clausena lansium*, *Eriobotrya japonica*, *Litchi chinensis*, *Mangifera indica*, *Bridelia tomentosa*, *Celtis sinensis*, *Macaranga tanarius*. Considering the low amenity performance of these planted fruit trees inside the LR, the Impact Significance before mitigation is **moderate** (adverse).
- 2.6.10 **LR15 - Incense Tree** - One individual (T2009) was recorded in the updated tree survey in 2022 (**Annex B**), As shown in **Figure 2.3**, it is located on proposed site formation areas for construction of site platforms or slopes for geotechnical stability purpose. Site clearance and removal of vegetation is unavoidable. Therefore, it has been found not able to be retained in-situ during the design stage. According to the broad bush tree survey findings (**Annex B**), T2009 is of average health

condition and tree form. The Impact Significance before mitigation is **substantial** (adverse). The survey results and photographic records of these affected Incense Trees are given in **Annex B**.

#### **Other LRs**

- 2.6.11 LR5, LR7, LR9, LR11, LR12, LR14, LR16 and LR17 will not be affected by the proposed public housing development.
- 2.6.12 The assessment of the unmitigated impacts on LRs during the construction is given in **Table 2.6**.

#### ***Tree Survey Findings***

- 2.6.13 Among the one affected Incense Trees, it is considered suitable for transplanting. Details of the Incense Trees refer to Appendix E of **Annex B**.
- 2.6.14 The tree survey findings are given in **Annex B**.



## 2.7 Unmitigated Impacts on Landscape Character Areas (LCAs) - Construction Phase

2.7.1 The Project will fall at the edge of the two identified LCAs: LCA1 and LCA2 (Figure 2.4).

2.7.2 **LCA1 - Sub-urban Fringe Landscape** - the affected portion situates at the edge of the of the LCA alongside the Yuen Long Highway. About 11.78ha (from the total of about 259.54ha) of the LCA will be affected due to site clearance and site formation works. Within the approx. 11.78ha affected area, about 6.10ha of which is covered by four different LRs (about 1.94ha of LR3, about 0.44ha of LR6, about 1.19ha of LR7, about 0.02ha of LR11, about 2.31ha of LR13 and about 0.20 of LR14) while the remaining about 5.68ha areas are urbanised land uses without presence of landscape resources. In terms of tree quantity, a total of about 648 trees (the total of about 1,450 trees in the project) were located in this LCA, of which about 99 trees will be retained while another about 549 trees will be affected. The proposed housing sites and the associated infrastructure including the access roads will be directly border the existing Yuen Long Highway and quite a large proportion of the works are proposed on existing roads and a disused quarry site. The proposed project is therefore considered moderately compatible with the surrounding environment. The Impact Significance before mitigation is **moderate**(adverse).

2.7.3 **LCA2 - Hillside Landscape** - the affected portion situates at the edge of the of the LCA. About 6.09ha (from the total of about 116.19ha) of the LCA will be affected due to proposed site clearance and slope stabilisation works. The 6.09ha affected area covers about 1.49ha of LR1, about 4.01ha of LR2, about 1.96ha of LR4, about 0.32ha of LR6, about 0.16ha of LR8 and about 0.07ha of LR10). In terms of tree quantity, a total of about 802 trees (about 1,450 trees in total in the Project) were located in this LCA, of which about 30 trees will be retained while another about 772 trees will be affected. The loss of the portions shall have adverse impact but the extent can experience some alleviation as the impact occur at the edge of the LCA which prevent too much alternation to the landscape character. Considering the high sensitivity to change of this LCA, the Impact Significance before mitigation is **substantial** (adverse).

2.7.4 The assessment of the unmitigated impacts on LCAs during the construction is given in **Table 2.6**.

## **2.8 Unmitigated Impacts on Landscape Resources (LRs) - Operation Phase**

2.8.1 The unmitigated impacts during the operation phase are the same as the unmitigated impacts during the construction phase.

## **2.9 Unmitigated Impacts on Landscape Character Areas (LCAs) - Operation Phase**

2.9.1 The unmitigated impacts on LCAs during the operation phase are the same as the unmitigated impacts during the construction phase.

## **2.10 Summary of the Unmitigated Landscape Impact**

2.10.1 The assessment of the unmitigated landscape impacts during the construction and operation phases are given in **Table 2.6**.

## 2.11 Recommended Mitigation Measures

2.11.1 During the course of developing the proposed Project and assessing the landscape and visual aspects, a series of mitigation measures are carefully considered in the project design which aim to achieve the following:

- Avoid impacts on important landscape resources, landscape character areas and visually sensitive receivers;
- Lessen unavoidable impacts by location, design and reducing the extent of works; and
- Enhancement of existing landscape resources, landscape character areas and visual views of visual sensitive receivers.

### **Avoidance and Minimisation of Potential Landscape Impacts during preliminary design stage**

2.11.2 The project team had tried to avoid sensitive landscape resources as far as possible during designing the project implementation:

***DM1 - Avoidance of Tan Kwai Tsuen Stream (LR10);***

***DM2 - Avoidance of Pitcher Plant (LR16)***

2.11.3 ***Tan Kwai Tsuen Stream (LR10)*** - it is one of the two major natural streams (another one is Hung Shui Kiu Stream) identified as a part of the LR10 within the landscape assessment area. This stream, as reported in the landscape baseline study in Section 3.3, is found largely natural and has colonisation of local plant species of conservation interest, the Pitcher Plant which is identified as LR16. The initial study area of the proposed housing site at the proposed public housing development was therefore adjusted to avoid the encroachment into the stream. The proposed layout as shown in **Figure 2.2**, has been further shifted away from the stream to allow better protection of this landscape resource. This avoidance measure is considered effective to prevent significant landscape impact.

2.11.4 ***Pitcher Plant (LR16)*** - there were one colonies of pitcher plant located in the original project boundary. The colonies will be retained in-situ by adjusting the initial project limit in preliminary design stage.

2.11.5 ***Incense Tree (LR15)*** - As discussed in Section 3.6.10, the recorded Incense Trees has been found in design stage unable to be retained onsite, due to direct conflict with the proposed site formation works in site. However, impact minimisation by means of transplanting is considered to better preserve the affected individuals. According to the tree survey (**Annex B**), tree transplanting is found suitable. As the transplanting will be undertaken during the construction stage, the proposed transplanting measure is to be discussed as construction mitigation measure in next section 2.12.

- 2.11.6 Recommended landscape and visual mitigation measures for construction and operational phase impacts are summarised in the two Tables below. The construction phase mitigation measures listed below shall be adopted from the commencement of construction and throughout the entire construction period. The operational phase mitigation measures shall be adopted as early as possible during the design and construction stages so that they shall be in place prior to or at least at the Day 1 of operational phase.

**Table 2.4: Proposed Construction Phase Landscape and Visual Mitigation Measures**

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management and Maintenance Agency
CM1 *	<p><b>Preservation of Existing Vegetation:</b>                      Existing trees designated to be retained in-situ shall be properly protected. Tree protection measures shall be undertaken in accordance with DEVB TC(W) 7/2015 on “Tree Preservation” and Guidelines on Tree Preservation during Development” by DEVB. For tree transplanting, enough time should be reserved for the implementation to increase the survival rate of the trees to be transplanted. The tree transplantation proposal shall be submitted to relevant authorities for approval together with the formal tree removal application. Tree transplanting works shall be undertaken in accordance with Guidelines on Tree Transplanting formulated by DEVB.                      Existing plant species of conservation interest proposed to be retained in-situ shall be properly protected. The protection measures shall be verified and monitored by a qualified botanist.</p>	CEDD	CEDD (via Contractor)	CEDD (via Contractor)
CM2	<p><b>Control of Site Construction Activities:</b>                      Construction site controls shall be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities are minimised. These construction site controls should include but not limited to the following:</p> <ul style="list-style-type: none"> <li>· Storage of materials should be carefully arranged to minimise potential landscape and visual impact.</li> <li>· The location and appearance of site accommodation should be carefully designed to minimise potential landscape and visual impact.</li> <li>· Site lighting should be carefully designed to prevent light spillage,</li> <li>· Extent of the works area and construction period should be minimised as far as practicable.</li> <li>· Screen hoarding with compatible design to blend into the surrounding natural environment should be considered.</li> <li>· Temporary works areas should be reinstated at the earliest possible opportunity.</li> </ul>	CEDD	CEDD (via Contractor)	CEDD (via Contractor)

\* The affected Incense Tree which is considered suitable for transplanting. The tree survey findings and locations of the tree groups are given in **Annex B**.

Table 2.5: Proposed Operation Phase Landscape and Visual Mitigation Measures

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management and Maintenance Agency #
OM1*	<p><b>Suitable design of the proposed housing estates:</b></p> <ul style="list-style-type: none"> <li>▪ Colour of natural tones and non-reflective building materials shall be considered for any outward facing building facades to avoid visual and glare disturbance</li> <li>▪ Responsive lighting design                             <ul style="list-style-type: none"> <li>- Directional and full cut off lighting is recommended within the housing estates to minimise light spillage to the surroundings;</li> <li>- Minimise geographical spread of lighting as far as possible; and</li> <li>- Limited lighting intensity to meet the minimum safety requirement.</li> </ul> </li> <li>▪ A minimum provision of at least 20% green coverage would be achieved with an overall target of 30% green coverage.</li> </ul>	HD	HD (via Contractor)	HD
OM2*	<p><b>Amenity Planting of Housing Estates:</b>                      About 280 trees will be planted within proposed public housing estates.</p>	HD	HD (via Contractor)	HD
OM3*	<p><b>Landscape Slopes:</b>                      Where existing hillside slopes are anticipated to be modified, the final slope surface will be landscaped by hydroseeding, climbing plant planting, or tree/shrub planting according to particular slope feature. The proposed slope treatment will be designed and carried out with reference to the requirements in GEO Publication No. 1/2011 and BD's ADV-35.</p> <ul style="list-style-type: none"> <li>▪ About 1.74 ha of slope area is proposed for tree and shrub planting, which would include about 870 trees;</li> <li>▪ About 0.14 ha of slope will be landscaped by hydroseeding;</li> <li>▪ About 1.11 ha of rocky slope will be landscaped by planting of shrubs and climbers</li> </ul>	CEDD	CEDD (via Contractor)	Slope maintenance departments (refer DEVB TCW No. 6/2015 and DEVB TCW No. 6/2011)
OM4	<p><b>Roadside Amenity Planting:</b>                      Roadside tree planting will be provided to enhance the landscape and visual quality of the existing and proposed transport routes. Planting strips of total length of about 200m are reserved for roadside tree planting, which would include about 40 trees.</p>	CEDD	CEDD (via Contractor)	LCSD
OM5*	<p><b>Landscaping of Open Space:</b>                      Some public open space formed under the project but not to be maintained by HD under OM2 will also be properly landscaped by amenity planning. About 0.11ha of planting area is allowed which could include 34 trees for the area and shrubs in the understorey.</p>	CEDD	CEDD (via Contractor)	LCSD

\* Tree Planting Proposal

The landscape proposal shown in table 2.5 and Annex C are preliminary design. The detailed landscape proposal within the housing site shall refer to the detailed landscape design by HD.

# The maintenance and management agency will be arranged in accordance with DEVB TCW No. 6/2015 and DEVB TCW No. 6/2011.

2.11.7 Location Plan of the proposed landscape mitigation measures are also mapped in **Figure 2.7**.

***Preliminary Landscape Layout and Planting Proposal***

2.11.8 The recommended measures of CM1 and OM2-5 mentioned in the above table have been considered during the preparation of the Preliminary Landscape Layout and Planting Proposal of the Project.

2.11.9 As the proposed landscape design is at a preliminary stage, the details of the landscape mitigation measure have sought to establish the conceptual approach to the design and establish the number and location of the proposed tree planting and amenity landscaping areas. The proposed landscape layout for the proposed public housing development will be formulated into a detailed landscape plan by Housing Department.

2.11.10 The designation of the planting areas for OM2-5 is indicated in **Annex C**.

## 2.12 Mitigated Impacts on Landscape Resources (LRs) - Construction Phase

- 2.12.1 Potential construction impacts on 9 affected LRs were reviewed with the consideration of implementation of the recommended mitigation measures.
- 2.12.2 **LR1 - Mixed Woodland** - with the mitigation measures CM1, about 16 trees would be considered to be preserved by transplanting and protected properly throughout the construction period. The other about 256 affected trees are not recommended for transplanting due to the anticipated low survival rate after transplanting. The mitigation measure CM2 could reduce the construction disturbance but not to the extent that could cause a significant change to the resultant impact level. The Impact Significance after mitigation is considered to remain **substantial** (adverse).
- 2.12.3 **LR2 - Plantation Woodland** - with the mitigation measures CM1, two trees would be considered for transplanting. These tree together with the other about 20 trees proposed to be retained onsite will be protected properly throughout the construction period. The other about 473 affected trees are not recommended for transplanting due to the anticipated low survival rate after transplanting. The mitigation measure CM2 would reduce the construction disturbance to adjacent offsite LR2 and confine the impact only on the onsite LR2, but not to the extent that could cause a significant change to the resultant impact level. The Impact Significance after mitigation is considered to remain **substantial** (adverse).
- 2.12.4 **LR3 - Landscape Plantation** - with the mitigation measures CM1, sixty-six trees would be considered for transplanting. These trees together with the other about 70 trees proposed to be retained onsite will be protected properly throughout the construction period. The other about 265 affected trees are not recommended for transplanting due to the anticipated low survival rate after transplanting. The mitigation measure CM2 would reduce the construction disturbance and confine the impact only on the onsite LR3, but not to the extent that could cause a significant change to the resultant impact level. The Impact Significance after mitigation is considered to remain **moderate** (adverse).
- 2.12.5 **LR4 - Shrubland** - with the mitigation measures CM2, the construction disturbance could be further reduced, but not to the extent that could cause a significant change to the resultant impact level. As the affected portion will be cleared for site formation and the loss of the shrubland greenery will occur throughout the construction period, the Impact



- Significance after mitigation is considered to remain **moderate** (adverse).
- 2.12.6 **LR6 - Orchard** - with the mitigation measures CM1, about 10 trees could be retained in-situ and about 5 trees could be considered to be preserved by transplanting, while the other about 42 affected trees are not recommended for transplanting due to the anticipated low survival rate after transplanting. Taking into account most of the affected trees are all common fruit tree species or self-seeded pioneer species, no significant adverse impact is anticipated. The mitigation measure CM2 could further reduce the construction disturbance and restrict the impact within the site limit. As there will be still quite a proportion of trees requires felling, the mitigation, the Impact Significance after mitigation is considered to remain **slight** (adverse).
- 2.12.7 **LR8 - Agricultural Land** - the affected portion of this LR is very small in size (about 0.16ha) and of low sensitivity. With the implementation of the mitigation CM2, construction disturbance could be further reduced. The Impact Significance after mitigation is **insubstantial**.
- 2.12.8 **LR10 - Stream** - the proposed project could avoid the main water course of the Tan Kwai Tsuen stream by adjusting the layout plan. The two affected water courses within the Southern Portion are only small tributaries and one of which is moderately modified and polluted by the adjacent villages. With the implementation of the mitigation CM2, construction disturbance could be prevented from their offsite downstream water courses, but not to the extent that could cause a significant change to the resultant impact level. The Impact Significance after mitigation is considered still within the range of **moderate** (adverse).
- 2.12.9 **LR13 - Trees in Village Areas** - with the mitigation measures CM1, about 7 trees could be considered for transplanting and proper protection will be provided throughout the construction period. The other about 138 affected trees are not recommended for transplanting due to the anticipated low survival rate after transplanting. The mitigation measure CM2 could further reduce the construction disturbance and confine the impact within the site limit. The mitigation can minimise the impact by reducing the quantity of trees to be felled but the resultant impact significance is considered still within the range of **moderate** (adverse).
- 2.12.10 **LR15 - Incense Tree** - a total of one of the species would be affected by the proposed site formation works. According to the broad bush tree survey findings (**Annex B**), T2009 is suitable for transplanting. With the implementation of mitigation measure CM1, T2009 is proposed to be preserved by transplanting. The Impact Significance after mitigation is **slight** (adverse).

### Other LRs

- 2.12.11 LR5, LR7, LR9, LR11, LR12, LR14, L16 and LR17 will not be affected by the project.
- 2.13** Mitigated Impacts on Landscape Character Areas (LCAs) - Construction Phase
- 2.13.1 **LCA1 - Sub-urban Fringe Landscape** - the affected portion situates at the edge of the of the LCA. Under proposed CM1, about 99 trees will be retained onsite while about 76 affected trees (out of a total no. of about 549 affected trees) are proposed to be preserved by transplanting. These trees will be properly protected throughout the construction period. With the implementation of mitigation measures CM2, construction disturbance could be reduced and confined within the site limit although not to the extent that could cause a significant change to the resultant impact level. The proposed housing sites and the associated connecting roads will be directly bordered by the existing Yuen Long Highway and quite a large proportion of the works are proposed on existing roads and a disused quarry site. The proposed Project is therefore considered moderately compatible with the surrounding environment. As this LCA has a medium sensitivity to change, the Impact Significance after mitigation is considered to remain **moderate** (adverse).
- 2.13.2 **LCA2 - Hillside Landscape** - the affected portion situates at the edge of the of the LCA, which aims to avoid the core are of the LCA uphill and significant alternation to the landscape character. Under proposed CM1, about 30 trees will be retained onsite while about 24 affected trees (out of a total no. of about 772 affected trees) are proposed to be preserved by transplanting. With the implementation of mitigation measures CM2, construction disturbance could be reduced and confined within the site limit although not to the extent that could cause a significant change to the resultant impact level. However, taking into account the high sensitivity and actual affected extent is large, the Impact Significance after mitigation is still within the range of **substantial**.

## 2.14 Mitigated Impacts on Landscape Resources (LRs) - Operation Phase

- 2.14.1 Potential operation impacts on 9 affected LRs were reviewed with the consideration of implementation of the recommended mitigation measures.
- 2.14.2 **LR1 - Mixed Woodland** - with the mitigation measures OM2-5, the tree felling impact will be mitigated largely by compensatory planting which is strictly controlled by DEVB TCW 7/2015 - *Tree Preservation*. As the compensatory trees will be young at early planting stage and therefore the Impact Significance after mitigation at Day 1 operation is considered to remain **substantial** (adverse).
- 2.14.3 It is expected that the compensatory planting could become fully established by Year 10. The Impact Significance after mitigation at Year 10 operation is considered to be **moderate** (adverse).
- 2.14.4 **LR2 - Plantation Woodland** - with the mitigation measures OM2-5, the tree felling impact will be mitigated largely by compensatory planting which is strictly controlled by DEVB TCW 7/2015 - *Tree Preservation*. As the compensatory trees will be young at early planting stage and therefore the Impact Significance after mitigation at Day 1 operation is considered to remain **substantial** (adverse).
- 2.14.5 It is expected that the compensatory planting could become fully established by Year 10. The Impact Significance after mitigation at Year 10 operation is considered to be **moderate** (adverse).
- 2.14.6 **LR3 - Landscape Plantation** - with the mitigation measures OM2-5, the tree felling impact will be mitigated largely by compensatory planting which is strictly controlled by DEVB TCW 7/2015 - *Tree Preservation*. As the compensatory trees will be young at early planting stage and therefore the Impact Significance after mitigation at Day 1 operation is considered to remain **moderate** (adverse).
- 2.14.7 It is expected that the compensatory planting could become fully established by Year 10. The Impact Significance after mitigation at Year 10 operation is considered to be **slight** (adverse).
- 2.14.8 **LR4 - Shrubland** - with the mitigation measures, the proposed greening measures (OM2-5) could alleviate the loss of greenery due to the impact on the shrubland vegetation. Shrub planting has also been included in OM3 and OM5. Taking into account the planting will still be young at early stage, the Impact Significance after mitigation at Day 1 operation is considered **moderate** (adverse). After the full establishment of the proposed plantings, the Impact Significance after mitigation at Year 10

- operation is considered to be **slight** (adverse).
- 2.14.9 **LR6 - Orchard** - with the mitigation measures OM2-5, the tree felling impact will be mitigated largely by compensatory planting which is strictly controlled by DEVB TCW 7/2015 - *Tree Preservation*. As the compensatory trees will be young at early planting stage and therefore the Impact Significance after mitigation at Day 1 operation is considered **slight** (adverse).
- 2.14.10 It is expected that the compensatory planting could become fully established by Year 10. The new trees of higher quality and amenity value will replace the existing fruit trees. The Impact Significance after mitigation at Year 10 operation is considered to be **insubstantial**.
- 2.14.11 **LR8 - Agricultural Land** - the affected portion of this LR is very small in size (about 0.18ha) and of low sensitivity. The proposed greening measures (OM2-5) could alleviate the loss of greenery due to the removal of these small pieces of farmland. The Impact Significance at both construction and operation phases (Day 1 and Year 10) is **insubstantial**.
- 2.14.12 **LR10 - Stream** - the proposed project could avoid the main water course of the Tan Kwai Tsuen stream by adjusting the layout plan under recommended measure DM1. The two affected sections within the Southern Portion are only small tributaries which are not key landscape component of the LR. Also, taking into account one of them is moderately polluted due to direct domestic discharge from the adjacent village, the Impact Significance at both operation Day 1 and Year 10 is **moderate** (adverse).
- 2.14.13 **LR13 - Trees in Village Areas** - with the mitigation measures OM2-5, the tree felling impact will be mitigated largely by compensatory planting which is strictly controlled by DEVB TCW 7/2015 - *Tree Preservation*. Although the compensatory trees will still be young at early planting stage, but the initial greenery under OM2-5 could provide better quality planting by careful selection of species, and proper maintenance is considered able to reduce the impact of removal of the common fruit trees and self-seeded pioneer plants. Therefore, the Impact Significance after mitigation at Day 1 operation is considered to be **slight** (adverse).
- 2.14.14 It is expected that the compensatory planting could become fully established by Year 10. The Impact Significance after mitigation at Year 10 operation is considered to be **insubstantial**.
- 2.14.15 **LR15 - Incense Tree** - One of the species would be affected by the proposed site formation works. Under CM1, one tree will be preserved by transplanting during the construction stage under construction phase mitigation CM1. Proper protection and maintenance will be provided to

the transplanted individuals under OM3 with other transplanted trees. The impact is considered able to be largely mitigated with full implementation of these mitigation measures. Owing to the concern of theft / illegal felling and cost of procurement, planting of new incense tree is not a preferable option in this project. As the protection and maintenance of the transplanted trees under OM3 (together with CM1) is expected to be in place at or before Day 1 operation, the Impact Significance after mitigation at Day 1 and Year 10 operation is considered to remain **slight** (adverse).

### **Other LRs**

2.14.16 LR5, LR7, LR9, LR11, LR12, LR14, L16 and LR17 will not be affected by the project.

## **2.15 Mitigated Impacts on Landscape Character Areas (LCAs) - Operation Phase**

2.15.1 **LCA1 - Sub-urban Fringe Landscape** - with the implementation of mitigation measures, the amenity and compensatory planting could largely alleviate the loss of vegetation due to the project. As the proposed greening measures would be still young at the early stage of operation, the Impact Significance after mitigation at Day 1 operation is considered to remain **moderate** (adverse). After the full establishment of the plantings, the Impact Significance after mitigation could be reduced to **slight** at Year 10 of operation.

2.15.2 **LCA2 - Hillside Landscape** - with the implementation of mitigation measures, the amenity and compensatory planting could largely alleviate the loss of vegetation due to the project. As the proposed greening measures would be still young at the early stage of operation, the Impact Significance after mitigation at Day 1 operation is considered to remain **substantial** (adverse). After the full establishment of the plantings, the Impact Significance after mitigation could be reduced to **moderate** at Year 10 of operation.

## **2.16 Summary of the Mitigated Landscape Impact**

2.16.1 The assessment of the unmitigated landscape impacts during the construction and operation phases are given in **Table 2.6**.

Table 2.6: Significance of Landscape Impacts in Construction and Operation Phases \*

\* Notes: Adverse Impacts unless otherwise stated

ID No.	LR / LCA	Sensitivity (Low/Medium/High)	Magnitude of Change before Mitigation (Negligible, Small, Intermediate, Large)		Impact Significance BEFORE Mitigation (Insubstantial, Slight, Moderate, Significant)		Recommended Mitigation Measures	Residual Impact Significance AFTER Mitigation (Insubstantial, Slight, Moderate, Substantial)		
			Construction	Operation	Construction	Operation		Construction	Operation Day 1	Operation Year 10
<b>LR and LCA potentially to be affected by the proposed project</b>										
LR1	Mixed Woodland	High	Intermediate	Intermediate	Substantial	Substantial	CM1-2 OM1-5	Substantial	Substantial	Moderate
LR2	Plantation Woodland	High	Intermediate	Intermediate	Substantial	Substantial	CM1-2 OM1-5	Substantial	Substantial	Moderate
LR3	Landscape Plantation	High	Intermediate	Intermediate	Moderate	Moderate	CM1-2 OM1-5	Moderate	Moderate	Slight
LR4	Shrubland	Medium	Intermediate	Intermediate	Moderate	Moderate	CM2 OM1-5	Moderate	Moderate	Slight
LR6	Orchard	Low	Small	Small	Slight	Slight	CM1-2 OM1-5	Slight	Slight	Insubstantial
LR7	Low-lying Grassland	Low	Small	Small	Slight	Slight	CM1-2 OM1-5	Slight	Slight	Insubstantial
LR8	Agricultural Land	Low	Negligible	Negligible	Insubstantial	Insubstantial	CM2 OM1-5	Insubstantial	Insubstantial	Insubstantial
LR10	Stream	High	Small	Small	Moderate	Moderate	DM1 CM2 OM1-5	Moderate	Moderate	Moderate
LR13	Trees in Village Areas	Medium	Small	Small	Moderate	Moderate	CM1-2 OM1-5	Moderate	Slight	Insubstantial

ID No.	LR / LCA	Sensitivity (Low/Medium/High)	Magnitude of Change before Mitigation (Negligible, Small, Intermediate, Large)		Impact Significance BEFORE Mitigation (Insubstantial, Slight, Moderate, Significant)		Recommended Mitigation Measures	Residual Impact Significance AFTER Mitigation (Insubstantial, Slight, Moderate, Substantial)		
			Construction	Operation	Construction	Operation		Construction	Operation Day 1	Operation Year 10
LR15	Incense Tree	High	Intermediate	Intermediate	Substantial	Substantial	CM1-2 OM2-5	Moderate	Moderate	Moderate
LCA1	Sub-urban Fringe Landscape	Medium	Intermediate	Intermediate	Moderate	Moderate	CM1-2 OM1-5	Moderate	Moderate	Slight
LCA2	Hillside Landscape	High	Intermediate	Intermediate	Substantial	Substantial	CM1-2 OM1-5	Substantial	Substantial	Moderate
<b>LR and LCA not to be affected by the proposed project</b>										
LR5	Hillside Grassland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR7	Low-lying Grassland	Low	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR9	Pond	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR11	Drainage Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR12	Trees on Wasteland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR14	Trees in Disused Quarry	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR16	Pitcher Plant	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR17	Red Azalea	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: n/a = not applicab



### 3 PRELIMINARY VISUAL IMPACT ASSESSMENT (PVIA)

#### 3.1 Assessment Area

3.1.1 The Preliminary Visual Impact Assessment Area is defined by the visual envelope (Zone of Visual Influence, ZVI) of this Project which is illustrated in **Figure 3.1**.

#### 3.2 Assessment Methodology

3.2.1 The assessment of visual impacts has involved the following procedures.

- Identification of the sensitive Viewing Points from Visually Sensitive Receivers (VSRs) within the ZVIs;
- Assessment of the degree of sensitivity to change of the VSRs and assessment of the potential magnitude of visual impacts;
- Identification of potential sources of visual impacts;
- Identification of potential visual mitigation measures;
- Prediction of the Impact Significance of visual impacts;
- Evaluation of residual impacts by assessing the sensitivity and magnitude of change after the implementation of proposed mitigation measures.

#### 3.3 Existing Visual Conditions within ZVI

3.3.1 To the east of the proposed project, the ZVI is defined by a mountain range of average height of about 300m. The large area north and west of the project is comparatively flat and low-lying (average around +15mPD to +20mPD), in which the land uses are dominated by the rural residential villages and their associated road networks. Due to the fragmented and irregular land uses and vegetation on this plain, the ZVI on this area is not well defined. The predicted ZVI and the proposed project layout is illustrated in **Figure 3.1**.

3.3.2 The site is immediately adjacent to the Yuen Long Highway along their north-western boundaries. The vegetated mountain range running almost in parallel to the Yuen Long Highway forms the backdrop of the site. As a result of their locations, the site is visually fairly shielded and isolated from most of public viewers in the region.

3.3.3 The site is proposed in a small valley north-east of the NWNT Refuse Transfer Station. The site covers some squatter huts, licenced storage structures, orchards, farmlands and graves. The vegetated slopes inside the site to the east are forming part of the major mountain range at the back.

3.3.4 The major visual resource of the region is the mountain range running almost in parallel to the Yuen Long Highway at the east of the ZVI. The vegetation comprising woodland, plantation, grassland and shrubland provides large coverage of amenity and greenery to the nearby



- settlements. Others include trees scattered in between the local villages and the landscaping plantation along infrastructure.
- 3.3.5 The visual quality of the region to most of its public is generally within the range between medium to poor. The main visual detractors include those small scaled but scattered and irregularly distributed industrial undertakings intermingled with a mixture of old rural village settlements and new low-rising residential buildings, and also the robust electricity pylons with their overhead transmission lines south of the site while the Yuen Long Highway structure constitutes a major obstruction to the visual access to the natural mountain range to the east.
- 3.3.6 Visual corridor could be located along the Hung Shui Kiu Drainage Channel. The view to the north is rather open while the southern end cannot extend too long for the substantial blockage of views by the nearby residential-industrial complex land uses. Key visual corridor to the existing project site is not well defined as the physical presence of the robust Yuen Long Highway structure blocks the views of most of the public in the Tan Kwai Tsuen and Hung Shui Kiu regions partially or substantially.
- 3.3.7 Representative key views to show the existing visual condition is illustrated in **Figure 3.1a**.

### 3.4 Visually Sensitive Receivers (VSRs) and their Viewing Points within ZVI

3.4.1 The sensitive viewing points of identified VSRs were identified from representative locations including key pedestrian nodes, areas used for outdoor activities/recreation/rest/setting out/leisure and also prominent travel route. Local residents in close proximity would also be included for a more comprehensive visual assessment.

3.4.2 Within the predicted ZVI (**Figure 3.1**), the VSRs in close vicinity to the proposed project will be the road users of the Yuen Long Highway and the villagers around Tan Kwai Tsuen area at two sides of the Yuen Long Highway. Therefore, VP1-3 are selected for their representative locations towards the proposed development. Among these three VSRs, the road users of Yuen Long Highway are travelling receivers in nature and therefore their views also represent a type of kinetic view along a travel route. The other two in contrast are residents of static nature.

3.4.3 VSRs at immediate vicinity to the proposed project (VP1-3)

**VP1** Road Users of Yuen Long Highway

**VP2** Villagers west of Yuen Long Highway

**VP3** Villagers east of Yuen Long Highway

3.4.4 When moving further away from VSRs VP1-3, major public gathering points for outdoor activities and recreation are all located along or close to the Castle Peak Road, which includes gardens, sitting-out areas, playground and rail stations. These identified VSRs includes Public Users of Tan Kwai Tsuen Road Garden (VP4), Public Users of Hung Tak Road Sitting-out Area (VP5), Public Users of Tin Ha Road Playground (VP7), Public Users of Hung Shui Kiu Light Rail Transit Station (VP8) and Public Users of Chung Uk Tsuen Light Rail Transit Station (VP9). Additional VSR is identified in Nai Wai. It is advised to be added as this place is also common public gathering points in the region: Public Users of Nai Wai Playground and Garden (VP6).

3.4.5 VSRs at public gathering points within the ZVI (VP4-10):

**VP4** Public Users of Tan Kwai Tsuen Road Garden

**VP5** Public Users of Hung Tak Road Sitting-out Area

**VP6** Public Users of Nai Wai Playground and Garden

**VP7** Public Users of Tin Ha Road Playground

**VP8** Public Users near Hung Shui Kiu Light Rail Transit Station

**VP9** Public Users near Chung Uk Tsuen Light Rail Transit Station

- 3.4.6 In addition to the above VSRs at ground level, some recreational viewers are identified at higher elevation along the mountain range east of the proposed project. They include hikers and dirt bike riders. The selected viewing points aim to cover the directions from south and east along the range:
- 3.4.7 VSRs at higher elevations along the mountain range within the ZVI to the east (VP10-11):
- VP10** Hikers from the South
- VP11** Dirt Bike Riders from the East
- 3.4.8 The locations of the VSRs are mapped in **Figure 3.1** while details are presented in **Table 3.1**.
- 3.4.9 The views from the identified VSRs are shown in **Figure 3.2a-k**

### **3.5 Potential Sources of Visual Impact**

3.5.1 Potential sources of impacts during the construction and operation phases would include the following:

3.5.2 Sources of construction phase visual impact will be:

- Site clearance works;
- Removal of existing trees on site;
- Construction works for proposed public housing estates<sup>4</sup>;
- Construction works for proposed associated infrastructure;
- Presence of incomplete structures;
- Importation and storage of construction equipment and plant

3.5.3 Sources of operational phase visual impact will be:

- Presence of a new public housing estates and associated infrastructure in the landscape

### **3.6 Preliminary Impact Assessment**

3.6.1 As described in Chapter 1, Intensification scheme for the proposed public housing project will be developed. Its proposed location at rural village landscape and vegetated hillsides would cause obvious visual change to the viewers within the visual envelope. Hence, it has been recognised at the initiation of the project that the development of such a large-scale public housing estate on the site above building platforms would inevitably create building mass and site formation that would induce major visual changes to the rural setting.

3.6.2 The proposed project is mainly situated in the area which currently is fairly shielded and isolated by the Yuen Long Highway structure from most of public viewers in the region. The ridge of hill forming the backdrop of the proposed project is about 300m in height near the site. During the preliminary design of the project, this topographical profile has been taken into account. The different proposed building height at site of around +235mPD to +240mPD aims to allow at least 20% buffer to the corresponding range of the ridgeline at their back and also match with the ridgeline profile harmonically at the immediately backdrop.

3.6.3 A corridor of minimum width of 15m will be proposed between the building blocks inside as visual and air ventilation corridor. This intra-site consideration further reduces the massive appearance of the development and in turn minimise the visual impact.

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<sup>4</sup> Public housing development will be implemented by HD.

- 3.6.4 In terms of visual resources, the site would affect about 4.5ha of the vegetated hillside areas at the edge of the mountain range east of the project. However, these resources are largely beyond the views of most of the public viewers due to the shielding effect of the robust Yuen Long Highway structure and edge location of the affected portion of the hillside areas.

Table 3.1: Sensitivity of Visually Sensitive Receivers

VSR ID	VSR	Types of Receivers	Relative Numbers of VSR (Very Few, Few, Many, Very Many)	Amenity /Quality of Existing View (Low, Moderate, High)	Availability of Alternative View (Yes, No)	Amenity of Alternative View (Low, Moderate, High)	Duration of view (Short, Medium, Long)	Degree of Visibility (Full, Partial, Glimpse)	Sensitivity (High, Medium, Low)
VP1	Road Users of Yuen Long Highway	Travelling	Many	Moderate	Yes	Moderate	Short	Glimpse	Low
VP2	Villagers west of Yuen Long Highway	Residential / Occupational	Few	Moderate	Yes	Moderate	Long	Partial	Medium
VP3	Villagers east of Yuen Long Highway	Residential / Occupational	Very Few	Moderate	Yes	High	Long	Partial	Medium
VP4	Public Users of Tan Kwai Tsuen Road Garden	Recreational	Few	Moderate	Yes	Moderate	Short	Partial	Medium
VP5	Public Users of Hung Tak Road Sitting-out Area	Recreational	Many	Moderate	Yes	Moderate	Short	Glimpse	Medium
VP6	Public Users of Nai Wai Playground and Garden	Recreational	Few	Moderate	Yes	Moderate	Short	Glimpse	Medium
VP7	Public Users of Tin Ha Road Playground	Recreational	Few	Low	Yes	Low	Short	Glimpse	Medium
VP8	Public Users near Hung Shui Kiu Light Rail Transit Stations	Travelling	Many	Moderate	Yes	Moderate	Short	Glimpse	Low
VP9	Public Users near Chung Uk Tsuen Light Rail Transit Stations	Travelling	Many	Moderate	Yes	Moderate	Short	Glimpse	Low
VP10	Hikers from the South	Recreational	Very Few	Moderate	Yes	High	Short	Glimpse	High
VP11	Dirt Bike Riders from the East	Recreational	Very Few	Moderate	Yes	High	Short	Partial	Medium

### 3.7 Visual Impacts

3.7.1 The visual impacts on different VSRs are discussed below and also summarised in **Table 3.2**.

#### **VSRs in immediate vicinity (VP1-3):**

##### *VP1 - Road Users of Yuen Long Highway:*

3.7.2 This VSR are motorists travelling the Yuen Long Highway, which would have view on the housing site and the associated connecting roads along the alignment but the views are partially screened by the noise barriers alongside the Yuen Long Highway. Significant visual impact to this VSR is not expected due to their panoramic quality of views (i.e. a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), blockage of views by noise barriers alongside and the relatively low sensitivity nature of travelling viewers. Another fact is that motorists are travelling perpendicular to or away from the project site (rather than towards it) along the highway. Although the building mass would become much obvious when the motorists getting closer, the duration of such close view is rather short (about 10-15seconds; the speed of vehicles in this section of Yuen Long Highway is 70-80km/h) and the whole development will become out of sight after this point.

This VSR could observe the proposed development along the highway. The changes in building layout and height in the Intensification scheme caused additional blockage of the open sky view, resulting in slight alterations to the profiles of the building masses. However, the changes in building height and layout were barely perceptible from a distance, especially given the short duration of stay for travelers. **Therefore, it is expected that the additional visual impacts between the two schemes for VP1 as “slightly adverse” with reference to the relevant photomontages (Figure 3.2.a refers).**

##### *VP2 - Villagers west of Yuen Long Highway*

3.7.3 VP2 of viewers are villagers residing and working in close vicinity to the proposed project. However, significant visual impact is not expected due to the substantial blockage of views by the Yuen Long Highway structure and vegetation in between the VSRs and the project sites. Only the upper portion of the housing blocks would be visible to the viewers. The changes in building layout and height in the Intensification scheme caused additional blockage of the open sky view, resulting in slight alterations to the profiles of the building masses. Taking into account the substantial blockage of view towards the proposed project, and available alternative

views (to the north), it is expected that the additional visual impacts between the two schemes for VP2 as “slightly adverse” with reference to the relevant photomontages (Figure 3.2.b refers).

*VP3 - Villagers east of Yuen Long Highway*

3.7.4 VP3 is another group of residential viewers in close vicinity to the proposed project. Most of the village houses of VP3 are facing south which will not have views on the proposed project. Only few houses have windows on their alternative sides to have views on the project at the back of the village to their north. These views to the proposed project actually are their alternative views rather than main visual views.

3.7.5 The changes in building height in the Intensification scheme caused additional blockage of the open sky view. However, changes to the building layout in the Intensification scheme increased the distance between the buildings when viewed from VP3, resulting in a reduction of visual obstruction. Taking into account the available alternative views and the magnitude of change of the view to the north towards the proposed project, it is expected that the additional visual impacts between the two schemes for VP3 as “slightly adverse” with reference to the relevant photomontages (Figure 3.2.c refers).

**Public Viewers of Medium to Distant Separation Range (VP4-VP10):**

*VP4 - 7 Public Viewers of Tan Kwai Tsuen Garden, Hung Tak Road Sitting-out Area, Nai Wai Playground and Garden, and Tin Ha Road Playground*

3.7.6 These four groups of public are recreational users of the region. Except VP4 which of separate distance is about 430m, another three VSRs are located over 800m in distance. Majority of the project is not visible to these VSRs during both the construction and operation phases due to the substantial blockage of views by the vegetation and buildings in close surrounding and in between the VSRs and the proposed project.

3.7.7 The proposed BH changes visible from these VPs are hardly noticeable and do not cause any significant changes in visual impact.

3.7.8 Taking into account the substantial blockage of views towards the proposed project and the available alternative views of these VSRs, it is expected that the additional visual impacts between the two schemes for VP4-7 as “negligible” with reference to the relevant photomontages (Figure 3.2.d – 3.2.g refers).

*VP8 - 9 Public Viewers near Hung Shui Kiu Light Rail Transit Stations and Chung Uk Tsuen Light Rail Transit Stations*



- 3.7.9 The public viewers inside the two Light Rail Transit Stations were found unable to observe the proposed project due to substantially blockage of view by either the vegetation or buildings in between their sightline. However, the proposed project will become visible after these public users leave the station platforms and walk along the Castle Peak Road. Therefore, alternative location near the two stations were identified for better visual assessment. VP8 is the section of a footpath approximate 100m southwest of the Hung Shui Kiu station near Hung Shui Kiu Drainage Channel. VP9 is located on the footbridge near the Chung Uk Tsuen station.
- 3.7.10 Both viewing points at VP8-9 can observe the mountain range at the backdrop of the proposed project. The building blocks will be visible during the late construction phase and the subsequent operation phase.
- 3.7.11 Although the ridgeline would be truncated, the panoramic quality of their views allows them to have alternative views to the southeast. The long separation distance also allows an impact minimisation effect to the viewers. Also, the users' visual sensitivity is low, given the short duration of stay.
- 3.7.12 Although changes of building layout and building height in the Intensification scheme caused additional blockage of open sky and mountain, resulting in slight alterations to the profiles of the building masses. Also, the BH changes are barely perceptible at this distance, especially extremely short duration of stay of the traveler.
- 3.7.13 After considering all the factors including the stated panoramic quality of views, available alternative views and long separation distance, **it is expected that the additional visual impacts between the two schemes for VP8-9 as "slightly adverse" with reference to the relevant photomontages (Figure 3.2.h - 3.2.i refers).**

**VSRs at Higher Elevations towards the Proposed Project (VP10-11):**

*VP10 – Hikers from the South:*

- 3.7.14 The VP10 are hikers along an informal walking trail along the pipeline west of the Hung Shui Kiu Stream to visit the Hung Shui Kiu Irrigation Reservoir to the south. The usage of this informal trail is infrequent and therefore the relative number of viewers in this group is very few. Due to the partial blockage of views by the vegetation in between, the viewers could observe the building blocks during both the construction and operation phases but much of the lower portion and other buildings of the proposed estate will be invisible to this group of viewers. This VSR has good quality alternative view to its other directions to the east, south and west where could avoid most of the visual distractors to the north. The openness of the surrounding also allows this VSR to have a panoramic

quality of views which could diffuse potential adverse visual disturbance.

- 3.7.15 Although the changes in building height in the Intensification scheme caused additional noticeable blockage of the open sky view, moderate visual impact was observed. Additionally, changes to the building layout in the Intensification scheme increased the distance between the buildings when viewed from VP10, resulting in a reduction of visual obstruction. Taking into account the available alternative views and the magnitude of change of the view to the north towards the proposed project, in overall, it is expected that the additional visual impacts between the two schemes for VP10 as “moderate adverse” with reference to the relevant photomontages (Figure 3.2.j refers).

*VP11 – Dirt Bike Riders from the East:*

- 3.7.16 There is an informal dirt bike track running between Tong Yan San Tsuen (which is beyond the ZVI) to a village of Tan Kwai Tsuen near identified VP3 via the mountain range east of the proposed project. VP11 is the viewing point of those bike riders from the northeast. The track was made use of those abandoned site access and haul roads previously used for the construction of the two Tan Kwai Tsuen North and South Water Reservoirs and operation of the quarry.
- 3.7.17 VP11 could observe the part of the proposed project from the east with partial blockage of their views. Due to the speedy movement of this group of viewers and another fact that bike riders are travelling perpendicular to or away from the project site (rather than towards it) along the track, significant visual impact is therefore not expected. Although the changes in building height in the Intensification scheme caused additional noticeable blockage of the open sky view, moderate visual impact was observed. Additionally, changes to the building layout in the Intensification scheme increased the distance between the buildings when viewed from VP11, resulting in a reduction of visual obstruction. After further taking into account their panoramic quality of views, presence of available good quality alternative view and speedy kinetic nature of this VSR, it is expected that the additional visual impacts between the two schemes for VP11 as “moderate adverse” with reference to the relevant photomontages (Figure 3.2.k refers).

### 3.8 Summary of the Visual Impact

- 3.8.1 The photomontages demonstrating operation phase at Day 1 without mitigation measures are illustrated in **Figure 3.2a-k**.
- 3.8.2 Based on the assessments above and photomontages provided in **Figure 3.2a-k**, the potential changes in visual impacts due to the changes proposed for BH intensification are summarized as follows:

- Proposed changes:
  - Site Configuration
  - BH of 3 nos. of blocks changed from 168mPD to +235mPD
  - BH of 2 nos. of blocks changed from +191mPD to +235mPD
  - BH of 2 nos. of blocks changed from +200mPD to +240mPD
- Additional Visual Impacts on VPs
  - For VP1, 2, 3, 8 and 9, it is expected that the additional visual impacts between the two schemes as “**slightly adverse**”.
  - For VP4, 5, 6 and 7, it is expected that the additional visual impacts between the two schemes as “**negligible**”.
  - For VP 10 and 11, it is expected that the additional visual impacts between the two schemes as “**moderate adverse**”.

Table 3.2: Significance of Additional Visual Impacts in Construction and Operation Phases \*

ID No.	VSR	Sensitivity (Low/Medium/High)	Additional Visual Impact Significance (Enhanced/Partly enhanced/Negligible/Slightly adverse/Moderate adverse/Significant adverse)	
			Construction	Operation
VP1	Road Users of Yuen Long Highway	Low	Slightly adverse	Slightly adverse
VP2	Villagers west of Yuen Long Highway	Medium	Slightly adverse	Slightly adverse
VP3	Villagers east of Yuen Long Highway	Medium	Slightly adverse	Slightly adverse
VP4	Public Users of Tan Kwai Tsuen Road Garden	Medium	Negligible	Negligible
VP5	Public Users of Hung Tak Road Sitting-out Area	Medium	Negligible	Negligible
VP6	Public Users of Nai Wai Playground and Garden	Medium	Negligible	Negligible
VP7	Public Users of Tin Ha Road Playground	Medium	Negligible	Negligible
VP8	Public Users of Hung Shui Kiu Light Rail Transit Stations	Low	Slightly adverse	Slightly adverse
VP9	Public Users of Chung Uk Tsuen Light Rail Transit Stations	Low	Slightly adverse	Slightly adverse
VP10	Hikers from the South	High	Moderate adverse	Moderate adverse
VP11	Potential Hikers from the East	Medium	Moderate adverse	Moderate adverse

### 3.9 Recommended Mitigation Measures

3.9.1 The recommended landscape and visual mitigation measures have been discussed in Section 3.11 and also summarised in the following **Table 3.3-3.4**.

3.9.2 The construction phase mitigation measures listed below shall be adopted from the commencement of construction and throughout the entire construction period. The operational phase mitigation measures shall be adopted as early as possible during the design and construction stages so that they shall be in place prior to or at least at Day 1 of operational phase.

**Table 3.3: Proposed Construction Phase Landscape and Visual Mitigation Measures**

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management and Maintenance Agency
CM1 *	<p><b>Preservation of Existing Vegetation:</b>                      Existing trees designated to be retained in-situ shall be properly protected. Tree protection measures shall be undertaken in accordance with DEVB TC(W) 7/2015 on “Tree Preservation” and Guidelines on Tree Preservation during Development” by DEVB. For tree transplanting, enough time should be reserved for the implementation to increase the survival rate of the trees to be transplanted. The tree transplantation proposal shall be submitted to relevant authorities for approval together with the formal tree removal application. Tree transplanting works shall be undertaken in accordance with Guidelines on Tree Transplanting formulated by DEVB.                      Existing plant species of conservation interest proposed to be retained in-situ shall be properly protected. The protection measures shall be verified and monitored by a qualified botanist.</p>	CEDD	CEDD (via Contractor)	CEDD (via Contractor)
CM2	<p><b>Control of Site Construction Activities:</b>                      Construction site controls shall be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities are minimised. These construction site controls should include but not limited to the following:</p> <ul style="list-style-type: none"> <li>· Storage of materials should be carefully arranged to minimise potential landscape and visual impact.</li> <li>· The location and appearance of site accommodation should be carefully designed to minimise potential landscape and visual impact.</li> <li>· Site lighting should be carefully designed to prevent light spillage,</li> <li>· Extent of the works area and construction period should be minimised as far as practicable.</li> <li>· Screen hoarding with compatible design to blend into the surrounding natural environment should be considered.</li> <li>· Temporary works areas should be reinstated at the earliest possible opportunity.</li> </ul>	CEDD	CEDD (via Contractor)	CEDD (via Contractor)

\* Tree Survey Findings

The tree survey findings and locations of the tree groups are given in **Annex B**.

**Table 3.4: Proposed Operation Phase Landscape and Visual Mitigation Measures**

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management and Maintenance Agency #
OM1	<p><b>Suitable design of the proposed housing estates:</b></p> <ul style="list-style-type: none"> <li>▪ Colour of natural tones and non-reflective building materials shall be considered for any outward facing building facades to avoid visual and glare disturbance</li> <li>▪ Responsive lighting design                             <ul style="list-style-type: none"> <li>- Directional and full cut off lighting is recommended within the housing estates to minimise light spillage to the surroundings;</li> <li>- Minimise geographical spread of lighting as far as possible; and</li> <li>- Limited lighting intensity to meet the minimum safety requirement.</li> </ul> </li> <li>▪ A minimum provision of at least 20% green coverage would be achieved with an overall target of 30% green coverage.</li> </ul>	HD	HD (via Contractor)	HD
OM2 *	<p><b>Amenity Planting of Housing Estates:</b>                      Proposed plant layout plan for proposed public housing estates shown in Annex C.</p>	HD	HD (via Contractor)	HD
OM3 *	<p><b>Landscape Slopes:</b>                      Where existing hillside slopes are anticipated to be modified, the final slope surface will be landscaped by hydroseeding, climbing plant planting, or tree/shrub planting according to particular slope feature. The proposed slope treatment will be designed and carried out with reference to the requirements in GEO Publication No. 1/2011 and BD's ADV-35.</p> <ul style="list-style-type: none"> <li>▪ About 1.74 ha of slope area is proposed for tree and shrub planting, which would include about 870 trees;</li> <li>▪ About 0.14 ha of slope will be landscaped by hydroseeding;</li> <li>▪ About 1.11 ha of rocky slope will be landscaped by planting of shrubs and climbers</li> </ul>	CEDD	CEDD (via Contractor)	Slope maintenance departments (refer DEVB TCW No. 6/2015 and DEVB TCW No. 6/2011)
OM4 *	<p><b>Roadside Amenity Planting:</b>                      Roadside tree planting will be provided to enhance the landscape and visual quality of the existing and proposed transport routes. Planting strips of total length of about 200m are reserved for roadside tree planting, which would include about 40 trees.</p>	CEDD	CEDD (via Contractor)	LCSD
OM5 *	<p><b>Landscaping of Open Space:</b>                      Some public open space formed under the project but not to be maintained by HD under OM2 will also be properly landscaped by amenity planning. About 0.11ha of planting area is allowed which could include 34 trees for the area and shrubs in the understorey.</p>	CEDD	CEDD (via Contractor)	LCSD

\* Tree Planting Proposal

The landscape proposal shown in table 3.4 and Annex C are preliminary design. The detailed landscape proposal within the housing site shall refer to the detailed landscape design by HD.

# The maintenance and management agency will be arranged in accordance with DEVB TCW No. 6/2015 and DEVB TCW No. 6/2011.

- 3.9.3 Location Plan of the proposed landscape mitigation measures are also mapped in **Figure 3.7** while the Preliminary Landscape Layout and Planting Proposal is given in **Annex C**.

## 4 CONCLUSIONS

### 4.1 Conclusions

4.1.1 A Preliminary LVIA has been conducted for the proposed Project of site formation and infrastructure works for the development near Tan Kwai Tsuen, Yuen Long.

#### **Baseline Study**

4.1.2 A total of 17 LR, 2 LCAs and 11 VSRs are identified in the landscape and visual baseline study. Those LR, LCA and VSRs which are potentially to be affected by the proposed Project are listed below:

- LR1 - Mixed Woodland
- LR2 - Plantation Woodland
- LR3 - Landscape Plantation
- LR4 - Shrubland
- LR6 - Orchard
- LR8 - Agricultural Land
- LR10 - Stream
- LR13 - Trees in Village Areas
- LR15 - Incense Tree
  
- LCA1 - Sub-urban Fringe Landscape
- LCA2 - Hillside Landscape
  
- VP1 - Road Users of Yuen Long Highway
- VP2 - Villagers west of Yuen Long Highway
- VP3 - Villagers east of Yuen Long Highway
- VP4 - Public Users of Tan Kwai Tsuen Road Garden
- VP5 - Public Users of Hung Tak Road Sitting-out Area
- VP6 - Public Users of Nai Wai Playground and Garden
- VP7 - Public Users of Tin Ha Road Playground
- VP8 - Public Users of Hung Shui Kiu Light Rail Transit Station
- VP9 - Public Users of Chung Uk Tsuen Light Rail Transit Station
- VP10 - Hikers from the South
- VP11 - Dirt Bike Riders from the East

#### **Recommended Mitigation Measures**

4.1.3 Design stage mitigation measures:

*DM1 - Avoidance of Tan Kwai Tsuen Stream in LR10* - the whole stream will be avoided by adjusting the initial site limit.

*DM2 - Avoidance of Pitcher Plant (LR16)* - all the onsite individuals are proposed to be retained in-situ. No works are proposed on their growing areas.



4.1.4 Recommended construction phase mitigation measures:

*CM1 - Preservation of Existing Trees*

*CM2 - Proper Control of Site Construction Activities*

4.1.5 Recommended operation phase mitigation measures include:

*OM1 - Suitable design of the proposed development*  
*OM2 - Amenity / Compensatory Planting*

*OM3 - Landscape Slopes*

*OM4 - Roadside Amenity Planting* *OM5 - Landscaping of Open Space*

### **Summary of Residual Landscape Impacts**

#### **Construction Phase**

4.1.6 The following receivers will receive **substantial** adverse impact with mitigation measures during the construction period:

- *LR1 - Mixed Woodland*
- *LR2 - Plantation Woodland*
- *LCA2 - Hillside Landscape*

4.1.7 The following receivers will receive **moderate** adverse impact with mitigation measures during the construction period:

- *LR3 - Landscape Plantation*
- *LR4 - Shrubland*
- *LR10 - Stream*
- *LR13 - Trees in Village Areas*
- *LR15 - Incense Tree*
- *LCA1 - Sub-urban Fringe Landscape*

4.1.8 The following receivers will receive **slight** adverse impact with mitigation measures during the construction period:

- *LR6 - Orchard*

4.1.9 Other affected receivers will receive **insubstantial** impact with mitigation measures during the construction period.

#### **Operation Phase (Day 1)**

4.1.10 The following receivers will receive **substantial** adverse impact with mitigation measures at Day 1 Operation:

- *LR1 - Mixed Woodland*
- *LR2 - Plantation Woodland*
- *LCA2 - Hillside Landscape*

4.1.11 The following receivers will receive **moderate** adverse impact with mitigation measures at Day 1 Operation:

- *LR3 - Landscape Plantation*

- LR4 - Shrubland
- LR10 - Stream
- LR15 - Incense Tree
- LCA1 - Sub-urban Fringe Landscape

4.1.12 The following receivers will receive **slight** adverse impact with mitigation measures at Day 1 Operation:

- LR6 - Orchard
- LR13 - Trees in Village Areas

4.1.13 Other affected receivers will receive **insubstantial** impact with mitigation measures at Day 1 Operation.

#### Operation Phase (Year 10)

4.1.14 The following receivers will receive **moderate** adverse impact with mitigation measures at Year 10 Operation:

- LR1 - Mixed Woodland
- LR2 - Plantation Woodland
- LR10 - Stream
- LR15 - Incense Tree
- LCA2 - Hillside Landscape

4.1.15 The following receivers will receive **slight** adverse impact with mitigation measures at Year 10 Operation:

- LR3 - Landscape Plantation
- LR4 - Shrubland
- LCA1 - Sub-urban Fringe Landscape

4.1.16 Other affected receivers will receive **insubstantial** impact with mitigation measures at Day 1 Operation.

#### **Overall Landscape Impacts**

4.1.17 The Proposed site is located on a rural village area where quite a proportion of the area covers natural hillside topography with vegetation. The conflict between this public project and the affected natural environment would therefore inevitably cause major landscape impact. However, efforts have been endeavoured to avoid and minimise potential impacts as far as practical throughout the course of the project. The sensitive Tan Kwai Tsuen stream under LR10 and the amenity plant species of Pitcher Plant under LR16 will be fully avoided by adjusting the design layout. All the affected individuals of Incense Trees under LR15 of healthy condition will be preserved by transplanting. In order to mitigate the loss of trees, about 1,240 new trees are proposed in the planting plan for tree compensation within the housing site.

4.1.18 From visual perspective, considering the large-scale public housing estate on the sites above building platforms, the proposed development would

inevitably create building mass and site formation that would induce major visual changes to the rural setting. However, the project design has endeavoured every effort to minimize potential impacts to practical minimum.

- 4.1.19 The requirement of proper detailed design of the development components to ensure visual compatibility to the surroundings, light control to avoid light and glare disturbance, large coverage of tree planting to compensate the loss of greenery and enhance the local visual condition of the future development sites, slope and buffer planting to provide further greenery and buffer to the offsite undisturbed vegetated environments are all feasible measures to minimize the visual disturbance to practical minimum.
- 4.1.20 The key mitigation measures in Table 3.4 have been incorporated into the proposed public housing development.
- 4.1.21 To incorporate the suitable design of the proposed housing estates as outlined in OM1, the outward facing building facades should have a colour scheme that blends in with the natural environment and should not be reflective to avoid visual and glare disturbance. This can be achieved by using non-reflective building materials and natural tones that match the surrounding landscape. Also, the lighting design within the housing estates should be responsive to the needs of the residents and the surrounding environment. Directional and full cut off lighting should be used to minimize light spillage to the surroundings. The geographical spread of lighting should be minimized as far as possible to prevent light pollution. The lighting intensity should be limited to meet the minimum safety requirement. A minimum provision of at least 20% green coverage should be achieved with an overall target of 30% green coverage.
- 4.1.22 Incorporating the amenity planting and landscaping components outlined in OM2-5, can help to enhance the visual quality of the public housing development.

The consideration of building height allows at least 20% buffer zone to preserve the vegetated ridgeline of hills at the project backdrop which is one of the key visual resources in the region. Visual corridors between building blocks will also be given for the purpose of sightline passage, which aims to further minimize the visual obstruction to the ridgeline and its green vegetation.

### **Additional Visual Impact**

- 4.1.23 Due to the change of configuration and maximum building height, there is additional visual impact on some VSRs.

4.1.24 The following receivers will receive **negligible** additional visual impact between two schemes:

- VP4 - Public Users of Tan Kwai Tsuen Road Garden
- VP5 - Public Users of Hung Tak Road Sitting-out Area
- VP6 - Public Users of Nai Wai Playground and Garden
- VP7 - Public Users of Tin Ha Road Playground

4.1.25 The following receivers will receive **slightly adverse** additional visual impact between two schemes:

- VP1 - Road Users of Yuen Long Highway
- VP2 - Villagers west of Yuen Long Highway
- VP3 - Villagers east of Yuen Long Highway
- VP8 - Public Users of Hung Shui Kiu Light Rail Transit Station

4.1.26 The following receivers will receive **moderate adverse** additional visual impact between two schemes:

- VP10 - Hikers from the South
- VP11 - Dirt Bike Riders from the East

**END OF TEXT**

## **FIGURES**





丹桂村  
TAN KWAI TSUEN

元朗公路  
YUEN LONG HIGHWAY

丹桂村配水庫

TAN KWAI TSUEN  
FRESH WATER SERVICE  
RESERVOIR

**Block 1, Block 2 and Block 3**  
Proposed Roof level = Max. + 235 mPD  
Proposed podium level = Max. + 80 mPD

**BLOCK 1**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

Wet Market  
+69.45mPD

**BLOCK 2**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

RCP  
+70.3mPD

**Block 4 and Block 5**  
Proposed Roof level = Max. 235 mPD  
Proposed podium level = Max. 100 mPD

**BLOCK 5**  
TOTAL 51 STOREYS  
(44 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

+64.3mPD

PHASE 3

BLOCK 2

BLOCK 3

+98.15mPD

PHASE 2

BLOCK 5

+101.15mPD

**BLOCK A**  
TOTAL 50 STOREYS  
(43 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

**Block A and Block B**  
Proposed Roof level = Max. 240 mPD  
Proposed podium level = Max. 110 mPD

Footbridge  
+87.00mPD

**BLOCK 3**  
TOTAL 60 STOREYS  
(50 DOM-STOREY +  
2 NO. REFUGE FLOORS +  
G/F + 7-STOREY PODIUM)

RCP  
+76.0mPD

BLOCK 4

PHASE 1

BLOCK A

**BLOCK 4**  
TOTAL 51 STOREYS  
(44 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

Footbridge  
+83.00mPD

**BLOCK B**  
TOTAL 50 STOREYS  
(43 DOM-STOREY +  
1 NO. REFUGE FLOOR +  
G/F + 5-STOREY PODIUM)

BLOCK B

**FOR INDICATIVE  
PURPOSE ONLY**

**LEGEND**

- - - SITE BOUNDARY
- EVA / DRIVEWAY
- DOMESTIC BLOCK
- PODIUM (COMMERCIAL / RETAIL / CARPARK / MARKET / SOCIAL WELFARE FACILITIES / PTI UNDERNEATH)
- FOOTBRIDGE
- REFUSE COLLECTION POINT

PROJECT TITLE

**PUBLIC HOUSING DEVELOPMENT AT  
NEAR TAN KWAI TSUEN PHASES 1, 2 & 3**

DRAWING TITLE

**PROPOSED SITE LAYOUT PLAN**



房屋署  
HOUSING DEPARTMENT

DRAWING NO.  
YL52/S16/A/LO-01

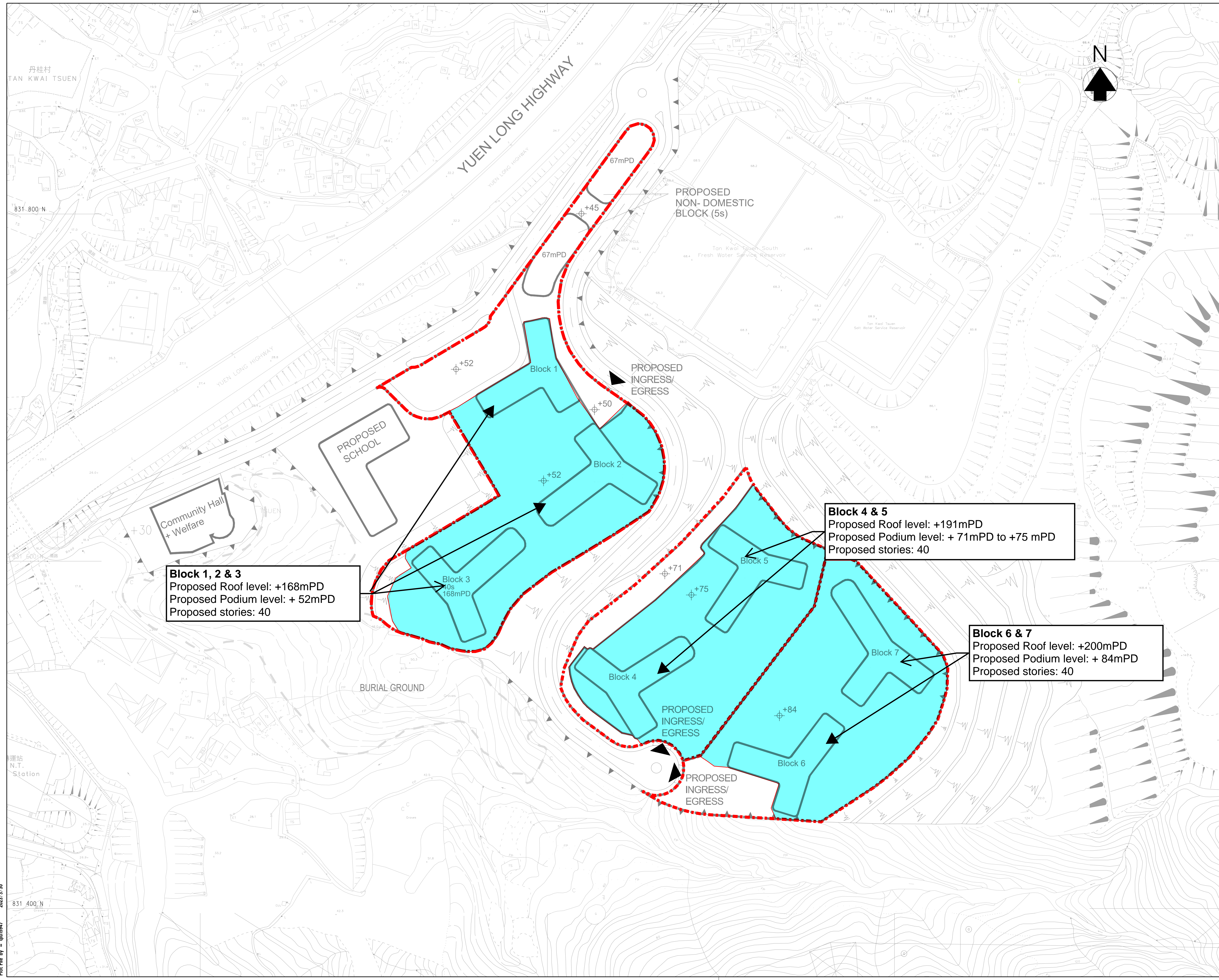
DATE:  
13/6/2022

SCALE 1:1000 (A1) , 1:2000 (A3)



**LEGEND:**

- SITE BOUNDARY OF PROPOSED SCHEME
- PROPOSED PRODIUM AREA



**Block 1, 2 & 3**  
 Proposed Roof level: +168mPD  
 Proposed Podium level: + 52mPD  
 Proposed stories: 40

**Block 4 & 5**  
 Proposed Roof level: +191mPD  
 Proposed Podium level: + 71mPD to +75 mPD  
 Proposed stories: 40

**Block 6 & 7**  
 Proposed Roof level: +200mPD  
 Proposed Podium level: + 84mPD  
 Proposed stories: 40

Revision	Date	Description			Initial
Initial	Designed	Checked	Drawn	Checked	
	TCL	WLC	SZ	LCH	
Date	04/22	04/22	04/22	04/22	04/22

Agreement no. CE 92/2017 (CE)

Title  
 SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENT NEAR TAN KWAI TSUEN, YUEN LONG - INVESTIGATION, DESIGN AND CONSTRUCTION

Drawing Title

**GENERAL LAYOUT PLAN (BASELINE SCHEME)**

Figure:	Scale
2.1	1 : 1000 (A1) 1 : 2000 (A3)

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

**binnies**  
 BINNIES HONG KONG LIMITED  
 賓尼士工程顧問有限公司





**Existing View**



**Photomontage (Conforming Scheme) with Mitigation Measures**



**Photomontage (Intensified Scheme) without Mitigation Measures**



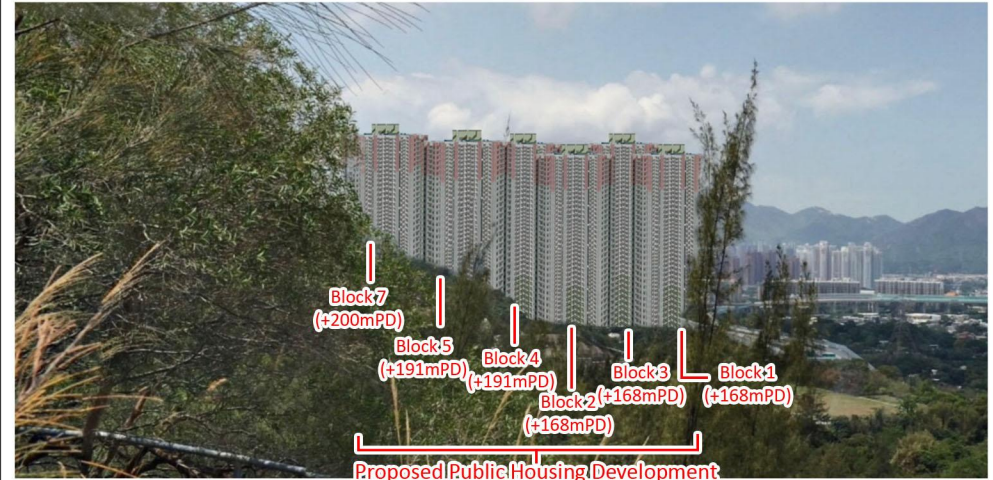
**Photomontage (Intensified Scheme) with Mitigation Measures**

**Figure 3.2.j Photomontage of Visually Sensitive Receiver VP9 Public Users near Chung Uk Tsuen Light Rail Transit Station**





**Existing View**



**Photomontage (Conforming Scheme) with Mitigation Measures**



**Photomontage (Intensified Scheme) without Mitigation Measures**



**Photomontage (Intensified Scheme) with Mitigation Measures**

**Figure 3.2.k Photomontage of Visually Sensitive Receiver VP11 Dirt Bike Riders from the East**

**ANNEX C**

**LANDSCAPE LAYOUT  
AND PLANTING PROPOSAL**





丹桂村  
TAN KWAI TSUEN

元朗公路  
YUEN LONG HIGHWAY

丹桂村配水庫

TAN KWAI TSUEN  
FRESH WATER SERVICE  
RESERVOIR

PROPOSED PRIMARY  
SCHOOL SITE  
6,200 sqm

BLOCK 1

PHASE 3

BLOCK 2

BLOCK 3

CPA

BURIAL  
GROUND

BLOCK 5

PHASE 2

BLOCK 4

CPA

BLOCK A

PHASE 1

BLOCK B

EVA/ DRIVEWAY

**LEGEND:**

-  SITE BOUNDARY
-  EVA / DRIVEWAY
-  PLANTER
-  SLOPE PLANTER
-  PAVED AREA
-  CPA
-  PROPOSED TREE

PROJECT TITLE

**PUBLIC HOUSING DEVELOPMENT AT  
NEAR TAN KWAI TSUEN PHASES 1, 2 & 3**

DRAWING TITLE

**LANDSCAPE LAYOUT PLAN (FOR REFERENCE ONLY &  
SUBJECT TO DESIGN REVIEW)**



房屋署  
HOUSING DEPARTMENT

DRAWING NO.  
YL52/S16/L/LO-01

DATE:  
30/5/2023

SCALE 1:1000 (A1) ; 1:2000 (A3)