

9 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

9.1 Introduction

9.1.1 This section presents the findings of the assessment of potential landscape and visual impacts associated with the proposed project.

9.1.2 Landscape and visual impacts assessment are assessed in accordance with the criteria and guidelines as stated in Annexes 10 and 18 of the TM and the EIAO Guidance Note No.8/2010 on “Preparation of Landscape and Visual Impact Assessment under the Environmental Impact Assessment Ordinance”.

9.2 Environmental Legislation, Standards and Guidelines

9.2.1 The following legislation, standards and guidelines are applicable to landscape and visual impact assessment associated with the construction and operation of the Project:

- Environmental Impact Assessment Ordinance (Cap.499.S.16) and the Technical Memorandum on EIA Process (EIAO TM), particularly Annexes 10 and 18;
- Environmental Impact Assessment Ordinance Guidance Note 8/2010;
- Forests and Countryside Ordinance (Cap 96);
- Town Planning Ordinance (Cap 131);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap586);
- Hong Kong Planning Standards and Guidelines Chapters 4, 10 and 11;
- AFCD Nature Conservation Practice Note No.2 - Measurement of Diameter at Breast Height (DBH);
- AFCD Nature Conservation Practice Note No.3 – The Use of Plant Names;
- ETWB TC No. 23/93 – Control of Visual Impact of Slopes;
- ETWB TC No. 12/2000 – Improvement to the Appearance of Slopes in Connection with ET WBTC 23/93;
- ETWB TC No. 7/2002 – Tree Planting in Public Works;
- ETWB TCW No. 2/2004 - Maintenance of Vegetation and Hard Landscape Features;
- ETWB TCW No. 29/2004 - Registration of Old and Valuable Trees, and Guidelines for their Preservation;
- ETWB TC (W) No. 11/2004 - Cyber Manual for Greening;
- DEVB TCW No. 10/2013 - Tree Preservation;
- DEVB TC (W) No. 3/2012 - Site Coverage of Greenery for Government Building Projects;
- GEO Publication (1999) – Use of Vegetation as Surface Protection on Slopes;
- GEO 1/2000 – Technical Guidelines on Landscape Treatment and Bio-engineering of Man-made Slopes and Retaining Walls;
- GEO Publication No. 1/2011- Technical Guidelines on Landscape Treatment for Slopes; and
- Study on Landscape Value Mapping of Hong Kong.

9.2.2 The Outline Zoning Plan gazetted under the Town Planning Ordinance provides the statutory framework for land use development. Reference has been made to the Approved Sha Tin Outline Zoning Plan No. S/ST/30 (02.09.2014).

9.3 Assessment Methodology

9.3.1 The assessment area for the landscape impact assessment includes areas within a 500 m distance from the site boundary of the Project while the assessment area for the visual impact assessment is defined by the visual envelope of the Project. The landscape and visual impact study boundaries are shown in **Figure 9.1.0**.

9.3.2 The landscape impacts have been assessed according to the following procedures.

- **Identification of the baseline landscape resources and landscape characters found within the study area.** This is achieved by site visits and desktop study of topographical maps, information databases and photographs.
- **Assessment of the degree of sensitivity of the landscape resources and landscape character areas.** 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 landscape feature and character area is classified as follows:

High: Important landscape or landscape resource of particularly distinctive character or high importance, sensitive to relatively small change.

Medium: Landscape or landscape resource of moderately valued landscape characteristics reasonably tolerant to change.

Low: Landscape or landscape resource, the nature of which is largely tolerant to change.

- **Identification of potential sources of landscape impacts.** These are the various elements of the construction works and operation procedures that would generate landscape impacts.
- **Identification of the magnitude of landscape impacts.** The magnitude of the impact (or magnitude of 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 are quantified wherever possible.

The magnitude of landscape impacts is classified as follows:

Large: The landscape or landscape resource would suffer a major change.

Intermediate: The landscape or landscape resource would suffer a moderate change.

Small: The landscape or landscape resource would suffer slight or barely perceptible change.

Negligible: The landscape or landscape resource would suffer 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 minimize adverse impacts; remedial measures such as colour and textural treatment of building

features; and compensatory measures such as the implementation of landscape design measures to compensate for unavoidable adverse impacts and to attempt to generate potentially beneficial long term impacts. A programme for the mitigation measures is provided. The agencies responsible for the funding, implementation, management and maintenance of the mitigation measures are identified.

- **Prediction of the significance of landscape impacts before and after the implementation of the mitigation measures.** By synthesizing the magnitude of the various impacts and the sensitivity of the various landscape resources, it is possible to categorise impacts in a logical, well-reasoned and consistent fashion. **Table 9.1** shows the rationale for dividing the degree of significance into four thresholds, namely insubstantial, slight, moderate, and substantial, depending on the combination of a negligible-small-intermediate-large magnitude of impact and a low-medium-high degree of sensitivity of landscape resource /character.

Table 9.1 Relationship between Landscape Sensitivity and Impact Magnitude in Defining Impact Significance

Magnitude of Impact (Both Adverse and Beneficial Impact are assessed.)	Large	Moderate	Moderate / Substantial	Substantial
	Intermediate	Slight / Moderate	Moderate	Moderate / Substantial
	Small	Insubstantial / Slight	Slight / Moderate	Moderate
	Negligible	Insubstantial	Insubstantial	Insubstantial
		Low	Medium	High
Sensitivity of Landscape Resource and Landscape Character Area				

Note: All impacts are Adverse unless otherwise noted with Beneficial.

The significance of landscape impacts is categorized as follows:

Substantial: Adverse / beneficial impact where the proposal would cause significant deterioration or improvement in existing landscape quality.

Moderate: Adverse / beneficial impact where the proposal would cause a noticeable deterioration or improvement in existing landscape quality.

Slight: Adverse / beneficial impact where the proposal would cause a barely perceptible deterioration or improvement in existing landscape quality.

Insubstantial: No discernible change in the existing landscape quality.

- **Prediction of Acceptability of Impacts.** An overall assessment of the acceptability, or otherwise, of the impacts according to the five criteria set out in Annex 10 of the EIAO-TM.

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

- **Identification of the Zones of Visual Influence (ZVI) during the construction and operation phases of the project.** This is achieved by site visit and desktop study of topographic maps, photographs and preparation of cross-sections to determine visibility of the project from various locations.
- **Identification of the VSRs within the ZVIs at construction and operation phases.** These are the people who would reside within, work within, play within, or travel through, the ZVIs.

- **Assessment of the degree of sensitivity of the VSRs.** Factors considered include:
 - the type of VSRs, which is classified according to whether the person is at home, at work, at play, or travelling. Those who view the impact from their homes are considered to be highly sensitive as the attractiveness or otherwise of the outlook from their home will have a substantial effect on their perception of the quality and acceptability of their home environment and their general quality of life. Those who view the impact from their workplace are considered to be only moderately sensitive as the attractiveness or otherwise of the outlook will have a less important, although still material, effect on their perception of their quality of life. The degree to which this applies depends on whether the workplace is industrial, retail or commercial. Those who view the impact whilst taking part in an outdoor leisure activity may display varying sensitivity depending on the type of leisure activity. Those who view the impact whilst travelling on a public thoroughfare will also display varying sensitivity depending on the speed of travel.
 - other factors which are considered (as required by EIAO GN 8/2010) include the value and quality of existing views, the availability and amenity of alternative views, the duration or frequency of view, and the degree of visibility.

The sensitivity of VSRs is classified as follows:

- High:** The VSR is highly sensitive to any change in their viewing experience.
- Medium:** The VSR is moderately sensitive to any change in their viewing experience.
- Low:** The VSR is only slightly sensitive to any change in their viewing experience.

- **Identification of relative numbers of VSRs.** This is expressed in terms of whether there are “many”, “medium” and “few” VSRs in any one category of VSR.
- **Identification of potential sources of visual impacts.** These are the various elements of the construction works and operation that would generate visual impacts.
- **Assessment of the potential magnitude of visual changes.** Factors considered include:
 - the compatibility with the surrounding landscape;
 - the duration of the impact;
 - the reversibility of the impact;
 - the scale of the impact and distance of the source of impact from the viewer; and
 - the degree of visibility of the impact, and the degree of which the impact dominates the field of vision of the viewer.

The magnitude of visual changes is classified as follows:

- Large:** The VSRs would suffer a major change in their viewing experience.
- Intermediate:** The VSRs would suffer a moderate change in their viewing experience.
- Small:** The VSRs would suffer a small change in their viewing experience.
- Negligible:** The VSRs would suffer no discernible change in their viewing experience.

- **Identification of potential visual mitigation measures.** These may take the form of adopting alternative designs or revisions to the basic engineering and architectural design to prevent and/or

minimize adverse impacts; remedial measures such as colour and textural treatment of building features; tree planting to screen the proposed aboveground structures. A programme for the mitigation measures is provided. The agencies responsible for the implementation, management and maintenance of the mitigation measures are identified.

- Prediction of the significance of visual impacts before and after the implementation of the mitigation measures.** By synthesizing the magnitude of the various visual impacts and the sensitivity of the VSRs, and the numbers of VSRs that are affected, it is possible to categorise the degree of significance of the impacts in a logical, well-reasoned and consistent fashion. **Table 9.2** shows the rationale for dividing the degree of significance into four thresholds, namely, insubstantial, slight, moderate and substantial, depending on the combination of a negligible-small-intermediate-large magnitude of impact and a low-medium-high degree of sensitivity of VSRs.

Table 9.2 Relationship between Visually Sensitive Receivers (VSRs) Sensitivity and Impact Magnitude in Defining Impact Significance

Magnitude of Impact (Both Adverse and Beneficial Impact are assessed.)	Large	Moderate	Moderate / Substantial	Substantial
	Intermediate	Slight / Moderate	Moderate	Moderate / Substantial
	Small	Insubstantial / Slight	Slight / Moderate	Moderate
	Negligible	Insubstantial	Insubstantial	Insubstantial
		Low	Medium	High

Sensitivity of Visually Sensitive Receivers (VSRs)

Note: All impacts are Adverse unless otherwise noted with Beneficial.

The significance of visual impacts is categorized as follows:

Substantial: Adverse / beneficial impact where the proposal would cause significant deterioration or improvement in existing visual quality.

Moderate: Adverse / beneficial impact where the proposal would cause a noticeable deterioration or improvement in existing visual quality.

Slight: Adverse / beneficial impact where the proposal would cause a barely perceptible deterioration or improvement in existing visual quality.

Insubstantial: No discernible change in the existing visual quality.

- Prediction of Acceptability of Impacts.** An overall assessment of the acceptability, or otherwise, of the impacts according to the five criteria set out in Annex 10 of the EIAO-TM.

9.4 Review of Planning and Development Control Framework

9.4.1 Apart from the outline zoning plan, there is no other outline development, layout plan, planning brief and study found within the study boundary of the Project. Therefore, only outline the zoning plan within the study area is reviewed.

9.4.2 The Study Area is covered by the Approved Sha Tin Outline Zoning Plan (OZP) No. S/ST/30. The review of OZP has not only included a review of the plans, but also the 'Notes' and 'Explanatory Statements' which accompany these plans. The proposed development is overlaid on the affected OZP as shown in **Figure 9.1.1**.

- 9.4.3 In accordance with the OZP, most of the proposed works of the Project generally fall within the Planning Areas 9 and 49 - Other Specified Uses (OU) Zone annotated “Water Treatment Works” and some small parts fall within the adjacent “Open Space” (O) and OU (Kowloon-Canton Railway) Zone of the Approved Sha Tin Outline Zoning Plan (OZP) No. S/ST/30 which have been planned for the Sha Tin WTW. The proposed building and structures under this Project are all within the permissible building height limits specified under the OZP.
- 9.4.4 Ongoing liaison with PlanD regarding the boundary of the “OU (Water Treatment Works)” zone will be carried out throughout the design process. It is recommended that the OZP shall be amended to incorporate the latest changes arising from the Project when the design layouts are finalized.
- 9.4.5 Having reviewed the OZP, the associated Notes and Explanatory Statements, it is considered that the proposed Project would fit in with the current and future planning settings and would not be in conflict with the statutory town plan.

9.5 Baseline Study

- 9.5.1 Landscape baseline study comprises the identification and evaluation of the sensitivity of all potential impacts on existing and planned Landscape Resources (LRs) and Landscape Character Areas (LCAs) within the study boundary of 500 m from the site boundary of the Project.
- 9.5.2 Visual baseline study comprises the identification and evaluation of sensitivity of any Visually Sensitive Receivers (VSRs) within the Visual Envelope of the Project.

Landscape Resources (LRs)

- 9.5.3 The details of Baseline Landscape Resources which will be potentially affected by the Project, together with their sensitivity are described in **Table 9.3**. The locations of baseline landscape resources are mapped in **Figure 9.2.1**. Photo views illustrating the landscape resources within the study area are illustrated in **Figure 9.2.2**.

Table 9.3 Baseline Landscape Resources (LRs) and Their Sensitivity

LRs	Description	Sensitivity
LR1 – Natural Hillside Woodland	This is an area of heavily vegetated with mature trees on natural hillside. This is a very common and local hillside landscape feature in Hong Kong which provides natural green backdrop for the urban area. <i>Aquilaria sinensis</i> under Cap. 586 are found within the hillside woodland. Other plant species of conservation importance such as <i>Cibotium barometz</i> , <i>Pavetta hongkongensis</i> , <i>Ormosia pachycarpa</i> , <i>Artabotrys hongkongensis</i> and <i>Ailanthus fordii</i> are also identified. Other major tree species found include <i>Acronychia pedunculata</i> , <i>Canthium dicoccum</i> , <i>Carallia brachiata</i> , <i>Itea chinensis</i> and <i>Schefflera heptaphylla</i> . The landscape quality of this resource is considered as high. The ability of this resource to accommodate change is low. The overall sensitivity of this resource is considered as high.	High
LR2 - Man-made Slope Areas	This is a man-made cut slope with a mix of native and exotic tree planting. This is a common landscape resource in Hong Kong. Major tree species found include <i>Acacia confusa</i> , <i>Bauhinia blakeana</i> , <i>Celtis sinensis</i> and <i>Macaranga tanarius</i> . The landscape quality of this resource is considered as medium. The ability of this resource to accommodate change is medium. The overall sensitivity of this resource is considered as medium.	Medium

LRs	Description	Sensitivity
LR3 - Landscape Amenity Area at Shatin WTW	This is a landscape amenity area at Sha Tin WTW which consists of exotic planting near the entrance. This is a common amenity landscape. Major tree species found include <i>Araucaria heterophylla</i> , <i>Bombax ceiba</i> , <i>Juniperus chinensis</i> and <i>Plumeria rubra</i> . The landscape quality of this resource is considered as medium. The ability of this resource to accommodate change is medium. The overall sensitivity of this resource is considered as medium.	Medium
LR4 - Lawn Area	There is a lawn area around the clarifiers with a few isolated trees scattered around. This is a common amenity landscape. Major tree species include <i>Juniperus chinensis</i> , <i>Macaranga tanarius</i> , <i>Mangifera indica</i> and <i>Michelia alba</i> . The landscape quality of this resource is considered as medium. The ability of this resource to accommodate change is medium. The overall sensitivity of this resource is considered as medium.	Medium
LR5 - Landscape Areas at Hin Keng Estate	They are local open spaces of Hin Keng Estate which provide primarily passive and active recreation activities. Key features of the landscape areas include children playgrounds, seating areas etc. Major tree species found include <i>Bauhinia variegata</i> , <i>Cassia siamea</i> and <i>Plumeria rubra</i> . These are common landscape resources with local significance. The landscape quality of this resource is considered as medium. The ability of this resource to accommodate change is medium. The overall sensitivity of this resource is considered as medium.	Medium
LR6 – Hin Tin Playground and Football field	This is a district open space which provides passive and active recreation activities to the district. Key recreational facilities include playgrounds, swimming pool, tennis courts and soccer court. This is an open space of district importance. Major tree species found include <i>Cinnamomum burmannii</i> , <i>Ficus microcarpa</i> , <i>Melaleuca quinquenervia</i> and <i>Michelia alba</i> . The landscape quality of this resource is considered as high. The ability of this resource to accommodate changes is low. The overall sensitivity of this resource is considered as high.	High
LR7 – Roadside Planting along Che Kung Mu Road	This is a common roadside landscape resource along Che Kung Mu Road. Major tree species found <i>Bauhinia variegata</i> , <i>Delonix regia</i> , <i>Hibiscus tiliaceus</i> and <i>Lagerstroemia speciosa</i> . The landscape quality of this resource is considered as medium. The ability of this resource to accommodate changes is medium. The overall sensitivity of this resource is considered as medium.	Medium
LR8 – Walking Trail	It is a walking trail in the Lion Rock Country Park. It is a typical hillside walking trail with woodland trees found at the both sides of the trail. The landscape quality of this resource is considered as high. The ability of this resource to accommodate changes is low. The overall sensitivity of this resource is considered as high.	High

LRs	Description	Sensitivity
LR9 - Watercourse	Two Watercourses what would be potential affected by the Project are identified. One locates at the north-west of the Sha Tin WTW which has natural upstream, man-made and channelized downstream. The other one lies along the southern and eastern boundary of the Sha Tin WTW is channelized. The landscape quality of this resource is considered as low. The ability of this resource to accommodate changes is high. The overall sensitivity of this resource is considered as low.	Low

Landscape Character Areas (LCAs)

9.5.4 The details of Baseline Landscape Character Areas which will be potentially affected by the Project, together with their sensitivity are described in **Table 9.4**. The locations of baseline landscape character areas are mapped in **Figure 9.3.1**. Photo views illustrating the Landscape Character Areas within the study area are illustrated in **Figure 9.3.2**.

Table 9.4 Baseline Landscape Character Areas (LCAs) and Their Sensitivity

LCAs	Descriptions	Sensitivity
LCA1 - Tai Wai Urban Residential LCA	This LCA is characterized by their medium and high-rise residential estates of Tai Wai area, set among open space, together with associated highways, footbridges , school or community facilities and retail facilities. Vegetation includes roadside trees and shrub planting, planting in open spaces and around residential estates. This results in a fairly homogenous, ordered landscape comprising largely built elements softened to a certain extent by the effects of surrounding planting and greenery. This is a common landscape in Hong Kong with high ability to accommodate changes. The overall sensitivity of this LCA is considered as low.	Low
LCA2 - Tai Wai Urban Fringe LCA	This LCA is characterized by the transition of landscapes from urban to rural. Typically on hillsides around urban areas that are less easily developed, this LCA comprised of roads, highways structures, man-made slopes, natural hillsides, scattered residential developments, open space, GIC developments, etc. They are transitional landscapes which are characterised by their low density, diverse range of features, significant vegetation cover and incoherent structure with features having little formal relationship to each other. This LCA has medium ability to accommodate changes. The overall sensitivity of this LCA is considered as medium.	Medium
LCA3 - Tai Wai Upland and Hillside LCA	This LCA is characterized by upland landscapes lying between around 40mPD and 300mPD, consisting of hillsides, knolls, ridges and spurs, they are generally covered in scrub vegetation with rocky outcrops or boulder fields. Woodland is found on lower slopes or in sheltered gullies and ravines, where permanent or seasonal rocky streams tumble down these hillsides. Because of their elevated locations, they often contain few human features (other than footpaths or powerlines) and retain a rugged, tranquil character, with muted natural colours. This LCA has low ability to accommodate changes. The overall sensitivity of this LCA is considered as high.	High

Visual Envelope and Visually Sensitive Receivers (VSRs)

- 9.5.5 Visual envelopes were identified by a site visit and desktop study of topographic maps and photographs to determine visibility of the project from various locations. Within the Visual Envelope, a number of key VSRs have been identified during construction and operation phases. They are listed, together with their baseline assessment and sensitivity, in **Table 9.5** and mapped in **Figure 9.4.1**. Photo views illustrating the VSRs within the study area are shown in **Figure 9.4.2**.
- 9.5.6 The sensitivity of VSRs is assessed in accordance with EIAO Guidance Note No. 8/2010. Key factors including type of VSRs, number of individuals within the VSRs, quality of existing view, availability of alternative views, degree of visibility, duration of view and frequency of view of the VSRs are evaluated.
- 9.5.7 Types of VSRs are generally categorized in accordance with the landuse of the areas where the VSRs are located. There are 4 types of VSRs. They are Residential, Occupational, Recreational and Travelling VSRs.
- 9.5.8 The number of individuals within each VSRs are estimated. Number of individuals in VSRs in high-rise estates and residential developments are all considered as many. Number of individuals in Occupational VSRs for Union Hospital is considered as medium. Number of individuals for Recreational VSRs for Wilson Trail and Hikers at Amah Rock in Lion Rock Country Park are considered as few. Number of individuals for all travelling VSRs in busy public through routes, including Travellers in Tai Po Road and Travellers on East Rail is considered as many.
- 9.5.9 The quality of existing views generally varies from good to fair depending whether the VSRs have a long and distant view and the orientation of the the VSRs. The quality of existing views for VSRs who have a long distant view such as Residential, Occupational and Recreational VSRs at high level is considered as good. Travelling VSRs who are on public through routes generally have fair quality of existing views.
- 9.5.10 All the VSRs identified within the visual envelope have alternative views.
- 9.5.11 The degree of visibility of VSRs is described whether the existing VSRs have full view, partial view or glimpse view to the Project. VSRs at high level without obstruction by other developments would have full view to the project. VSRs at high level that are partially blocked by other development to the Project would have partial view. VSRs at low level or travelling VSRs who travel at speed would have glimpse view to the Project.
- 9.5.12 The duration of view and frequency of view mainly depend on the nature and the habit of VSRs. Residential VSRs have long duration of view and frequent view. Occupational and Recreational VSRs have medium duration of view and occasional view. Travelling VSRs have short duration of view and rare frequency of view.

Sensitivity of VSRs

- 9.5.13 In general, the sensitivity of VSRs during construction and operation phases would be the same. The assessment of sensitivity of VSRs is presented in **Table 9.5** and described below.
- 9.5.14 R1, R2, R3 and R4 are Residential VSRs with many Number of Individuals, who have alternative views and good quality of views. Degree of Visibility varies from full to partial. Generally, they have long duration of view and frequent view. Their sensitivity is considered as high.
- 9.5.15 GIC1 is an Occupational VSRs with medium Number of Individuals, who has alternative views and good quality of views. They have partial view, medium duration and occasional frequency of view to the Project. Their sensitivity is considered as medium.
- 9.5.16 O1 and O2 are Recreational VSRs with few Number of Individuals, who have alternative views and good quality of views. They have partial view, short duration and rare frequency of view to the Project. Their sensitivity is considered as medium.
- 9.5.17 T1 and T2 are Travelling VSRs with many Number of Individuals, who have alternative views and fair quality of views. They are travelling at speed and have glimpse view to the Project. Their duration of view is short and the frequency of view is rare. Their sensitivity is considered as low.

Table 9.5 Visually Sensitive Receivers (VSRs) and Their Sensitivity

VSR ID.	Visually Sensitive Receiver (VSR)	Type of VSRs	Number of Individuals (Many/Medium/Few)	Quality of Existing View (Good/Fair/Poor)	Availability of Alternative Views (Yes/No)	Degree of Visibility (Full/Partial/Glimpse)	Duration of View (Long/Medium/Short)	Frequency of View (Frequent/Occasional/Rare)	Sensitivity (Low, Medium, High)
R1	Hin Tin Estate	Residential	Many	Good	Yes	Full	Long	Frequent	High
R2	Hin Keng Estate and Ka Tin Court	Residential	Many	Good	Yes	Partial	Long	Frequent	High
R3	Low Rise Residential along Keng Hau Road: L Louey, Angelaville, The Blossom, Joyville, Jade Villa, Lisa Villa	Residential	Many	Good	Yes	Partial	Long	Frequent	High
R4	Parc Royale	Residential	Many	Good	Yes	Partial	Long	Frequent	High
GIC1	Union Hospital	Occupational	Medium	Good	Yes	Partial	Medium	Occasional	Medium
O1	Wilson Trail	Recreational	Few	Good	Yes	Full	Short	Rare	Medium
O2	Hikers on Amah Rock at Lion Rock Country Park	Recreational	Few	Good	Yes	Full	Short	Rare	Medium
T1	Travellers on East Rail	Travelling	Many	Fair	Yes	Glimpse	Short	Rare	Low
T2	Tai Po Road	Travelling	Many	Fair	Yes	Glimpse	Short	Rare	Low

9.6 Landscape Impact Assessment

Sources of Landscape Impacts

9.6.1 The sources of landscape impacts due to the Project would create varying levels of landscape impact during the construction and operation phases. Potential impacts would result from the temporary and permanent works during the construction phase and permanent aboveground structure elements during the operation phase.

9.6.2 The sources of landscape impacts in the construction phase would include:

- Demolition of the existing facilities of the South Works and common facilities for both the North and the South Works in phases;
- Re-provisioning of the South Works;
- Construction of the new common facilities for both the North and the South Works including an administration building, visitor facilities, regional laboratory (Mainland East Laboratory), pre-treatment facilities, Water Treatment Works Logistics Centre, switchgears and power supply, treated water pumping station, and washwater recovery facilities;
- Cut-back of the existing man-made slope located west of the existing clarifiers for construction of Water Treatment Works Logistics Centre;
- Construction of new access roads;
- Temporary associated civil, geotechnical, mechanical and electrical works area;
- Felling of existing trees and other vegetation including some plant species of conservation importance during construction; and
- Change of landscape character temporarily due to the construction works.

9.6.3 The sources of landscape impacts in the operation phase would include:

- Operation of the re-provisioned South Works;
- Operation of the new common facilities for both the North and the South Works including an administration building, visitor facilities, regional laboratory (Mainland East Laboratory), pre-treatment facilities, Water Treatment Works Logistics Centre, switchgears and power supply, treated water pumping station, and washwater recovery facilities;
- Operation of new access roads; and
- Permanent removal of existing trees and other vegetation.

Magnitude of Landscape Impacts

9.6.4 The magnitude of unmitigated landscape impacts associated with the construction phase and operational phase of the Project are assessed and described in **Table 9.6**.

Table 9.6 Magnitude of Landscape Impacts during Construction and Operation Phases

ID No.	Landscape Resources/ Landscape Character Areas	Sources of Impacts from the Project	Description of Unmitigated Impacts	Magnitude of Impact (Large/ Intermediate/ Small/ Negligible)	
				Construction	Operation
LR1	Natural Hillside Woodland	Cut back of the existing Natural Hillside Woodland at the North and the West of Sha Tin WTW due to the Construction and Operation of the Water Treatment Works Logistics Centre and New Access Road and associated slope works.	During Construction Phase, approximately 6,900 sqm of the existing Natural Woodland would be permanently removed.	Large	Large
LR2	Man-made Slope Areas	Cut back of the existing Man-made Slope at the West of Sha Tin WTW due to the Construction and Operation of the New Chemical House and Permanent alienation of the Man-made Slope Area due to the Construction and operation of New Access Road.	During construction phase, approximately 3,900 sqm of the existing Man-made Slope would be permanently removed.	Large	Large
LR3	Landscape Amenity Area at Sha Tin WSW	Construction and Operation of Proposed Administration Building and Mainland East Laboratory.	During construction approximately 380 sqm Area would be permanently removed.	Intermediate	Intermediate
LR4	Lawn Area	Construction and Operation of Re-provisioning of the South Works	During construction phase, approximately 900 sqm of the Lawn Area would be permanently removed.	Large	Large
LR5	Landscape Areas at Hin Keng Estate	Nil	Nil	Negligible	Negligible
LR6	Hin Tin Playground and Football field	Nil	Nil	Negligible	Negligible
LR7	Roadside Planting along Che Kung Mu Road	Nil	Nil	Negligible	Negligible
LR8	Walking Trail	Nil	Nil	Negligible	Negligible
LR9	Watercourse	Nil	Nil	Negligible	Negligible
LCA1	Tai Wai Urban Residential LCA	Nil	Nil	Negligible	Negligible
LCA2	Tai Wai Urban Fringe LCA	Construction and Operation for the whole Project	During construction phase, there would be changes of landscape character areas due to the temporary works and permanent alienation of existing landscape character. During operation phase, there would be localized changes of landscape character areas due to the operation of permanent aboveground structures and permanent alienation of existing landscape resources.	Intermediate	Intermediate
LCA3	Tai Wai Upland and Hillside LCA	Nil	Nil	Negligible	Negligible

Significance of Unmitigated Landscape Impacts

- 9.6.5 The significance of landscape impacts, before implementation of mitigation measures, in the construction and operation phases are assessed and presented in **Table 9.11**.
- 9.6.6 There would be large unmitigated magnitude of impact on LR1, LR2 and LR4 during construction phase due to the permanent alienation of landscape resources including felling large number of existing trees.
- 9.6.7 For LR1 – Natural Hillside Woodland, during construction phase, there would be large magnitude of impact due to the permanent alienation of this resource and a large number of existing trees to be affected. Some of them are of conservation importance. The sensitivity of this resource is high, the significance of the unmitigated impact is considered as substantial. The unmitigated impact during the operation is the same as that during construction without mitigation measures and therefore the impact on this landscape resource during operation remains substantial.
- 9.6.8 For LR2 – Man-made Slope Areas and LR4 - Lawn Area, during construction phase, there would be large magnitude of impact due to the permanent alienation of these resources and a large number of existing trees to be affected. The sensitivity of these resources is medium, the significance of the unmitigated impact is considered as moderate. The unmitigated impact during the operation is the same as that during construction without mitigation measures and therefore the impact on these landscape resources during operation remains moderate.
- 9.6.9 For LR3 – Landscape Amenity Area at Sha Tin WSW, during construction phase, there would be intermediate magnitude of impact due to the permanent alienation of a portion of this resource and a number of existing trees to be affected. The sensitivity of this resource is medium, the significance of the unmitigated impact is considered as moderate. The unmitigated impact during the operation is the same as that during construction without mitigation measures and therefore the impact on these landscape resources during operation remains moderate.
- 9.6.10 For LCA2 - Tai Wai Urban Fringe LCA, during construction phase, there would be intermediate magnitude of impact due to the temporary works and permanent felling of existing trees and other vegetation within the Project Boundary. During operation phase, there would be intermediate magnitude of impact due the permanent aboveground structures and permanent felling of existing trees and other vegetation. The sensitivity of this LCA is medium. The unmitigated impact during the construction and operation phase would be moderate.
- 9.6.11 There would not be any discernable landscape impact on other LRs and LCAs and therefore significance of unmitigated impact on the remaining LRs and LCAs is insubstantial.

9.7 Visual Impact Assessment

Source of Visual Impact

- 9.7.1 The sources of visual impacts due to the Project would create varying levels of visual impact during the construction and operation phases. Potential impacts would result from the temporary works during construction phase and permanent aboveground structure elements during the operation phase.
- 9.7.2 The sources of visual impacts in the construction phase would include:
- Demolition of the existing facilities of the South Works and common facilities for both the North and the South Works in phases;
 - Reprovisioning of the South Works;

- Construction of the new common facilities for both the North and the South Works including an administration building, visitor facilities, regional laboratory (Mainland East Laboratory), pre-treatment facilities, Water Treatment Works Logistics Centre, switchgears and power supply, treated water pumping station, and washwater recovery facilities;
- Cut-back of the existing man-made slope located west of the existing clarifiers for construction of the Water Treatment Works Logistics Centre;
- Construction of new access roads;
- Temporary associated civil, geotechnical, mechanical and electrical works area;
- Felling of existing trees and other vegetation during construction; and
- Change of landscape character temporarily due to the construction works.

9.7.3 The sources of visual impacts in the operation phase would include:

- Operation of the reprovisioned South Works;
- Operation of the new common facilities for both the North and the South Works including an administration building, visitor facilities, regional laboratory (Mainland East Laboratory), pre-treatment facilities, Water Treatment Works Logistics Centre, switchgears and power supply, treated water pumping station, and washwater recovery facilities;
- Operation of new access roads; and
- Permanent removal of existing trees and other vegetation.

9.7.4 The locations and development details of major Permanent Aboveground Structures is shown in **Table 9.7**.

Table 9.7 Locations and Development Details of Major Permanent Aboveground Structures

Proposed Aboveground Structures	Locations	Approximate Height (Meter)	Approximate Coverage (Metre)
Administration Building [including Visitor Facilities, Regional Laboratory (Mainland East Laboratory)]	Southeast of Sha Tin WTW	23	110 x 30
Water Treatment Works Logistics Centre	Western boundary of Sha Tin WTW	23	70 x 35
South Works Pump Station and Transformer Room	Southeast corner of South Works	12	70 x 45
Intermediate Ozonation Building	At the centre of South Works	13	100 x 20

Magnitude of Visual Changes

9.7.5 The magnitude of changes during construction and operation phases is assessed based on the viewing distance, compatibility of the project with the Surrounding Landscape, Duration of Impacts, Scale of Development, Reversibility of Change, Potential Blockage of View as shown in **Table 9.8**.

- 9.7.6 The proposed Project is mainly located within the existing Sha Tin WTW compound. Only a small portion of the works is proposed at the edge of the existing compound. The proposed works are all related to the WTW. It is therefore considered that the compatibility of the Project is medium during the construction phase, mainly due to the proposed temporary works. The duration of impact is considered as medium during construction phase. The scale of development is medium. All temporary works during the construction phase are considered as reversible. There would not be any potential blockage of view during construction phase.
- 9.7.7 During the operation phase, the visual impacts are confined to the permanent aboveground structures, the compatibility of the Project is considered as high. The duration of impact due to permanent aboveground works is long. The scale of development is medium. All permanent works during operation phase are considered as irreversible. There would not be any potential blockage of view during operation phase.
- 9.7.8 There would be intermediate magnitude of change on VSRs, including R1, R2, R3, R4, GIC1, O1, O2, T1 and T2, who can view the Project during the construction phase. The magnitude of change on these VSRs would be reduced to small as the extent of visual impact will be confined to the permanent aboveground works which are compatible with the surrounding landscape and smaller scale of development.

Significance of Unmitigated Visual Impacts

- 9.7.9 The significance of visual impacts, before the implementation of mitigation measures, in the construction phase and operation phase are assessed in accordance with the methodology set out in **Table 9.2** of the Report and described in **Table 9.12**. All impacts are adverse unless otherwise stated.
- 9.7.10 During the construction phase, before implementation of any mitigation measures, there would be moderate visual impact significance for VSRs R1, R2, R3, R4, GIC1, O1, and O2 due to the temporary works proposed for the Project. The unmitigated visual impact would remain moderate during operation phase.
- 9.7.11 There would be slight residual visual impact significance for T1 and T2 both during construction and operation phase.

Recommended Photomontage Viewpoints

- 9.7.12 The criteria for the selection of representative viewpoints for photomontages include: -
- the viewpoints which cover the aboveground structure viewed from major public viewpoint represents key VSRs or VSR groups who would be potentially affected by the proposed Project; and
 - the viewpoints which shall be able to represent the worst case scenarios and demonstrate the compatibility of the aboveground structures to the adjacent visual context and illustrate the visual effect during Day 1 without mitigation measures, Day 1 with mitigation measures and Year 10 with mitigation measures.
- 9.7.13 Based on the location of the proposed aboveground structures, proposed viewpoint from key representative VSRs are mapped in **Figure 9.6.1** and shown in **Figures 9.6.2** and **9.6.5**. They are described as follow:
- Viewpoint V1 from Hin Wan House of Hin Keng Estate – this viewpoint would represent key residential VSR groups (e.g. R1, R2 and R4) who view the Project from a nearest elevated location at the east;
 - Viewpoint V2 from Hin Tak House of Hin Keng Estate – this viewpoint would represent key residential VSR groups (e.g. R2, R3 and GIC1) who view the Project from an elevated location further away from the Project at the north east;
 - Viewpoint V3 from Wilson Trail – this viewpoint would represent key recreational VSR groups who view the Project from a nearest publicly accessible high ground at the south; and

- Viewpoint V4 from Amah Rock at Lion Rock Country Park – this viewpoint would represent key recreational VSR groups who view the Project from a publicly accessible high ground further away from the Project at the east.

9.7.14 Representative viewpoint for photomontage is selected to present key VSRs or VSR groups who would be potentially affected by the Project. Based on site visit, views to the Project are blocked or filtered by existing trees along the hillside of Tai Po Road. Travelling VSRs at Tai Po Road (VSR T2) only have glimpse view to the Project. The sensitivity of this VSR group is low. Travelling VSRs on East Rail also only have glimpse view to the Project. Both VSR T1 and T2 are not key VSRs or VSRs groups who would be potentially affected by the Project. No photomontage viewpoints from these VSR groups are therefore recommended.

Table 9.8 Visually Sensitive Receivers (VSRs) and Their Magnitude of Changes

VSR ID.	Visually Sensitive Receiver (VSR)	Source of Visual Impact	Viewing Distance (m)	Compatibility of the Project with the Surrounding Landscape (High/ Medium/ Low)		Duration of Impacts (Long/ Medium/ Short)		Scale of Development (Large/ Medium/ Small)		Reversibility of Change (Yes/ No)		Potential Blockage of View (Full/ Partial/ Nil)		Magnitude of Change (Large/ Intermediate/ Small/ Negligible)	
				Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation	Construction	Operation
R1	Hin Tin Estate	As listed in Para. 9.7.2 and 9.7.3	70	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
R2	Hin Keng Estate and Ka Tin Court	As listed in Para. 9.7.2 and 9.7.3	70	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
R3	Low Rise Residential along Keng Hau Road: L Louey, Angelaville, The Blossom, Joyville, Jade Villa, Lisa Villa	As listed in Para. 9.7.2 and 9.7.3	20	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
R4	Parc Royale	As listed in Para. 9.7.2 and 9.7.3	500	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
GIC1	Union Hospital	As listed in Para. 9.7.2 and 9.7.3	400	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
O1	Wilson Trail	As listed in Para. 9.7.2 and 9.7.3	350	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
O2	Hikers on Amah Rock at Lion Rock Country Park	As listed in Para. 9.7.2 and 9.7.3	900	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
T1	Travellers on East Rail	As listed in Para. 9.7.2 and 9.7.3	5	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small
T2	Tai Po Road	As listed in Para. 9.7.2 and 9.7.3	180	Medium	High	Medium	Long	Medium	Medium	Yes	No	Nil	Nil	Intermediate	Small

9.8 Landscape and Visual Mitigation Measures

9.8.1 The proposed landscape and visual mitigation measures in the construction and operation are listed in **Table 9.9** and **9.10** below, together with an indication of Funding, Implementation and Maintenance Agencies and illustrated in **Figures 9.5.1** to **9.5.2**. The design illustration of the Project is shown in **Appendix 9.1**.

Table 9.9 Proposed Landscape and Visual Mitigation Measures for Construction Phase

ID No.	Landscape and Visual Mitigation Measures	Funding Agency	Implementation Agency
CM1	Existing trees to be retained on site shall be carefully protected during construction. Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with DEVB TCW No. 10/2013 – Tree Preservation.	WSD	WSD
CM2	Compensatory Planting shall be provided in accordance with DEVB TCW No. 10/2013 – Tree Preservation.	WSD	WSD
CM3	Control of night-time lighting glare.	WSD	WSD
CM4	Erection of decorative screen hoarding compatible with the surrounding setting.	WSD	WSD
CM5	Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	WSD	WSD

Table 9.10 Proposed Landscape and Visual Mitigation Measures for Operation Phase

ID No.	Landscape and Visual Mitigation Measures	Funding Agency	Implementation Agency	Maintenance/ Management Agency
OM1	Aesthetically pleasing design as regard to the form, material and finishes shall be incorporated to proposed permanent aboveground structures of the project so as to blend in the structures to the adjacent landscape and visual context.	WSD	WSD	WSD
OM2	Buffer Tree and Shrub Planting to screen the proposed structures.	WSD	WSD	WSD
OM3	Landscape Enhancement of affected area with amenity planting where practical.	WSD	WSD	WSD
OM4	Vertical Greening shall be incorporated to soften the proposed structures where practical.	WSD	WSD	WSD
OM5	Green Roof shall be proposed to enhance the landscape quality of the structures and mitigate any potential visual impact on adjacent VSRs.	WSD	WSD	WSD
OM6	Landscape Treatments on slope to enhance the landscape and visual amenity value of the proposed man made slopes.	WSD	WSD	WSD

ID No.	Landscape and Visual Mitigation Measures	Funding Agency	Implementation Agency	Maintenance/ Management Agency
OM7	Woodland mix planting (within the site and off-site)	WSD	WSD	WSD

9.8.2 The following good site practice measure will also be incorporated in the construction phase of the project: -

- Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works.

9.8.3 The construction phase mitigation measures listed above shall be implemented as early as possible in order to minimize the landscape impacts in the construction stage. The operation phase mitigation measures listed above shall be adopted during the detailed design and be built as part of the construction works at the last stage of the construction period so that they are in place at the date of commissioning of the Project. However, it should be noted that the full effect of the soft landscape mitigation measures would not be appreciated for several years. Photomontages of the proposed project without and with mitigation measures illustrating the appearance after 10 years of the proposed works are shown in **Figures 9.6.2 to 9.6.5**. Viewpoint locations of the photomontages are shown in **Figure 9.6.1**.

9.9 Residual Impacts

Broad Tree Survey and Impact Summary

9.9.1 Based on a preliminary tree survey, approximately 800 existing trees will be affected by the proposed works. Among these 800 trees, approximately 652 trees will be felled due to the Project. None of these are Registered Old and Valuable Trees. There are approximately 21 nos. of *Aquilaria sinensis* which is protected under Cap. 586 in Hong Kong and 1 no. of *Ailanthus fordii* under the Forest and Countryside Ordinance (Cap 96). Any affected *Aquilaria sinensis* and *Alianthus fordii* including other trees of conservation importance are proposed to be transplanted where possible. Detailed tree survey and removal application will be submitted in accordance with DEVB TCW No. 10/2013 - Tree Preservation separately.

9.9.2 Under the proposed scheme for the Project, opportunities for tree compensation within the project boundary has been fully explored and incorporated in the proposed mitigation measures as much as practicable. Due to limited available space for tree planting within the project boundary, approximately 200 nos. of heavy standard trees and 460 nos. of light standard trees are proposed on-site and off-site at Sha Tin South Freshwater Service Reservoir and Sha Tin West Service Reservoir at Po Fook Shan to compensate for the tree to be felled. It offers a compensation ratio greater than 1:1 (i.e. approximately 660 newly planted trees v.s. approximately 652 felled trees). Approximately 2,300m² of woodland mix planting are proposed on-site whereas about 2,900m² off-site to compensate for the impact to woodland habitat. The proposed woodland compensation area is illustrated in **Figures 8.5 and 8.6**.

9.9.3 In addition to the compensated trees, new landscape resources such as green roof, vertical greening, shrub planting and raised planters are proposed as alternative compensatory planting within the project boundary to optimize greening opportunities. It is considered that with the proposed compensated trees and the proposed new landscape resources, the overall residual impact on existing trees and greenery would be reduced to an acceptable level.

Prediction of Significance of Landscape Impacts

9.9.4 The potential significance of the landscape impacts during the construction and operation phases, before and after mitigation, is provided in **Table 9.11**. The assessment follows the proposed methodology and assumes that the appropriate mitigation measures identified in

Table 9.9 and **9.10** above would be implemented, and the full effect of the soft landscape mitigation measures would be realized after ten years.

- 9.9.5 During the construction phase, there would be substantial to moderate significance on LR1, LR2, LR3 and LR4 due to the felling of existing trees and vegetation under the proposed works of the Project. With the implementation of proposed mitigation measures which include protection of existing trees to be retained, transplanting of affected trees, compensatory planting including buffer tree and shrub planting, landscape enhancement proposals, vertical greening, green roof and landscape treatments to proposed man-made slope, residual impact during construction on LR1 would be substantial and on LR2, LR3 and LR4 would be moderate. The residual impact in Day 1 during Operation would be moderate on LR1 and slight on LR2, LR3 and LR4; and the residual impact in Year 10 of Operation would be reduced to slight and insubstantial when the proposed compensatory trees become mature.
- 9.9.6 During the construction phase, with the implementation of proposed mitigation measures, including Control of night-time lighting glare, erection of decorative screen hoarding and management of facilities on works sites, there would still be moderate residual impact on LCA2. In Day 1 of the Operation Phase, the residual impact would be reduced to slight, with the implementation of aesthetically pleasing design on aboveground structures, buffer tree and shrub planting, landscape enhancement proposals, vertical greening, green roof and landscape treatments to man-made slope. The residual impact would be further reduced to insubstantial in Year 10 of Operation Phase when the proposed compensatory trees become mature.

Table 9.11 Significance of Landscape Impacts during Construction and Operation Phases

ID No.	Landscape Resource / Landscape Character Areas	Sensitivity (Low, Medium, High)		Magnitude of Impact (Negligible, Small, Intermediate, Large)		Impact Significance before Mitigation (Insubstantial, Slight, Moderate, Substantial)		Recommended Mitigation Measures	Significance of Residual Impact (Insubstantial, Slight, Moderate, Substantial)		
		Construction	Operation	Construction	Operation	Construction	Operation		Construction	Operation	
										Day 1	Year 10
LR1	Natural Hillside Woodland	High	High	Large	Large	Substantial	Substantial	CM1, CM2, OM2, OM3, OM4, OM5, OM6, OM7	Substantial	Moderate	Slight
LR2	Man-made Slope Areas	Medium	Medium	Large	Large	Moderate	Moderate	CM1, CM2, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
LR3	Landscape Amenity Area at Sha Tin WTW	Medium	Medium	Intermediate	Intermediate	Moderate	Moderate	CM1, CM2, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
LR4	Lawn Area	Medium	Medium	Large	Large	Moderate	Moderate	CM1, CM2, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
LR5	Landscape Areas at Hin Keng Estate	Medium	Medium	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial
LR6	Hin Tin Playground and Football field	High	High	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial
LR7	Roadside Planting along Che Kung Miu Road	Medium	Medium	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial
LR8	Walking Trail	High	High	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial
LR8	Watercourse	Low	Low	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial
LCA1	Tai Wai Urban Residential LCA	Low	Low	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial

ID No.	Landscape Resource / Landscape Character Areas	Sensitivity (Low, Medium, High)		Magnitude of Impact (Negligible, Small, Intermediate, Large)		Impact Significance before Mitigation (Insubstantial, Slight, Moderate, Substantial)		Recommended Mitigation Measures	Significance of Residual Impact (Insubstantial, Slight, Moderate, Substantial)		
		Construction	Operation	Construction	Operation	Construction	Operation		Construction	Operation	
										Day 1	Year 10
LCA2	Tai Wai Urban Fringe LCA	Medium	Medium	Intermediate	Intermediate	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
LCA3	Tai Wai Upland and Hillside LCA	High	High	Negligible	Negligible	Insubstantial	Insubstantial	Not Required	Insubstantial	Insubstantial	Insubstantial

Prediction of Significance of Visual Impacts

- 9.9.7 The potential significance of the Visual impacts during the construction and operation phases, before and after mitigation, is provided in **Table 9.12**. The assessment followed the proposed methodology and assumed that the appropriate mitigation measures identified in **Table 9.9** and **9.10** above would be implemented, and the full effect of the visual mitigation measures should be realized after ten years.

Residual Visual Impacts

- 9.9.8 During the construction phase, with the implementation of the proposed mitigation measures, including Control of night-time lighting glare, erection of decorative screen hoarding and management of facilities on works sites, there would still be moderate residual impact on VSRs R1, R2, R3, R4, GIC1, O1 and O2 and slight residual impact on VSRs T1 and T2.
- 9.9.9 During the operation phase, with the implementation of proposed mitigation measures including aesthetically pleasing design of aboveground structures, buffer tree and shrub planting, landscape enhancement of affected areas, vertical green, green roof and landscape treatments to proposed man-made slope, the residual impact would be slight in Day 1 of Operation Phase and reduced to insubstantial in Year 10 of Operation Phase when the proposed trees become mature.

Table 9.12 Significance of Visual Impacts in Construction and Operation Phases (Adverse Impacts unless otherwise stated)

Id. No.	Key Visually Sensitive Receivers (VSRs)	Receptor Sensitivity (Low, Medium, High)		Magnitude of Change (Negligible, Small, Intermediate, Large)		Impact Significance Threshold BEFORE Mitigation (Insubstantial, Slight, Moderate, Significant)		Recommended Mitigation Measures	Residual Impact Significance Threshold AFTER Mitigation (Insubstantial, Slight, Moderate, Substantial)		
		Construction	Operation	Construction	Operation	Construction	Operation		Construction	Operation	
										DAY 1	YEAR 10
R1	Hin Tin Estate	High	High	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
R2	Hin Keng Estate and Ka Tin Court	High	High	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
R3	Low Rise Residential along Keng Hau Road: L Louey, Angelaville, The Blossom, Joyville, Jade Villa, Lisa Villa	High	High	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
R4	Parc Royale	High	High	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
GIC1	Union Hospital	Medium	Medium	Intermediate	Small	Moderate	Slight	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
O1	Wilson Trail	Medium	Medium	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial
O2	Hikers on Amah Rock at Lion Rock Country Park	Medium	Medium	Intermediate	Small	Moderate	Moderate	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Moderate	Slight	Insubstantial

Id. No.	Key Visually Sensitive Receivers (VSRs)	Receptor Sensitivity (Low, Medium, High)		Magnitude of Change (Negligible, Small, Intermediate, Large)		Impact Significance Threshold BEFORE Mitigation (Insubstantial, Slight, Moderate, Significant)		Recommended Mitigation Measures	Residual Impact Significance Threshold AFTER Mitigation (Insubstantial, Slight, Moderate, Substantial)		
		Construction	Operation	Construction	Operation	Construction	Operation		Construction	Operation	
										DAY 1	YEAR 10
T1	Travellers on East Rail	Low	Low	Intermediate	Small	Slight	Slight	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Slight	Slight	Insubstantial
T2	Tai Po Road	Low	Low	Intermediate	Small	Slight	Slight	CM3, CM4, CM5, OM1, OM2, OM3, OM4, OM5, OM6, OM7	Slight	Slight	Insubstantial

9.10 Cumulative Impacts

- 9.10.1 The construction activities of the Project are tentatively scheduled to be within the time frame from 2015 to 2021. Based on the latest available information, only the Shatin to Central Link (SCL) would be constructed by the MTR Corporation concurrently with the Project.
- 9.10.2 The construction works of SCL near Hin King area, including the alignment at Hin Keng and the Hin Keng Station, would commence in 2013 and be completed by June 2016. The Hin Keng Portal would be constructed at the plantation and urban area north of Tei Lung Hau stream. The works site is about 100 m away from the Project site. It is anticipated with the implementation of mitigation measures, there would not be any insurmountable cumulative landscape and visual impacts.

9.11 EM&A Requirements

- 9.11.1 Implementation of the recommended mitigation measures would be regularly audited. Details of environmental monitoring and audit (EM&A) requirement are discussed in the separate EM&A Manual.

9.12 Conclusion

- 9.12.1 The proposed works of the Project at Sha Tin WTW would inevitably result in some landscape and visual impacts during the construction and operation phases. These impacts have been minimized through careful consideration of alternatives, minimization of works areas, incorporation of aesthetic external designs and landscape treatments of proposed structures.
- 9.12.2 The proposed works will be mainly located within the existing Sha Tin WTW Compound under the Other Specified Uses (OU) of the Approved Sha Tin Outline Zoning Plan No. S/ST/30. It is considered that the proposed Project is permitted development under the OZP and would fit in with the current and future planning settings and would not be in conflict with the statutory town plan.
- 9.12.3 Based on a preliminary tree survey, approximately 800 existing trees will be affected by the proposed works. None of these are Registered Old and Valuable Trees. There are approximately 21 nos. of *Aquilaria sinensis* which is protected under Cap. 586 in Hong Kong and 1 no. of *Ailanthus fordii* under the Forest and Countryside Ordinance (Cap. 96). Any affected *Aquilaria sinensis* and *Ailanthus fordii* including other trees of conservation importance are proposed to be transplanted where possible. Detailed tree survey and removal application will be submitted in accordance with DEVB TCW No. 10/2013 - Tree Preservation separately. Under the proposed scheme for the Project, opportunities for tree compensation within the project boundary have been fully explored and incorporated in the proposed mitigation measures as much as practicable. Due to limited available space for tree planting within the project boundary, approximately 200 nos. of heavy standard trees and 460 nos. of light standard trees are proposed on-site and off-site at Sha Tin South Freshwater Service Reservoir and Sha Tin West Service Reservoir at Po Fook Shan to compensate for the tree felled. Approximately 2,300m² of woodland mix planting are proposed on-site whereas about 2,900m² off-site to compensate for the impact to woodland habitat.
- 9.12.4 There would be substantial residual landscape impact on LR1 and moderate residual landscape impact on LR2, LR3, LR4 and LCA2 with the implementation of proposed mitigation measures during construction phase. The residual impact of LR1 would be moderate and LR2, LR3, LR4 and LCA2 would be slight in Day 1 operation phase and reduced to slight and insubstantial in Year 10 of operation phase when the proposed compensatory planting including woodland mix planting becomes mature. Because not all woodland/tree compensation will be provided on-site, some of the woodland planting will be compensated off-site. There would still be some slight residual impact on LR1.
- 9.12.5 There would be moderate residual visual impact on VSRs R1, R2, R3, R4, GIC1, O1 and O2 and slight residual impact on VSRs T1 and T2 during the construction phase. The residual impact would be slight in Day 1 of Operation Phase and reduced to insubstantial in Year 10 of Operation Phase.
- 9.12.6 Although there is slight residual impact on LR1, as a whole, it is considered that the residual landscape and visual impacts of the proposed project is considered acceptable with mitigation measures implemented during construction and operation phases.

~ End of Section 9 ~