

9. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

9.1 Introduction

9.1.1 This chapter of the report outlines the landscape and visual impacts associated with the proposed expansion of Sha Tau Kok Sewage Treatment Works (STKSTW) in accordance with the Environmental Impact Assessment Ordinance (EIAO). Both construction and operation impacts are assessed in accordance with the requirements of the Study Brief (ESB-253/2012) section 3.4.8.

9.1.2 After this introductory section, the following sections are included:

- 9.2 Environmental Legislation, Standards and Guidelines
- 9.3 Assessment Area
- 9.4 Assessment Methodology
- 9.5 Review of Planning and Development Control Framework
- 9.6 Findings of Baseline Study
- 9.7 Potential Sources of Landscape and Visual Impact
- 9.8 Landscape Impact Assessment
- 9.9 Cumulative Landscape Impacts
- 9.10 Visual Impact Assessment
- 9.11 Cumulative Visual Impacts
- 9.12 Conclusions

9.2 Environmental Legislation, Standards and Guidelines

9.2.1 The environmental legislations, standards and guidelines below are relevant to the landscape and visual impact assessment for this Project.

- 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 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 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;
- Land Administration Office Instruction (LAOI) Section D-12 - Tree Preservation; and
- Study on Landscape Value Mapping of Hong Kong
- DEVB TC(W) 3/2012 on “Site Coverage for Government Building Projects”
- General Guidelines on Tree Pruning by DEVB
- Guidelines for Tree Risk Assessment and Management Arrangement by DEVB

9.3 Assessment Area

Landscape Assessment

9.3.1 In accordance with Clause 3.4.8.2 of the EIA Study Brief No. ESB-253/2012, the Landscape Assessment Area includes all areas within 500m extended from the boundary of the Project. The Landscape Assessment Area is shown in [Figure 9.1](#).

Visual Assessment

9.3.2 The Visual Assessment Area is identified by the visual envelope (Zone of Visual Influence, ZVI) of this Project and its associated works as specified in Clause 3.4.8.2 of the EIA Study Brief No. ESB- ESB-253/2012. The Visual Assessment Area is illustrated in [Figure 9.2](#).

9.4 Assessment Methodology

9.4.1 The landscape and visual impact assessment (LVIA) is based on the criteria and guidelines stated in Annexes 10 and 18 of the EIAO-TM and covered in the scope outlined in Section 3.4.8 and Appendix H of the EIA Study Brief No. ESB-253/2012. The main elements include:

- Review of relevant planning and development control framework
- Baseline study of LRs, LCAs and VSRs
- Identification of potential sources of landscape and visual impacts based on proposed works of the Project
- Identification of potential landscape and visual impacts during the construction and operational phases
- Recommendation on mitigation measures
- Identification of residual impacts
- Assessment on acceptability according to the criteria set out in Annex 10 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM)

Review of Planning and Development Control Framework

9.4.2 A review of the existing planning studies and documents was undertaken to check whether the proposed project will be compatible with the planned land use and can fit into surrounding setting.

Landscape Impact Assessment

9.4.3 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 9.1: Sensitivity and Magnitude of Change on the Degree of Impact Significance

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

Note:

- Significant – 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

9.4.4 The landscape assessment for construction phase and operational phase is conducted separately due to the different potential sources affecting the magnitude of change on landscape impacts.

Visual Impact Assessment

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

- **Identification of the Visually Sensitive Receivers (VSRs) within the ZVIs at construction and operational phases.** These are the people who would reside within, work within, play within, or travel through, the ZVIs.
- **Assessment of the degree of sensitivity to change of the VSRs and assessment of the potential magnitude of visual impacts.** This includes consideration of the following factors:
 - Value and quality of existing views;
 - Availability and amenity of alternative views;
 - Type of VSRs;
 - Number of VSRs;
 - Duration and frequency of view; and,
 - Degree of visibility.
- **The sensitivity of VSRs is classified as follows:**
 - **High** - The VSRs are highly sensitive to any changes in their visual experience.
 - **Medium** - The VSRs are moderately sensitive to any changes in their visual experience.
 - **Low** -The VSRs are slightly sensitive to any changes in their viewing experience.
- **The magnitude of change are classified as follows:**
 - **Large:** The VSRs would suffer a major change in the character of their viewing experience.
 - **Intermediate:** The VSRs will suffer a moderate change in their visual experience.

- **Small:** The VSRs will suffer a slight change in their visual experience.
- **Negligible:** The VSRs will suffer no discernible change in their visual experience.
- **Identification of potential sources of visual impacts.** These are the various elements of the construction works and operational procedures that would generate visual impacts.
- **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 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 of visual impacts.** The evaluation of the sensitivity and magnitude of change on VSRs is conducted in a logical, reasonable and consistent manner for both construction and operational phases. Each VSR is given a degree of visual impact significance depending on the severity of sensitivity and magnitude. The rationale for categorising the degree of visual impact significance into four thresholds is illustrated in **Table 9.1** above.

9.4.6 The visual assessment for construction phase and operational phase is conducted separately due to the different potential sources affecting the magnitude of change on landscape impacts.

Residual Impact Assessment

9.4.7 Residual impacts are evaluated by the sensitivity and magnitude of change for both landscape and visual assessment after the implementation of proposed mitigation measures. In accordance to Annex 10 of EIAO TM, overall assessment of residual landscape and visual impacts for this Project is placed into one of the following five thresholds.

- **Beneficial** – The project complements the landscape and visual character of its setting and follows the relevant planning objectives. It will improve overall landscape or visual quality.
- **Acceptable** – There are no significant effects on landscape or visual effects caused by this Project.
- **Acceptable with mitigation measures** – There will be some adverse effects that may be eliminated, reduced, or offset by specific mitigation measures.
- **Unacceptable** – The adverse effects are considered to be excessive with implemented mitigation measures.
- **Undetermined** – Significant adverse effects are likely but the extent of which they occur or may be mitigated cannot be determined from this study. Further detailed study may be required.

9.5 Planning and Development Control Framework

- 9.5.1 A review has been undertaken of the current planning objectives, statutory land-use and landscape planning designations for the Assessment Area.
- 9.5.2 The relevant OZP is Sha Tau Kok Outline Zoning Plan No. S/NE-STK/2. The proposed project will fall within one zoning of G/IC – Government, Institution or Community ([Figure 9.3](#)). According to the Explanatory Statements at Para 9.2.1, this zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of Government, organizations providing social services to meet community needs, and other institution establishments.
- 9.5.3 The use of land for sewage treatment plant (as Sewage Treatment/Screening Plant) is included in Column 2 of the OZP. Therefore, the proposed project requires planning permission under Section 16 of the Town planning Ordinance from the Town Planning Board (TPB). The proposed permanent STKSTW and the temporary sewage treatment plant (TSTP) are two main components of the project and both requires planning permission from the TPB. In order to let TPB have a comprehensive view on the overall proposed development, the applications for the permanent STKSTW and TSTP are recommended to be submitted to TPB at the same time.

9.6 Findings of Baseline Study

- 9.6.1 The baseline study was conducted within the Landscape Assessment Area. The extent of the assessment area is indicated in [Figure 9.1](#) while the aerial view of the area is shown in [Figure 9.1a](#).

Landscape Resources (LRs)

- 9.6.2 A total of 55 LR (in 10 groups) were recorded in the landscape baseline study. The Locations of these LR are mapped in [Figure 9.4](#), while their photo-views are illustrated in [Figures 9.4a-k](#).
- 9.6.3 The identified landscape resources, together with their sensitivity, are described below:

Woodland (LR1.1-1.7)

- 9.6.4 **LR1.1 – Shan Tsui Village Road Woodland** – An area of natural hillside woodland of approximately 10ha is located along Shan Tsui Village Road and Sheung Tam Shui Hang village. The LR contains about 6,000 trees of fair health condition and tree form. The average height of trees ranges from 9m to 18m. Dominant tree species are all natural natives include *Adenantha microsperma*, *Alangium chinense*, *Antidesma bunius*, *Aphananthe cuspidate*, *Aporosa chinensis*, *Celtis sinensis*, *Cinnamomum camphora*, *Dimocarpus longan*, *Mallotus paniculatus*, *Schima superb*, *Sterculia lanceolata*, *Schefflera heptaphylla*, *Symplocos glauca*, *Syzygium spp.*, *Machilus spp.*, etc. A rare tree species *Xylosma longifolium* of conservation interest was found at the edge of the woodland near Shan Tsui village. The sensitivity of this landscape resource is High.
- 9.6.5 **LR1.2 – Shan Tsui Woodland** – An area of woodland of approximately 5ha is located behind Shan Tsui village, which was once part of the LR1.1 before the construction of the Shan Tsui Village Road. This LR contains about 2,000 trees of fair health condition and tree form. The average height of trees ranges from 6m to 15m. Common tree species include *Alangium chinense*, *Aporosa chinensis*, *Aphananthe cuspidate*, *Celtis*

sinensis, *Cinnamomum camphora*, *Cinnamomum burmannii*, *Dimocarpus longan*, *Ficus variegata*, *Litchi chinensis*, *Litsea glutinosa*, *Macaranga tanarius*, *Mallotus paniculatus*, *Microcos paniculata*, *Sterculia lanceolata*, *Schefflera heptaphylla*, *Symplocos glauca*, *Viburnum odoratissimum*, *Syzygium* spp., *Machilus* spp., etc. The sensitivity of this landscape resource is High.

- 9.6.6 **LR1.3 – Shan Tsui Eastern Woodland** – A small area of woodland of approximately 0.5ha is located east of LR1.2. Similar to LR1.2, this piece of woodland was once part of the main woodland before the construction of the Shan Tsui Village Road. This LR contains about 200 trees of fair health condition and tree form. The average height of trees ranges from 6m to 15m. Common tree species include *Alangium chinense*, *Aporusa chinensis*, *Antidesma bunius*, *Aphananthe cuspidate*, *Celtis sinensis*, *Cinnamomum camphora*, *Dimocarpus longan*, *Litsea glutinosa*, *Macaranga tanarius*, *Mallotus paniculatus*, *Microcos paniculata*, *Sterculia lanceolata*, *Schefflera heptaphylla*, etc. The sensitivity of this landscape resource is High.
- 9.6.7 **LR1.4 – Mixed Woodland east of Lin Ma Hang Road** – An area of woodland of approximately 8ha in size which is mixed with some pieces of shrubby and grassy areas. This woodland is young in age which is developed after the abandonment of the farmland. There are approximately 1,200 trees of fair health condition and tree form. The average height of trees ranges from 6m to 12m. Common tree species include *Aporusa chinensis*, *Araucaria heterophylla*, *Bischofia javanica*, *Celtis sinensis*, *Dimocarpus longan*, *Ficus elastic*, *Ficus hispida*, *Litsea glutinosa*, *Macaranga tanarius*, *Mallotus paniculatus*, *Melia azedarach*, *Microcos paniculata*, *Phyllanthus emblica*, *Sterculia lanceolata*, etc. The sensitivity of this landscape resource is Medium.
- 9.6.8 **LR1.5 – Yuen Tuen Shan Woodland** – An area of woodland of approximately 5ha in size is located on Yuen Tuen Shan north of Kong Ha Village. Village houses are still in use in the understory and therefore the trees are mixed with those houses and villagers' storage structures. There are approximately 1,300 trees of fair health condition and tree form. The average height of trees ranges from 6m to 15m. Common tree species include *Adenanthera microsperma*, *Aporusa chinensis*, *Celtis sinensis*, *Dimocarpus longan*, *Ficus hispida*, *Ficus microcarpa*, *Ficus variegata*, *Litchi chinensis*, *Litsea glutinosa*, *Macaranga tanarius*, *Mallotus paniculatus*, *Melia azedarach*, *Microcos paniculata*, *Sterculia lanceolata*, *Viburnum odoratissimum*, etc. The sensitivity of this landscape resource is Medium.
- 9.6.9 **LR1.6 – Sheung Tam Shui Hang Woodland** – A small area of natural woodland area west of Sheung Tam Shui Hang Village is located at the edge of the 500m Landscape Assessment Area. There are approximately 100 trees of fair health condition and tree form. The average height of trees ranges from 6m to 15m. Recorded tree species include *Archidendron clypearia*, *Alangium chinense*, *Aporusa chinensis*, *Castanopsis fissa*, *Celtis sinensis*, *Cinnamomum camphora*, *Dimocarpus longan*, *Ficus hispida*, *Litsea monopetala*, *Macaranga tanarius*, *Mallotus paniculatus*, *Schima superb*, *Sterculia lanceolata*, *Schefflera heptaphylla*, *Symplocos glauca*, etc. The sensitivity of this landscape resource is High.
- 9.6.10 **LR1.7 – Muk Min Tau Woodland** – An area of woodland of approximately 8ha is located behind Muk Min Tau village. There are approximately 5,000 trees of fair health condition and tree form. The average height of trees ranges from 9m to 18m. Dominant tree species are all natural natives include *Adenanthera microsperma*, *Alangium chinense*, *Antidesma bunius*, *Aphananthe cuspidate*, *Aporusa chinensis*, *Casearia glomerata*, *Celtis sinensis*, *Cinnamomum camphora*, *Delonix regia*, *Dimocarpus longan*, *Ficus microcarpa*, *Garcinia oblongifolia*, *Macaranga tanarius*, *Mallotus paniculatus*, *Pterospermum heterophyllum*, *Reevesia thyrsoidea*, *Schima superb*, *Sterculia lanceolata*, *Schefflera heptaphylla*, *Symplocos glauca*, *Syzygium jambos*, etc. The tree

species *Aquilaria sinensis* of conservation interest was found within the woodland, which is currently listed under *the Protection of Endangered Species of Animals and Plants Ordinance (Cap 586)*. The sensitivity of this landscape resource is High.

Grassland (LR2.1-2.17)

- 9.6.11 **LR2.1 – Lin Ma Hang Road Grassland** – An area of grassland of approximately 0.1ha comprising common grasses *Microstegium ciliatum*, *Miscanthus floridulus* and *Pennisetum purpureum*. The sensitivity of this landscape resource is Low.
- 9.6.12 **LR2.2 – Grassy Marshland west of Shan Tsui village** – An area of grassy marshland of approximately 2.2ha comprising common wetland plants *Commelina diffusa*, *Cyclosorus interruptus*, *Glochidion hirsutum*, *Hedychium coronarium*, *Panicum repens* and *Phragmites australis*. Degradation due to disposal of construction waste was observed during the baseline survey. The sensitivity of this landscape resource is Medium.
- 9.6.13 **LR2.3 – Grassy Marshland south of Shan Tsui village** – A small area of grassy marshland of approximately 0.3ha comprising common wetland plants *Colocasia esculenta*, *Commelina diffusa*, *Cyclosorus interruptus*, *Isachne globosa*, *Panicum repens* and *Polygonum perfoliatum*. Degradation due to disposal of construction waste was observed during the baseline survey. The sensitivity of this landscape resource is Medium.
- 9.6.14 **LR2.4 – Grassy Marshland east of Tam Shui Hang** – An area of grassy marshland of approximately 3.5ha comprising common wetland plants *Alocasia macrorrhizos*, *Colocasia esculenta*, *Commelina diffusa*, *Cyclosorus interruptus*, *Glochidion hirsutum*, *Glochidion zeylanicum*, *Panicum repens* and *Phragmites australis*. Degradation due to disposal of construction waste was observed during the baseline survey. The sensitivity of this landscape resource is Medium.
- 9.6.15 **LR2.5 – Grassland west of Tam Shui Hang** – An area of grassland of approximately 4.2ha comprising common grasses *Imperata cylindrical* and *Microstegium ciliatum*. The sensitivity of this landscape resource is Medium.
- 9.6.16 **LR2.6 – Hillside Grassland north of Tsiu Hang** – An area of hillside grassland of approximately 0.4ha comprising common grasses *Apluda mutica*, *Imperata cylindrical* and *Microstegium ciliatum*. The sensitivity of this landscape resource is Medium.
- 9.6.17 **LR2.7 – Grassland at Tsiu Hang** – A large area of grassland of approximately 6.3ha comprising common grasses and ferns, which was developed by long time abandonment of agricultural lands. Two plant species of conservation interest were found in this grassland: *Zeuxine strateumatica* which is a protected species scheduled under the Forests and Countryside Ordinance (Cap. 96) and Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586); and *Ceratopteris thalictroides* which is a species listed within AFCD's *Rare and Precious Plants of Hong Kong*. The sensitivity of this landscape resource is Medium.
- 9.6.18 **LR2.8 – Grassland at Muk Min Tau** – This LR of approximately 0.3ha comprises two small pieces of grassland originated from abandoned agricultural lands. They are dominated by common grasses and invasive weeds *Bidens alba*, *Ipomoea cairica*, *Microstegium ciliatum* and *Mikania micrantha*. The sensitivity of this landscape resource is Low.
- 9.6.19 **LR2.9 – Grassland west of Kong Ha village** – A small area of grassland of approximately 0.4ha comprising common grasses and weeds *Bidens alba*, *Microstegium ciliatum* and *Wedelia trilobata*. The sensitivity of this landscape resource is Low.

- 9.6.20 **LR2.10 – Grassy Marshland south of Kong Ha village** – An area of grassy marshland of approximately 1.8ha comprising common herbs and wetland plants *Acrostichum aureum*, *Colocasia esculenta*, *Commelina diffusa*, *Cyclosorus interruptus*, *Glochidion hirsutum*, *Panicum repens*, *Polygonum perfoliatum* and *Wedelia trilobata*. This grassland is developed from abandoned agricultural lands of Kong Ha village. The sensitivity of this landscape resource is Medium.
- 9.6.21 **LR2.11 – Grassland north of Sha Tau Kok Chuen** – A small area of grassland of approximately 0.4ha comprising common grasses and weeds *Bidens alba*, *Imperata cylindrical*, *Microstegium ciliatum*, *Panicum maximum* and *Wedelia trilobata*. Some self-seeded and invasive tree species such as *Hibiscus tiliaceus* and *Leucaena leucocephala* are also been observed. A mature *Ficus microcarpa* (Chinese Banyan Tree) of aggregate trunk diameter of approximately 1m was found well preserved in this LR near a footpath, probably for *fung shui* reason or amenity purpose, by the villagers. Although the type of this LR is common in the New Territories, the sensitivity is considered to be High due to the presence of the outstanding mature *Ficus microcarpa*.
- 9.6.22 **LR2.12 – Grassland of Sha Tau Kok Drainage Channel** – A drainage channel maintenance area of approximately 1.2ha in size with grassland and tree planting for landscape enhancement. Approximately 60 trees of common species are sparsely planted on the grassland for amenity purpose. Tree species include *Archontophoenix alexandrea*, *Bauhinia spp.*, *Caryota mitis*, *Cinnamomum camphora*, *Litsea monopetala*, *Livistona chinensis*, *Macaranga tanarius*, *Melaleuca cajuputi*, *Peltophorum tonkinense* and *Phoenix roebelenii*. The sensitivity of this landscape resource is Medium.
- 9.6.23 **LR2.13 – Grassland near Muk Min Tau San Tsuen** – An area of grassland of approximately 1.1ha comprising common grasses and weeds *Bidens alba*, *Microstegium ciliatum*, *Panicum maximum*, *Mikania micrantha* and *Wedelia trilobata*. The sensitivity of this landscape resource is Medium.
- 9.6.24 **LR2.14 – Grassland south of Sha Tau Kok Road** – A semi-abandoned agricultural land overgrown with grasses and weeds of approximately 0.2ha. Approximately 40 papaya trees (*Carica papaya*) were observed on the grassland. The sensitivity of this landscape resource is Low.
- 9.6.25 **LR2.15 – Grassland west of Sha Tau Kok Chuen** – A small area of grassland of approximately 0.2ha comprising common grasses and weeds *Bidens alba*, *Panicum maximum* and *Wedelia trilobata*. 17 trees of common species were found planted or self-seeded on the grassland and species includes *Acacia confusa*, *Bauhinia blakeana*, *Celtis sinensis*, *Leucaena leucocephala*, *Macaranga tanarius* and *Melaleuca cajuputi*. The sensitivity of this landscape resource is Low.
- 9.6.26 **LR2.16 – Grassland south of Sha Tau Kok Chuen Bus Terminus** – An area of grassland of approximately 0.2ha developed on a vacant governmental land. Approximately 40 trees of common species were observed along the peripheral of the grassland, including *Albizia lebeck*, *Ficus virens*, *Macaranga tanarius*, *Leucaena leucocephala* and *Liquidambar formosana*. The sensitivity of this landscape resource is Medium.
- 9.6.27 **LR2.17 – Grassland south of Sha Tau Kok Market** – An area of grassland of approximately 0.3ha developed on a vacant governmental land. 16 trees of common species were observed along the peripheral of the grassland, including *Aleurites moluccana*, *Casuarina equisetifolia*, and *Leucaena leucocephala*. The sensitivity of this landscape resource is Medium.

Mangrove (LR3.1-3.2)

9.6.28 **LR3.1 – Mangrove south of Ha Tam Shui Hang** – A mangrove area of approximately 0.1ha comprising mangrove species *Avicennia marina* and *Kandelia obovata*. The sensitivity of this landscape resource is High.

9.6.29 **LR3.2 – Mangrove along Starling Inlet** – A mangrove area of approximately 1.3ha comprising mangrove species *Aegiceras corniculatum*, *Avicennia marina*, *Excoecaria agallocha* and *Kandelia obovata*. The sensitivity of this landscape resource is High.

Ponds (LR4.1)

9.6.30 **LR4.1 – Fishponds south of Sha Tau Kok Road** – Two fishponds of total area of approximately 2.1ha. Approximately 30 trees of common species were observed growing along the pond bund, including *Aporosa chinensis*, *Bridelia tomentosa*, *Celtis sinensis*, *Cinnamomum burmannii*, *Glycosmis parviflora*, *Macaranga tanarius*, *Melia azedarach*, *Schefflera heptaphylla* and *Thespesia populnea*. The sensitivity of this landscape resource is High.

Watercourses (LR5.1-5.3)

9.6.31 **LR5.1 – Tam Shui Hang Stream** – A short section (approximately 80m in length) of semi-natural water stream at north-west of Sheung Tam Shui Hang. Dominant riparian vegetation is the common grass *Microstegium ciliatum*. The sensitivity of this landscape resource is High.

9.6.32 **LR5.2 – Tam Shui Hang Drainage Channel** – This is the major section of the stream of approximately 400m in length which had been channelized for better drainage. The sensitivity of this landscape resource is Low.

9.6.33 **LR5.3 – Shenzhen River Sha Tau Kok Section** – A short section (approximately 210m in length) of Shenzhen River is located within the 500m landscape assessment area. The water was observed to be heavily polluted by domestic discharge. The sensitivity of this landscape resource is Low.

Urban Trees (LR6.1-6.14)

9.6.34 **LR6.1 – Trees along Shan Tsui Village Road** – There are about 210 roadside landscaping trees with an average height of 6-8m and of fair health condition and tree form, comprising mainly *Callistemon viminalis*, *Bauhinia blakeana*, *Lagerstroemia speciosa*, *Liquidambar formosana* and *Spathodea campanulata*. The sensitivity of this landscape resource is Medium.

9.6.35 **LR6.2 – Trees north of Sha Ho Road** – There are about 180 trees of fair health condition and tree form found outside the boundary fence of the restricted area along Sha Ho Road, with an average height of 6-12m comprising mainly *Bridelia tomentosa*, *Celtis sinensis*, *Delonix regia*, *Macaranga tanarius* and *Schefflera heptaphylla*. The sensitivity of this landscape resource is Medium.

9.6.36 **LR6.3 – Trees along Sha Ho Road** – There are 43 trees on the planting area along Sha Ho Road, with an average height of 6-10m and of fair health condition and tree form. All these planted trees are of common landscaping species *Bischofia javanica*. The sensitivity of this landscape resource is Medium.

9.6.37 **LR6.4 – Trees near Sha Tau Kok Police Checkpoint** – There are about 36 trees on the planting area northwest of the Sha Tau Kok Police Checkpoint, with an average height of 8-15m and of fair health condition and tree form. All these planted trees are of common landscaping species *Delonix regia* and *Melaleuca cajuputi*. The sensitivity of this landscape resource is Medium.

- 9.6.38 **LR6.5 – Trees along Sha Tau Kok Road** – There are about 73 roadside trees found along the Sha Tau Kok Road, with an average height of 8-15m and of fair health condition and tree form, comprising mainly *Bauhinia blakeana*, *Bischofia javanica*, *Bombax ceiba*, *Celtis sinensis*, *Delonix regia*, *Eucalyptus citriodora*, *Hibiscus tiliaceus*, *Litchi chinensis* and *Melaleuca cajuputi*. The sensitivity of this landscape resource is Medium.
- 9.6.39 **LR6.6 – Trees at Sha Tau Kok Children’s Playground** – There are about 90 trees of fair health condition and tree form found in the playground, with an average height of 6-12m comprising mainly *Acacia confusa*, *Antidesma bunius*, *Callistemon viminalis*, *Casuarina equisetifolia*, *Hibiscus tiliaceus*, *Juniperus chinensis*, *Phoenix roebelenii* and *Platyclusus orientalis*. The sensitivity of this landscape resource is Medium.
- 9.6.40 **LR6.7 – Trees at Sitting-out Area south of Sha Tau Kok Central Primary School** – There are about 30 trees with an average height of 6-12m and of fair health condition and tree form, comprising mainly *Aleurites moluccana*, *Araucaria heterophylla*, *Cinnamomum burmannii* and *Ficus microcarpa*. The sensitivity of this landscape resource is Medium.
- 9.6.41 **LR6.8 – Trees along Shun Hing Street** – There are about 138 roadside trees of fair health condition and tree form found along the Sha Tau Kok Road, with an average height of 8-12m comprising *Aquilaria sinensis*, *Bauhinia blakeana*, *Bombax ceiba*, *Callistemon viminalis*, *Cinnamomum camphora*, *Ficus benjamina*, *Ficus benghalensis*, *Ficus microcarpa*, *Ficus virens*, *Eucalyptus torelliana*, *Hibiscus tiliaceus*, *Lagerstroemia speciosa*, *Melaleuca cajuputi*, *Plumeria rubra*, *Syzygium jambos* and *Terminalia mantaly*, of which *Aquilaria sinensis* is a plant species listed under the *Protection of Endangered Species of Animals and Plants Ordinance (Cap 586)*. Two young *Aquilaria sinensis* are propagated individuals planted in tree pits near Sha Tau Kok Fire Station for roadside amenity purpose. The sensitivity of this landscape resource is Medium.
- 9.6.42 **LR6.9 – Trees along Sha Tau Kok Road Shek Chung Au within Sha Tau Kok Chuen** – There are about 56 roadside trees with an average height of 8-12m and of fair health condition and tree form, comprising *Acacia confusa*, *Aleurites moluccana*, *Ficus virens*, and *Liquidambar formosana*. The sensitivity of this landscape resource is Medium.
- 9.6.43 **LR6.10 – Trees surrounding Sha Tau Kok Sewage Treatment Works** – This is a tree planting area of approximately 0.31ha. There are about 150 trees of fair health condition and tree form growing along the peripheral of the existing sewage treatment works, with an average height of 4-9.5m, comprising *Acacia confusa*, *Bridelia tomentosa*, *Celtis sinensis*, *Cinnamomum camphora*, *Ficus hispida*, *Ficus microcarpa*, *Hibiscus tiliaceus* and *Macaranga tanarius*. The sensitivity of this landscape resource is Medium. A certain portion of this LR falls within the original footprint of the proposed project, where a tree survey was conducted. The preliminary findings of the survey are detailed separately in next section of **Tree Survey**.
- 9.6.44 **LR6.11 – Trees along Shun Lung Street** – There are about 8 trees with an average height of 9-12m and of fair health condition and tree form, comprising *Ficus virens*, *Ficus microcarpa* and *Melaleuca quinquenervia*. The sensitivity of this landscape resource is Medium.
- 9.6.45 **LR6.12 – Trees along Sha Tau Kok Promenade Sitting-out Area** – There are about 200 trees of fair health condition and tree form planted along the Sha Tau Kok Promenade Sitting-out Area for amenity purpose, with an average height of 8-12m comprising mainly *Alstonia scholaris*, *Ficus benghalensis*, *Ficus microcarpa*, *Ficus virens*, *Hibiscus tiliaceus*, *Livistona chinensis* and *Platyclusus orientalis*. The sensitivity of this landscape resource is Medium.

9.6.46 **LR6.13 – Trees west of Sha Tau Kok Recreation Ground** – There are about 30 trees with an average height of 6-12m and of fair health condition and tree form, comprising mainly *Bridelia tomentosa*, *Ficus microcarpa*, *Leucaena leucocephala* and *Macaranga tanarius*. The sensitivity of this landscape resource is Medium.

9.6.47 **LR6.14 – Trees north of Sha Tau Kok Pier** – The area is a vacant land overgrown by the invasive tree species of *Leucaena leucocephala*. Approximately 50 *Leucaena leucocephala* were observed. Most of these *Leucaena leucocephala* are of fair health condition but poor tree form. The sensitivity of this landscape resource is Low.

Vegetated Islands (LR7.1-7.2)

9.6.48 **LR7.1 – Island south of Sha Tau Kok Town** – A small island of approximately 0.4ha comprising mainly the invasive weed species of *Leucaena leucocephala*. The sensitivity of this landscape resource is Medium.

9.6.49 **LR7.2 – Island southwest of Sha Tau Kok Town** – A small island of approximately 0.2ha comprising mainly the common native coastal plants *Clerodendrum inerme* and *Hibiscus tiliaceus*. The sensitivity of this landscape resource is Medium.

Traditional Rural Villages (LR8.1-8.5)

9.6.50 **LR8.1 – Shan Tsui Village** – An old traditional village in Sha Tau Kok area. Like other traditional villages in the territory, their old village houses had been gradually replaced by modern buildings. The ancestor hall (*Chi Tong*) is well preserved and maintained by the villagers. The sensitivity of this landscape resource is Medium.

9.6.51 **LR8.2 – Tam Shui Hang** – A large village area comprises Sheung Tam Shui Hang to the north and Ha Tam Shui Hang to the south. Their ancestor halls (*Chi Tong*) are well preserved and maintained by the villages. The sensitivity of this landscape resource is Medium.

9.6.52 **LR8.3 – Muk Min Tau** – A small old traditional village established near Nga Yiu Tau. The Lee's family of the village is a branch of the same family settled in Sheung Wo Hang Tsuen 3km away to the west. Their old ancestor hall is located in Sheung Wo Hang Tsuen. The sensitivity of this landscape resource is Medium.

9.6.53 **LR8.4 – Kong Ha Village** – An old traditional village located northeast of Sha Tau Kok Town. Their ancestor hall (*Chi Tong*) is well preserved and maintained by the villages. The sensitivity of this landscape resource is Medium.

9.6.54 **LR8.5 – Shophouses at San Lau Street** – An old street located east of Sha Tau Kok Town. The 22 traditional shophouses are Grade 2 historic buildings. The sensitivity of this landscape resource is Medium.

Artificial Rocky Shores (LR9.1-9.2)

9.6.55 **LR9.1 – Eastern Rocky Shore** – An artificial rocky shore of approximately 600m in length. The sensitivity of this landscape resource is Low.

9.6.56 **LR9.2 – Western Rocky Shore** – An artificial rocky shore of approximately 170m in length along the western and southern boundary of the existing Sha Tau Kok Sewage Treatment Works. There are about 5 self-seeded trees growing on the rocky bank, including *Ficus virens* and *Ficus microcarpa* which are grouped as part of the LR6.10. The sensitivity of this landscape resource is Low.

Water Body (LR10.1-10.2)

9.6.57 **LR10.1 – Water Body of Starling Inlet** – The major water body within the assessment

area is the Starling Inlet (also named as Sha Tau Kok Hoi). The sensitivity of this landscape resource is High.

- 9.6.58 **LR10.2 – Intertidal Waters** – Two areas of intertidal habitats within the water of Starling Inlet. The areas expose during low tide event and become foraging grounds for waterbirds. The sensitivity of this landscape resource is High.

Landscape Character Areas (LCAs)

- 9.6.59 A total of 7 LCAs are identified in the landscape baseline study. The distributions of these LCAs are mapped in [Figure 9.5](#), while their photo-views are illustrated in [Figures 9.5a-d](#).
- 9.6.60 The identified landscape character areas, together with their sensitivity, are described below:
- 9.6.61 **LCA1 – Natural Hillside Woodland Landscape** – This LCA refers to the largely continuous natural woodland located behind rural villages of Shan Tsui and Sheung Tam Shui Hang. The landscape is almost entirely undeveloped and the only human features in it include a section of Shan Tsui Village Road, some footpaths and graves of local villagers. The landscape character is featured by the mature native vegetation. The sensitivity of this landscape resource is High.
- 9.6.62 **LCA2 – Tam Shui Hang Rural Plain Landscape** – This LCA comprises mainly the rural villages of Shan Tsui, Tam Shui Hang, Tsiu Hang, Muk Min Tau and the surrounding low-lying abandoned agricultural lands / grasslands. This largely flat and low-lying plain is undeveloped and retains its predominantly rural characteristics, though some new modern residential estates are observed along the Sha Tau Kok Road. The sensitivity of this landscape resource is High.
- 9.6.63 **LCA3 – Kong Ha Rural Plain Landscape** – This LCA refers to the Kong Ha Village north of the Sha Tau Kok Town, its surrounding low-lying grasslands / abandoned agricultural lands and other rural settings. This LCA has similar landscape character to that of LCA2, but been become isolated since the construction of the robust infrastructures of the Sha Tau Kok boundary crossing point. The sensitivity of this landscape resource is Medium.
- 9.6.64 **LCA4 – Boundary Crossing Facilities Landscape** – This LCA refers to the cross border infrastructure and facilitates at Sha Tau Kok and characterised by the extensive concrete paving areas and their associated security and immigration structures. This LCA is heavily modified by human activity for designated purposes. The sensitivity of this landscape resource is Low.
- 9.6.65 **LCA5 – Sha Tau Kok Rural Township Landscape** – This LCA refers to the whole residential Sha Tau Kok Chuen and all its associated supporting community facilities such as school, children’s playground, recreational playground, car parks, bus terminus, roads, markets, etc. The sensitivity of this landscape resource is Low.
- 9.6.66 **LCA6 – Coastal Wetland Landscape** – This LCA comprises the fish ponds and mangrove habitats which retain some characteristics of the original coastal shores of Starling Inlet. Mangrove is a type of habitat which supports high bio-diversity from ecological perspective. The sensitivity of this landscape resource is High.
- 9.6.67 **LCA7 – Inshore Water Landscape** – This LCA refers to the water landscape of Starling Inlet (also named as Sha Tau Kok Hoi) which covers two vegetated islands south of Sha Tau Kok Town. The sensitivity of this landscape resource is High.
- 9.6.68 The sensitivity of all LRs and LCAs are summarised in the **Table 9.2**:

Table 9.2: 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)
LR1.1	Shan Tsui Village Road Woodland	High	High	Low	Mature	High	High	High
LR1.2	Shan Tsui Woodland	High	High	Low	Mature	Medium	Medium	High
LR1.3	Shan Tsui Eastern Woodland	High	High	Low	Mature	Medium	Medium	High
LR1.4	Mixed Woodland east of Lin Ma Hang Road	Low	Medium	Medium	Young	Medium	Medium	Medium
LR1.5	Yuen Tuen Shan Woodland	Low	Medium	Medium	Semi-mature	Medium	Medium	Medium
LR1.6	Sheung Tam Shui Hang Woodland	Medium	Medium	Medium	Mature	Medium	Medium	High
LR1.7	Muk Min Tau Woodland	High	High	Low	Mature	High	High	High
LR2.1	Lin Ma Hang Road Grassland	Low	Low	High	Young	Low	Low	Low
LR2.2	Grassy Marshland west of Shan Tsui village	High	Medium	Medium	Semi-mature	Medium	Low	Medium
LR2.3	Grassy Marshland south of Shan Tsui village	Medium	Medium	Medium	Semi-mature	Medium	Low	Medium
LR2.4	Grassy Marshland east of Tam Shui Hang	Medium	Medium	Medium	Semi-mature	Medium	Low	Medium
LR2.5	Grassland west of Tam Shui Hang	High	Medium	Medium	Young	Medium	Low	Medium
LR2.6	Hillside Grassland north of Tsiu Hang	Medium	Medium	Medium	Young	Medium	Low	Medium
LR2.7	Grassland at Tsiu Hang	Medium	Medium	Medium	Young	Low	Low	Medium
LR2.8	Grassland at Muk Min Tau	Low	Medium	Medium	Young	Low	Low	Low
LR2.9	Grassland west of Kong Ha village	Low	Medium	Medium	Young	Low	Low	Low
LR2.10	Grassy Marshland south of Kong Ha village	Medium	Medium	Medium	Semi-mature	Medium	Low	Medium
LR2.11	Grassland north of Sha Tau Kok Chuen	Medium	High	Low	Mature	High	Low	High
LR2.12	Grassland of Sha Tau Kok Drainage Channel	Medium	Medium	Medium	Young	Medium	Low	Medium
LR2.13	Grassland near Muk Min Tau San Tsuen	Medium	Medium	Medium	Young	Medium	Low	Medium
LR2.14	Grassland south of Sha Tau Kok Road	Low	Low	High	Young	Low	Low	Low
LR2.15	Grassland west of Sha Tau Kok Chuen	Low	Low	High	Young	Low	Low	Low
LR2.16	Grassland south of Sha Tau Kok Chuen Bus Terminus	Medium	Medium	Medium	Young	Low	Low	Medium
LR2.17	Grassland south of Sha Tau Kok Market	Medium	Medium	Medium	Young	Low	Low	Medium

Expansion of Sha Tau Kok Sewage Treatment Works

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)
LR3.1	Mangrove south of Ha Tam Shui Hang	High	High	Low	Mature	High	Medium	High
LR3.2	Mangrove along Starling Inlet	High	High	Low	Mature	High	Medium	High
LR4.1	Fishponds south of Sha Tau Kok Road	Medium	High	Low	Mature	High	Low	High
LR5.1	Tam Shui Hang Stream	High	High	Low	Mature	Medium	Low	High
LR5.2	Tam Shui Hang Drainage Channel	Low	Low	High	Young	Low	Low	Low
LR5.3	Shenzhen River Sha Tau Kok Section	Medium	Medium	Medium	Mature	Medium	Low	Low
LR6.1	Trees along Shan Tsui Village Road	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.2	Trees north of Sha Ho Road	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.3	Trees along Sha Ho Road	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.4	Trees near Sha Tau Kok Police Checkpoint	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.5	Trees along Sha Tau Kok Road	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.6	Trees at Sha Tau Kok Children's Playground	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.7	Trees at Sitting-out Area south of Sha Tau Kok Central Primary School	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.8	Trees along Shun Hing Street	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.9	Trees along Sha Tau Kok Road Shek Chung Au within Sha Tau Kok Chuen	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.10	Trees surrounding Sha Tau Kok Sewage Treatment Works	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.11	Trees along Shun Lung Street	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.12	Trees along Sha Tau Kok Promenade Sitting-out Area	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.13	Trees west of Sha Tau Kok Recreation Ground	Medium	Medium	High	Semi-mature	Low	Low	Medium
LR6.14	Trees north of Sha Tau Kok Pier	Low	Low	High	Young	Low	Low	Low
LR7.1	Island south of Sha Tau Kok Town	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR7.2	Island southwest of Sha Tau Kok Town	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR8.1	Shan Tsui Village	Medium	Medium	Medium	Mature	Medium	Low	Medium

Expansion of Sha Tau Kok Sewage Treatment Works

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)
LR8.2	Tam Shui Hang	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR8.3	Muk Min Tau	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR8.4	Kong Ha Village	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR8.5	Shophouses at San Lau Street	Medium	Medium	Medium	Mature	Medium	Low	Medium
LR9.1	Eastern Rocky Shore	Medium	Low	High	Mature	Low	Low	Low
LR9.2	Western Rocky Shore	Medium	Low	High	Mature	Low	Low	Low
LR10.1	Water Body of Starling Inlet	High	High	Medium	Mature	Medium	Low	High
LR10.2	Intertidal Waters	High	High	Medium	Mature	Medium	Low	High
LCA1	Natural Hillside Woodland Landscape	High	High	Low	Mature	High	Low	High
LCA2	Tam Shui Hang Rural Plain Landscape	High	High	Medium	Mature	Medium	Low	High
LCA3	Kong Ha Rural Plain Landscape	Medium	Medium	Medium	Mature	Medium	Low	Medium
LCA4	Boundary Crossing Facilities Landscape	Low	Low	High	Mature	Low	Low	Low
LCA5	Sha Tau Kok Rural Township Landscape	Low	Low	High	Mature	Low	Low	Low
LCA6	Coastal Wetland Landscape	High	High	Medium	Mature	Medium	Low	High
LCA7	Inshore Water Landscape	High	High	Medium	Mature	Medium	Low	High

Tree Survey

9.6.69 A survey of existing trees along the peripheral of the proposed project site of SKTSTW was conducted in 2014. The findings of the tree survey are summarized below:

Existing Trees

9.6.70 The survey identified a total number of 126 trees (trees of trunk diameter of 95mm or more). In general, these trees are of fair health condition and tree form, with average height of majority of trees ranges from 4-9.5m ([Annex 9A](#)). The dominant tree species are mainly the exotics *Acacia confusa*. Tree species and their quantities are summarized below:

Table 9.3: Summary of Tree Survey Results

Species	Recommendation			Total
	To be Retained	To be Transplanted	To be Felled	
<i>Acacia confusa</i>	80	0	3	83
<i>Acacia auriculiformis</i>	2	0	0	2
<i>Acronychia pedunculata</i>	0	0	1	1
<i>Bridelia tomentosa</i>	4	0	2	6
<i>Carica papaya</i>	0	0	1	1
<i>Celtis sinensis</i>	7	0	3	10
<i>Ficus microcarpa</i>	1	0	1	2
<i>Ficus virens</i>	2	0	1	3
<i>Pachira macrocarpa</i>	1	0	0	1
<i>Hibiscus tiliaceus</i>	3	0	0	3
<i>Leucaena leucocephala</i>	1	0	1	2
<i>Macaranga tanarius</i>	2	0	5	7
<i>Melaleuca cajuputi</i>	1	0	0	1
<i>Morus alba</i>	1	0	0	1
Dead Tree	3	-	-	3
Total	108 (86%)	0 (0%)	18 (14%)	126 (100%)

9.6.71 Neither registered/potential Old and Valuable Tree (OVT), nor protected / rare species were identified within the tree survey area.

Preliminary Recommended Treatment of Existing Trees

9.6.72 As indicated in the Table above, there will be 18 trees to be felled due to unavoidable conflict with the proposed STK STW works and all others are proposed to be retained:

- *Tree Retention:* Majority (86%) of the existing trees will be retained in their current locations. These trees will be protected during the construction phase of the Project in accordance with the latest *Guidelines on Tree Preservation during Development* published by Greening, Landscape and Tree Management Section of Development Bureau.
- *Tree Transplanting:* All trees in conflict with the proposed works are not suitable to be transplanted because most of them are either of low amenity value or low survival rate after transplanting. No tree transplantation is proposed.
- *Tree Felling:* A total of 18 trees in unavoidable conflict with the proposed works area are recommended to be felled because of low survival rate after transplanting, the existing health conditions, and the form of the trees and the locations of the trees.

9.6.73 In order to mitigate the loss of trees due to the project, three areas of total size of 1,509m² (0.15ha) have been preserved within the project area for compensatory tree planting. A total of 31 heavy standard trees are proposed to be planted for compensation within these reserved planting areas. Native species of *Cinnamomum burmannii*, *Schima superb* and *Schefflera heptaphylla* could be considered for their presence in the local study area and their high amenity value.

9.6.74 The findings and preliminary recommendation of the tree survey are subject to the formal tree removal application to be submitted to relevant government departments for approval in accordance with the requirements stipulated in DEVB TC(W) No. 7/2015 – *Tree Preservation*.

9.6.75 The tree survey schedule and tree recommendation plan are presented in [Annex 9A](#).

Visually Sensitive Receivers (VSRs)

9.6.76 The Zone of Visual Influence (ZVI) and visually sensitive receivers (VSRs) are mapped in [Figure 9.2](#). For ease of reference, each VSR is given an identity number, which is used throughout this report. Details of the VSRs are presented in **Table 9.4**. The views currently experienced by VSRs are shown in [Figures 9.6a-i](#).

9.6.77 Residential Visually Sensitive Receivers

R1 Residents in Block 42 – 45 of Sha Tau Kok Chuen

R2 Residents in Ha Tam Shui Hang

R3 Residents in Muk Min Tau

R4 Residents in Block 13-15 of Sha Tau Kok Chuen

R5 Residents at 3-17 Shun Lung Street

R6 Residents of Public Housing Development at Shun Hing Street
(planned VSR, where site formation is in progress)

9.6.78 Occupational Visually Sensitive Receivers

O1 Workers/Officers in Sha Tau Kok Fire Station

O2 Police Operation Base

O3 Workers of Sha Tau Kok Fish Culture Zone

9.6.79 Travelling Visually Sensitive Receivers

T1 Motorists on Sha Tau Kok Road

T2 Marine users on Starling Inlet

9.6.80 Recreational Visually Sensitive Receivers

RE1 Recreational Users of Sha Tau Kok Chuen Area

RE2 Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1)

RE3 Recreational Users at planned land use zoning REC(1)
(planned VSR on OZP)

RE4 Recreational Users at Yim Liu Ha

RE5 Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2)

VSRs for STKSTW major works and STKSPS minor works

9.6.81 Due to the significant difference in works nature and scale between the proposed major works of construction of STKSTW/TSTP (including removal of the existing STKSTW, construction of a new STKSTW and construction/demolition of a TSTP within the existing STKSTW boundary) and minor works of decommissioning of STKSPS

(construction of a new gravity sewer along Shun Hing Street and demolition of the existing STKSPS), among the total 16 VSRs, 12 of them are identified for VIA of the STKSTW major works while an addition of 4 VSRs for STKSPS minor works:

- i. VSRs for STKSTW major works: R1, R2, R3, O1, O2, O3, T1, T2, RE1, RE2, RE3 and RE4.
- ii. VSRs for STKSPS minor works: R4, R5, R6 and RE5

Visual Baseline Condition

- 9.6.82 The proposed project as illustrated in [Figure 9.1](#) includes two main items, viz. STKSTW and SKTSPS and its associated sewers. The upgraded STKSTW is proposed on existing STKSTW at the coast southwest of Sha Tau Kok Town. Key visual resources around would be the coastline and the seascape to the south and rural landscape to the north. To the northeast, the visual character is dominated by the urbanised land uses, which comprise the residential estates and the cross-border facilities. Apart from the view from the Starling Inlet, the proposed STKSTW site is beyond major visual corridors at Sha Tau Kok town due to blockage of views by existing mature trees around the site and its isolated location. The major ridgeline is the Robin's Nest (Hung Fa Leng) which situates over 1km away at the northwest from the Sha Tau Kok Town. There are few hiking trails from Robin's Nest along the mountain ridge. These trails could be ended in Ma Tseuk Leng, Tong To Ping or Tam Shui Hang. However, these trails are of less publicity to most ordinary hikers as they are not as well developed and maintained by the Government as those famous official walking trails such as MacLehose Trail and Wilson Trail. The key section of those routes is the mountain ridge of Robin's Nest which is located over 1km away from Sha Tau Kok Town. Significant visual impacts to these remote recreational users are therefore very unlikely. The STKSPS is wholly located within the urbanised landscape. [Figure 9.2a](#) illustrates the key views and visual baseline condition of the Sha Tau Kok Town area.

Table 9.4: 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)
Group of VSRs for Assessment of STKSTW Major Works									
R1	Residents in Block 42 – 45 of Sha Tau Kok Chuen	Residential	Few	Moderate	Yes	Moderate	Long	Partial	Medium
R2	Residents in Ha Tam Shui Hang	Residential	Few	Moderate	Yes	Moderate	Long	Partial	Medium
R3	Residents in Muk Min Tau	Residential	Few	High	Yes	High	Long	Glimpse	High
O1	Workers/Officers in Sha Tau Kok Fire Station	Occupational	Few	Moderate	Yes	High	Short	Partial	Low
O2	Police Operation Base	Occupational	Very Few	Moderate	Yes	Moderate	Short	Partial	Low
O3	Workers of Sha Tau Kok Fish Culture Zone	Occupational	Very Few	Moderate	Yes	High	Short	Partial	Low
T1	Motorists on Sha Tau Kok Road	Travelling	Many	Moderate	Yes	Moderate	Short	Glimpse	Low
T2	Marine users on Starling Inlet	Travelling	Few	Moderate	Yes	High	Short	Glimpse	Low
RE1	Recreational Users of Sha Tau Kok Chuen Area	Recreational	Few	Moderate	Yes	Moderate	Medium	Partial	Medium
RE2	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1)	Recreational	Few	Moderate	Yes	High	Medium	Partial	Medium
RE3	Recreational Users of planned land use zoning REC(1)	Recreational	Few	Moderate	Yes	High	Medium	Partial	Medium
RE4	Recreational Users at Yim Liu Ha	Recreational	Few	Moderate	Yes	High	Medium	Partial	Medium
Group of VSRs for Assessment of STKSPS Minor Works									
R4	Residents in Block 13-15 of Sha Tau Kok Chuen	Residential	Few	Moderate	Yes	Moderate	Long	Partial	Medium

Expansion of Sha Tau Kok Sewage Treatment Works

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)
R5	Residents at 3-17 Shun Lung Street	Residential	Few	Moderate	Yes	Moderate	Long	Full	High
R6	Residents of Public Housing Development at Shun Hing Street (site formation in progress)	Residential	Few	Moderate	Yes	Moderate	Long	Partial	Medium
RE5	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2)	Recreational	Few	Moderate	Yes	High	Medium	Partial	Medium

* note: main elements of the project:

1. Major works: removal of the existing STKSTW, construction of a new STKSTW and construction/demolition of a TSTP within the existing STKSTW boundary;
2. Minor works: construction of a new gravity sewer along Shun Hing Street and demolition of the existing STKSPS.

9.7 Potential Sources of Landscape and Visual Impact

9.7.1 The description of the project is detailed in Chapter 2 of this report. The main construction elements include 1. major works of the construction of a temporary sewage treatment plant (TSTP) / a new sewage treatment works (STKSTW) and the demolition of the TSTP after the operation of the new STKSTW and 2. minor auxiliary works of demolition of the existing sewage pumping station (STKSPS), decommissioning of the existing rising mains between STKSPS and STKSTW and constructing a new gravity sewer. Sources of construction impacts will be:

STKSTW Major Works Items:

- Site clearance works;
- Removal of existing trees on site;
- Demolishment of existing STKSTW;
- Construction works for a TSTP /a new STKSTW;
- Presence of incomplete structures;
- Presence of a TSTP;
- Demolition works of the TSTP;
- Importation and storage of construction equipment and plant;

STKSPS Minor Works Items:

- Demolishment of existing STKSPS;
- Decommissioning of the existing rising mains
- Construction of a new gravity sewer

9.7.2 Sources of operational phase landscape impact will be:

Major Works Items:

- Presence of a new STKSTW in the landscape

9.7.3 As described in Chapter 2 (Section 2.1.14), the project will also include the construction of a new submarine outfall for replacement at Starling Inlet. This part of works will be conducted by trenchless method under the waters. As a result, no landscape and visual impacts are anticipated from this part of works.

9.7.4 The layout as shown in [Figure 2.4b](#) is a reduced footprint which keeps the new STKSTW to be expanded within the existing STKSTW site area to avoid encroachment into the adjacent vegetated areas.

9.7.5 Potential indirect impacts would include dust and water quality disturbance due to construction activities. However, as suggested in the air and water quality assessment in Chapter 3 and 5 respectively, with the full implementation of the recommended good site practices, there will be no adverse impacts to any offsite areas, including the sensitive water bodies, ponds and mangroves (i.e. LR3.2, LR4.2, LR10.1, LR10.2, LCA6 and LCA7). Hence, indirect impacts on existing landscape and visual resources and characters in close vicinity are not anticipated.

9.8 Landscape Impact Assessment

9.8.1 Potential landscape impacts are identified and listed in **Section 9.7**.

9.8.2 The anticipated magnitude of change due to the proposed project is summarised in **Table 9.5**.

Table 9.5: Magnitude of change for LRs 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
LR and LCA potentially to be affected by the proposed project								
LR6.10	Trees surrounding Sha Tau Kok Sewage Treatment Works	Small (temporary removal of 0.01ha of tree planting area; felling of 18 trees)	Reversible (the temporary loss of the 0.01ha of tree planting area will be reinstated after the completion of the project)	Medium	Short	permanent	Small (temporary removal of 0.01ha of tree planting area; felling of 18 trees)	Small (felling of 18 trees)
LCA4	Boundary Crossing Facilities Landscape	Small (7m x 1.2m i.e. 8.4m ² of vehicular road within urban area)	Reversible (the road will be recovered after works)	High	Short	Permanent (underground)	Negligible (no damage of LRs and no change on current urban landscape)	Negligible (no damage of LRs and no change on current urban landscape)
LCA5	Sha Tau Kok Rural Township Landscape	Small (proposed works within existing STKSTW site, STKSPS site and urban developed areas)	Irreversible	High	Short	permanent	Small (construction disturbance within the proposed project boundary of STKSTW and STKSPS)	Negligible (no change on current urban landscape)
LR6.11	Trees along Shun Lung Street	Negligible (impact avoided by trenchless method)	Irreversible	n/a (irrelevant as works are underground)	Short (works underground)	Permanent (works underground)	Negligible	Negligible

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR6.12	Trees along Sha Tau Kok Promenade Sitting-out Area	Negligible (impact avoided by trenchless method)	Irreversible	n/a (irrelevant as works are underground)	Short (works underground)	Permanent (works underground)	Negligible	Negligible
LR6.13	Trees west of Sha Tau Kok Recreation Ground	Negligible (impact avoided by trenchless method)	Irreversible	n/a (irrelevant as works are underground)	Short (works underground)	Permanent (works underground)	Negligible	Negligible
LR and LCA not to be affected by the proposed project								
LR1.1	Shan Tsui Village Road Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.2	Shan Tsui Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.3	Shan Tsui Eastern Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.4	Mixed Woodland east of Lin Ma Hang Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.5	Yuen Tuen Shan Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.6	Sheung Tam Shui Hang Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR1.7	Muk Min Tau Woodland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.1	Lin Ma Hang Road Grassland	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.2	Grassy Marshland west of Shan Tsui village	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.3	Grassy Marshland south of Shan Tsui village	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR2.4	Grassy Marshland east of Tam Shui Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.5	Grassland west of Tam Shui Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.6	Hillside Grassland north of Tsiu Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.7	Grassland at Tsiu Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.8	Grassland at Muk Min Tau	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.9	Grassland west of Kong Ha village	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.10	Grassy Marshland south of Kong Ha village	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.11	Grassland north of Sha Tau Kok Chuen	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.12	Grassland of Sha Tau Kok Drainage Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.13	Grassland near Muk Min Tau San Tsuen	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.14	Grassland south of Sha Tau Kok Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.15	Grassland west of Sha Tau Kok Chuen	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR2.16	Grassland south of Sha Tau Kok Chuen Bus Terminus	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR2.17	Grassland south of Sha Tau Kok Market	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR3.1	Mangrove south of Ha Tam Shui Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR3.2	Mangrove along Starling Inlet	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR4.1	Fishponds south of Sha Tau Kok Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR5.1	Tam Shui Hang Stream	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR5.2	Tam Shui Hang Drainage Channel	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR5.3	Shenzhen River Sha Tau Kok Section	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.1	Trees along Shan Tsui Village Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.2	Trees north of Sha Ho Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.3	Trees along Sha Ho Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.4	Trees near Sha Tau Kok Police Checkpoint	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.5	Trees along Sha Tau Kok Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.6	Trees at Sha Tau Kok Children's Playground	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR6.7	Trees at Sitting-out Area south of Sha Tau Kok Central Primary School	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.8	Trees along Shun Hing Street	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.9	Trees along Sha Tau Kok Road Shek Chung Au within Sha Tau Kok Chuen	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR6.14	Trees north of Sha Tau Kok Pier	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR7.1	Island south of Sha Tau Kok Town	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR7.2	Island southwest of Sha Tau Kok Town	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR8.1	Shan Tsui Village	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR8.2	Tam Shui Hang	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR8.3	Muk Min Tau	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR8.4	Kong Ha Village	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR8.5	Shophouses at San Lau Street	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR9.1	Eastern Rocky Shore	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR9.2	Western Rocky Shore	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR10.1	Water Body of Starling Inlet	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LR10.2	Intertidal Waters	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LCA1	Natural Hillside Woodland Landscape	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LCA2	Tam Shui Hang Rural Plain Landscape	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LCA3	Kong Ha Rural Plain Landscape	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LCA6	Coastal Wetland Landscape	n/a	n/a	n/a	n/a	n/a	n/a	n/a
LCA7	Inshore Water Landscape	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: n/a = not applicable

9.8.3 Potential impacts on LRs and LCAs before mitigation measures are described below (and also summarised in **Table 9.8**):

Unmitigated Impacts on Landscape Resources (LRs) – Construction Phase

9.8.4 In order to prevent potential landscape impacts, most of the project works are proposed as far as possible on existing urban and developed areas. According to the latest project footprint, one LR will be affected by the proposed project during the construction phase: LR6.10 – Trees surrounding Sha Tau Kok Sewage Treatment Works ([Figure 9.7](#)).

9.8.5 The landscape impact is mainly arising from the major works of construction of the STKSTW, which also include demolition of existing STKSTW and construction/demolition of the TSTP. The construction activities of these works will all be within the existing STKSTW boundary.

9.8.6 The minor works of the project include three main items: 1. demolition of existing STKSPS, 2. decommissioning of existing rising mains and 3. construction of a new gravity sewer. The existing STKSPS proposed to be demolished is fenced off within its boundary wall. The whole section of the proposed new gravity sewer will be constructed underground by trenchless method and only grouting works at its two ends within the existing STKSTW and STKSPS are required. For the decommissioning of existing rising mains, trenchless method is to be adopted at the western section to prevent impacts on the surface vegetation.

9.8.7 ***LR6.10 – Trees surrounding Sha Tau Kok Sewage Treatment Works*** – This LR is 0.31ha in size and of medium sensitivity. According to the preliminary tree survey results presented in Section 9.6 and [Annex 9A](#), 18 trees (out of the total 126 trees) are proposed to be felled for their close proximity to the proposed new STKSTW. The removal is required for the site operation. No important trees or protected species or rare species were identified. In terms of area, there will be a temporary loss of 0.01ha of the LR during the construction period. The Magnitude of Change is therefore considered **small**, and the Impact Significance before mitigation is **slight adverse**.

9.8.8 The minor works of constructing a new gravity sewer and decommissioning of the existing rising mains will run underground through the following three LRs:

1. ***LR6.11 – Trees along Shun Lung Street***,
2. ***LR6.12 – Trees along Sha Tau Kok Promenade Sitting-out Area***,
3. ***LR6.13 – Trees west of Sha Tau Kok Recreation Ground***

9.8.9 All these above LRs are prevented from impacts by the proposed trenchless method which is to be undertaken below ground of 2m (with width of 1.2m) to allow avoidance of impact on tree roots which normally occur on the first 1m below ground. Therefore, the Magnitude of Change is therefore considered **negligible**, and their Impact Significance before mitigation is **insubstantial**.

Unmitigated Impacts on Landscape Character Areas (LCAs) – Construction Phase

9.8.10 The project will fall in two LCAs: LCA4 and LCA5 ([Figure 9.8](#)).

9.8.11 ***LCA4 – Boundary Crossing Facilities Landscape*** – Only a very short section (7m in length and 1.2m in width i.e. area of 8.4m²) of a proposed gravity sewer falls in this LCA, which is of low sensitivity. The potential impact source on the area will be come from works activities for the sewer installation in the landscape. Although the proposed works are above ground, there will be no damage / disturbance to any existing LRs and the current landscape character as the section of works will be restricted within the existing vehicular road: Sha Tau Kok Road Shek Chung Au Section.

As the works is small scale in nature and there will be no damage to any landscape resources and landscape character of the LCA, the Magnitude of Change is **negligible**, and the Impact Significance before mitigation is considered to be **insubstantial**.

9.8.12 ***LCA5 – Sha Tau Kok Rural Township Landscape*** – Majority of the proposed project falls within this LCA, which is of low sensitivity. The potential impacts on the area are come from site clearance, construction works, and the presence of construction machinery / partially constructed structures in the landscape. As the major construction works for the proposed STKSTW/TSTP will be restricted within the existing site boundary, the Magnitude of Change is therefore **small**, and the Impact Significance before mitigation is considered to be **slight adverse**.

9.8.13 The minor works of the project (detailed in Section 9.7) are all proposed on existing urban developed land uses such as roads, existing STW and SPS. No impacts on the remaining landscape character areas arising from these works are anticipated.

9.8.14 All other LRs and LCAs will not be affected as they have no interfaces or conflicts with the proposed project. **(Table 9.8)**

Unmitigated Impacts on Landscape Resources (LRs) – Operation Phase

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

Unmitigated Impacts on Landscape Character Areas (LCAs) –Operation Phase

9.8.16 ***LCA4 – Boundary Crossing Facilities Landscape*** – The proposed works will be wholly underground during operation phase. The operation of works will not cause any change to the landscape character of the LCA. Therefore, the Magnitude of Change is **negligible**, and the Impact Significance before mitigation is considered to be **insubstantial**.

9.8.17 ***LCA5 – Sha Tau Kok Rural Township Landscape*** – As the operation of the proposed project (i.e. the new STKSTW) will be wholly within the urban developed area, there will be no change on the landscape character of LCA. The Magnitude of Change is therefore **negligible**, and the Impact Significance before mitigation is **insubstantial**.

9.8.18 The minor works of demolition of existing STKSPS will not cause any change to the current landscape character (i.e. urban development character). No impacts on the landscape character arising from these works are anticipated.

9.8.19 All other LRs and LCAs will not be affected as they have no interfaces or conflicts with the proposed project. **(Table 9.8)**

Summary of the Unmitigated Landscape Impact

9.8.20 The assessment of the unmitigated impacts during the construction and operation phases are given in **Table 9.8** and mapped in **Figure 9.7-9.8**.

Recommended Mitigation Measures

- 9.8.21 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 visual 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.
- 9.8.22 As detailed in Chapter 2 (Section 2.5.4), a number of alternative options were considered during the course of developing the proposed project to avoid and minimise potential landscape and visual impact as far as practical:
1. Option of restricting the proposed new STKSTW and TSTP within existing STW site (Option 2A) rather than encroaching into existing POB site (Option 3A and 3B) and other offsite area (Option 1) could much reduce the project footprint to avoid and minimise landscape impact on existing vegetation and visual impacts to surrounding VSRs;
 2. Trenchless method rather than surface dredging is adopted for the construction of the new outfall and gravity sewer could significant reduce the landscape and visual impacts along the alignment.
- 9.8.23 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 during detailed design and implemented as part of the construction works so that they shall be in place prior to or at least at the Day 1 of operational phase.

Table 9.6: Proposed Construction Phase Landscape and Visual Mitigation Measures

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Target Receivers
CM1	<p>Preservation of Existing Vegetation: Existing trees designated to be retained in-situ will be properly protected. Tree protection measures to be undertake shall be in accordance with DEVB TC(W) 7/2015 on “Tree Preservation” and Guidelines on Tree Preservation during Development” by DEVB. This may include the clear demarcation and fencing-off of tree protection zones, tight site supervision and monitoring to prevent tree damage by construction activities, and periodic arboricultural inspection and maintenance to uphold tree health. A total of around 108 nos. of trees will be retained in-situ within the tree survey area.</p> <p>Under current proposal, no tree is recommended to be transplanted since the trees in conflict with the proposed works are not suitable to be transplanted. However, should transplantation be proposed in the detailed design stage after an update tree survey, the recommended final recipient sites should be adjacent to their current locations. Enough time should be reserved for tree transplantation works to increase the survival rate of the transplanting trees. To ensure the survival of transplanted trees, protection work should be considered. The tree transplantation proposal will 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 by DEVB.</p>	DSD	DSD (via Contractor)	LR6.10; LCA5
CM2	<p>Control of Site Construction Activities: 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"> · Storage of materials should be carefully arranged to minimise potential landscape and visual impact. · The location and appearance of site accommodation should be carefully designed to minimise potential landscape and visual impact. · Site lighting should be carefully designed to prevent light spillage, · Extent of the works area and construction period should be minimised as far as practicable. · Screen hoarding with compatible design to blend into the surrounding natural environmental should be considered (Screen hoarding may not be practicable for works of upgrading existing rising mains due to the spatial constraints of the works area along the Shun Hing Street). · Temporary works areas should be reinstated at the earliest possible opportunity. 	DSD	DSD (via Contractor)	LR6.10; LCA4 LCA5

Expansion of Sha Tau Kok Sewage Treatment Works

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Target Receivers
CM3	Suitable design of the proposed TSTP: <ul style="list-style-type: none">▪ Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance▪ Responsive lighting design<ul style="list-style-type: none">- Directional and full cut off lighting is recommended to minimise light spillage to the surroundings;- Minimise geographical spread of lighting, only applying for safety at the key access points of the TSTP; and- Limited lighting intensity to meet the minimum safety and operation requirement.	DSD	DSD (via Contractor)	LCA5

Table 9.7: Proposed Operation Phase Landscape and Visual Mitigation Measures

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management Agency	Target Receivers
OM1	<p>Suitable design of the proposed STKSTW:</p> <ul style="list-style-type: none"> ▪ Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance ▪ Responsive lighting design <ul style="list-style-type: none"> - Directional and full cut off lighting is recommended within the boundaries of STKSTW to minimise light spillage to the surroundings; - Minimise geographical spread of lighting, only applying for safety at the key access points of the STKSTW; and - Limited lighting intensity to meet the minimum safety and operation requirement. 	DSD	DSD (via Contractor)	DSD	LCA5
OM2	<p>Amenity / Compensatory Planting: 0.15ha planting area (0.03ha amenity planting area and 0.12ha compensatory planting area) have been reserved in the preliminary design.</p> <p>i. 0.12ha of compensatory planting area is allocated for planting of 31 heavy standard trees (total DBH of 3.1m) to compensate the loss of 18 trees proposed to be felled (total DBH of 3.1m). The proposed compensation ratio is 1:1.72 and 1:1 in terms of tree number and total DBH respectively. The proposed new trees shall be native species of amenity value and at the same time of low maintenance requirements. Recommended tree species include <i>Schima superb</i>, <i>Cinnamomum burmannii</i> and <i>Schefflera heptaphylla</i>. This preliminary compensation proposal will form part of the tree removal application which will be controlled by the DEVB TC(W) 7/2015 – Tree Preservation. Tree risk assessment to all trees within the project site would be undertaken where applicable in accordance with Guidelines for Tree Risk Assessment and Management Arrangement;</p> <p>ii. Apart from compensatory tree planting, amenity planting of shrubs will be provided within the 0.03ha amenity planting area. A minimum of 1,380 shrubs will be planted. Recommended native shrub species include <i>Litsea rotundifolia</i>, <i>Raphiolepis indica</i> and <i>Rhodomyrtus tomentosa</i>.</p> <p>iii. the entire 0.15ha planting area (i.e. amenity and compensatory planting area) will be hydroseeded by native grass species <i>Eremochloa ophiuroides</i> to provide ground cover greening.</p>	DSD	DSD (via Contractor)	DSD	LR6.10; LCA5
OM3	<p>Amenity enhancement: Rooftop greening and vertical greening to mitigate the visual impact of STKSTW structures and soften the façades.</p>	DSD	DSD (via Contractor)	DSD	LCA5

Note: OM1-3 are operational phase landscape and visual mitigation measures, which are recommended to be well planned and designed at design stage to ensure these measures are properly incorporated and optimized in the project.

Location Plan of the proposed landscape mitigation measures are also mapped in [Figure 9.9](#) and [9.9a](#).

Mitigated Impacts on Landscape Resources (LRs) – Construction Phase

- 9.8.24 The potential significance of the landscape impacts during the construction phase, after recommended mitigation measures, are described below and also summarised in **Table 9.8** and mapped in **Figure 9.7-9.8**.
- 9.8.25 **LR6.10 – Trees surrounding Sha Tau Kok Sewage Treatment Works** – As stated in the preliminary tree survey findings presented in **Annex 9A** and **Section 9.6**, the major proportion (86%, 108 trees from the total 126 trees) of the trees will be well preserved onsite as mitigation measure CM1. Only a small portion (14%, 18 trees) of trees requires felling due to unavoidable conflict. In terms of area, only a very small portion of planting area (0.01ha out of the total 0.31ha) will be temporarily lost during the construction period. The Impact Significance after mitigation is **slight adverse**.

Mitigated Impacts on Landscape Character Areas (LCAs) – Construction Phase

- 9.8.26 **LCA4 – Boundary Crossing Facilities Landscape** – The unmitigated Impact Significance during construction phase is **insubstantial**. Mitigation measure of CM2 could further reduce the construction disturbance. Therefore, the mitigated Impact Significance will remain **insubstantial**.
- 9.8.27 **LCA5 – Sha Tau Kok Rural Township Landscape** – The major construction works of building the new STKSTW and TSTP will wholly be restricted within the boundary of the existing STKSTW which is to be replaced. The minor works of constructing a new gravity sewer, decommissioning existing rising mains and the STKSPS will also be restricted within existing urban developed areas while the proposed trenchless construction method for some section will have no influence to the current landscape character. After the implementation of mitigation measures (CM1-3), the Impact Significance after mitigation is considered to be **slight adverse**.

Mitigated Impacts on Landscape Resources (LRs) – Operation Phase

- 9.8.28 **LR6.10 – Trees surrounding Sha Tau Kok Sewage Treatment Works** – In order to mitigate the unavoidable removal of the 18 trees of total DBH 3.1m and the temporary loss of 0.1ha of planting area, a total of 31 heavy standard trees of total DBH 3.1m and 0.12ha of compensatory planting area will be provided within the existing STKSTW site for the compensatory planting. The proposed tree compensation ratio could reach 1:1.72 and 1:1 in terms of tree quantity and quality (total DBH) respectively. This mitigation measure (as OM2) will also result in a net gain of tree planting area (providing 0.12ha of tree planting area for the temporary loss 0.01ha of tree planting during construction period, i.e. total tree planting area from 0.31ha to 0.42ha). In addition to tree planting for tree compensation, an addition of 0.03 ha of planting area will also be provided with native shrub planting for further enhancement of the site amenity (OM2, **Table 9.7**). Although the new proposed plantings shall require few years for full establishment, the increase in overall planting area (from 0.31ha to 0.45ha) and tree planting area (from 0.31ha to 0.42ha) could produce a beneficial impact on the LR. Therefore, the Impact Significance after mitigation is considered to be **insubstantial** during the operation phase at Day 1.
- 9.8.29 After these planting become fully established, the mitigated impact during the operation phase at Year 10 will be **slight beneficial** for the net gain of tree planting area.

Mitigated Impacts on Landscape Character Areas (LCAs) – Operation Phase

- 9.8.30 ***LCA4 – Boundary Crossing Facilities Landscape*** – The unmitigated Impact Significance during operation phase is **insubstantial**. No mitigation measures are required.
- 9.8.31 ***LCA5 – Sha Tau Kok Rural Township Landscape*** –The operation of the proposed project will be wholly within the urban developed area, there will be no change on the landscape character of the LCA. The Impact Significance after mitigation is therefore **insubstantial** at both Day 1 and Year 10 of operation.

Summary of the Mitigated Landscape Impact

- 9.8.32 The assessment of the mitigated impacts during the construction and operation phases are given in **Table 9.8** and mapped in [Figure 9.7-9.8](#).

Table 9.8: 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
LR and LCA potentially to be affected by the proposed project										
LR6.10	Trees surrounding Sha Tau Kok Sewage Treatment Works	Medium	Small	Small	Slight	Slight	CM1-2 OM2	Slight	Insubstantial	Slight (beneficial)
LCA4	Boundary Crossing Facilities Landscape	Low	Negligible	Negligible	Insubstantial	Insubstantial	CM2	Insubstantial	Insubstantial	Insubstantial
LCA5	Sha Tau Kok Rural Township Landscape	Low	Small	Negligible	Slight	Insubstantial	CM1-3 OM1-3	Slight	Insubstantial	Insubstantial
LR6.11	Trees along Shun Lung Street	Medium	Negligible	Negligible	Insubstantial	Insubstantial	None	Insubstantial	Insubstantial	Insubstantial
LR6.12	Trees along Sha Tau Kok Promenade Sitting-out Area	Medium	Negligible	Negligible	Insubstantial	Insubstantial	None	Insubstantial	Insubstantial	Insubstantial

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR6.13	Trees west of Sha Tau Kok Recreation Ground	Medium	Negligible	Negligible	Insubstantial	Insubstantial	None	Insubstantial	Insubstantial	Insubstantial
LR and LCA not to be affected by the proposed project										
LR1.1	Shan Tsui Village Road Woodland	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.2	Shan Tsui Woodland	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.3	Shan Tsui Eastern Woodland	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.4	Mixed Woodland east of Lin Ma Hang Road	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.5	Yuen Tuen Shan Woodland	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.6	Sheung Tam Shui Hang Woodland	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR1.7	Muk Min Tau Woodland	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.1	Lin Ma Hang Road Grassland	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR2.2	Grassy Marshland west of Shan Tsui village	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.3	Grassy Marshland south of Shan Tsui village	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.4	Grassy Marshland east of Tam Shui Hang	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.5	Grassland west of Tam Shui Hang	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.6	Hillside Grassland north of Tsiu Hang	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.7	Grassland at Tsiu Hang	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.8	Grassland at Muk Min Tau	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.9	Grassland west of Kong Ha village	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR2.10	Grassy Marshland south of Kong Ha village	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.11	Grassland north of Sha Tau Kok Chuen	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.12	Grassland of Sha Tau Kok Drainage Channel	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.13	Grassland near Muk Min Tau San Tsuen	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.14	Grassland south of Sha Tau Kok Road	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.15	Grassland west of Sha Tau Kok Chuen	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR2.16	Grassland south of Sha Tau Kok Chuen Bus Terminus	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR2.17	Grassland south of Sha Tau Kok Market	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR3.1	Mangrove south of Ha Tam Shui Hang	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR3.2	Mangrove along Starling Inlet	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR4.1	Fishponds south of Sha Tau Kok Road	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR5.1	Tam Shui Hang Stream	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR5.2	Tam Shui Hang Drainage Channel	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR5.3	Shenzhen River Sha Tau Kok Section	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.1	Trees along Shan Tsui Village Road	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR6.2	Trees north of Sha Ho Road	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.3	Trees along Sha Ho Road	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.4	Trees near Sha Tau Kok Police Checkpoint	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.5	Trees along Sha Tau Kok Road	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.6	Trees at Sha Tau Kok Children's Playground	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.7	Trees at Sitting-out Area south of Sha Tau Kok Central Primary School	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.8	Trees along Shun Hing Street	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR6.9	Trees along Sha Tau Kok Road Shek Chung Au within Sha Tau Kok Chuen	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR6.14	Trees north of Sha Tau Kok Pier	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR7.1	Island south of Sha Tau Kok Town	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR7.2	Island southwest of Sha Tau Kok Town	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR8.1	Shan Tsui Village	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR8.2	Tam Shui Hang	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR8.3	Muk Min Tau	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR8.4	Kong Ha Village	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR8.5	Shophouses at San Lau Street	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR9.1	Eastern Rocky Shore	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Expansion of Sha Tau Kok Sewage Treatment Works

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
LR9.2	Western Rocky Shore	Low	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR10.1	Water Body of Starling Inlet	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LR10.2	Intertidal Waters	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LCA1	Natural Hillside Woodland Landscape	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LCA2	Tam Shui Hang Rural Plain Landscape	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LCA3	Kong Ha Rural Plain Landscape	Medium	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LCA6	Coastal Wetland Landscape	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a
LCA7	Inshore Water Landscape	High	n/a	n/a	n/a	n/a	None	n/a	n/a	n/a

Notes: n/a = not applicable

9.9 Cumulative Landscape Impacts

9.9.1 Potential concurrent projects were identified in **Section 2** and summarised in **Table 2.17**. The following is the assessment of potential cumulative landscape impacts of the identified projects.

Sediment Removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel

9.9.2 The project is scheduled to commence in 2017 and completed in 2018. The works of removing sediment at the fish culture zone would not cause landscape impacts on the any identified LRs and LCAs. Therefore, no cumulative landscape impact is expected from this project.

Drainage Improvement Works at North District

9.9.3 A section of the drainage alignment of this project will run along the Sha Tau Kok Road – Shek Chung Au. This project includes the construction of an approx. 1m diameter covered drainage pipe along the access road to STKSTW and installation of a pair of 1350 mm diameter underground drainage pipes, in which both elements are small scale in nature and therefore would not cause any significant additional landscape impacts on existing LRs and LCAs. No cumulative effect on the local landscape is anticipated.

Public Rental Housing Estate at Sha Tau Kok

9.9.4 This is a public housing project undertaken by Hong Kong Housing Society (HKHS). This project has commenced in 2014 and to be completed by end of 2016. The project comprises a six-storey block which scale is compatible with the existing surrounding buildings. As the housing site is located and restricted within an existing urban developed area, there will be no landscape impact to any surrounding LRs and LCAs. Therefore, although there will be few months of overlaying of construction period, this project will not constitute cumulative effect on local landscape.

9.10 Visual Impact Assessment

9.10.1 Potential sources of landscape and visual impacts have been identified in **Section 9.7** and listed below for ease of reference:

9.10.2 Sources of construction impacts will be:

STKSTW Major Works Items:

- Site clearance works;
- Removal of existing trees on site;
- Demolishment of existing STKSTW;
- Construction works for a TSTP /a new STKSTW;
- Presence of incomplete structures;
- Presence of a TSTP;
- Demolition works of the TSTP;
- Importation and storage of construction equipment and plant;

STKSPS Minor Works Items:

- Demolishment of existing STKSPS;
- Decommissioning of the existing rising mains;
- Construction of a new gravity sewer;

9.10.3 Sources of operational phase landscape impact will be:

Major Works Items:

- Presence of a new STKSTW in the landscape

9.10.4 As described in Chapter 2, the project will also include the construction of a new submarine outfall for replacement at Starling Inlet. This part of works will be conducted by trenchless method and the whole process will be undertaken under waters. As a result, no landscape and visual impacts are anticipated from this part of works.

Separate Assessment for STKSTW major works and STKSPS minor works

9.10.5 Considering the significant difference between the proposed STKSTW major works and STKSPS minor works, VIA for these two project components are to be discussed separately.

9.10.6 A total of 16 VSRs were identified for visual impact assessment, in which 12 are representative for works of STKSTW major works while an additional 4 for STKSPS minor works.

- iii. VSRs for STKSTW major works: R1, R2, R3, O1, O2, O3, T1, T2, RE1, RE2, RE3 and RE4.
- iv. VSRs for STKSPS minor works: R4, R5, R6 and RE5

9.10.7 The locations the VSRs are shown in [Figure 9.2](#) while their views are illustrated in [Figure 9.6a-i](#).

9.10.8 The anticipated magnitude of change due to the proposed project is summarised in **Table 9.9**.

Expansion of Sha Tau Kok Sewage Treatment Works

Table 9.9: Magnitude of change for VSRs

ID No.	VSR	Scale of Works (Negligible/ Small/ Medium/ Large)		Reversibility (Reversible, Irreversible)		Blockage (None, Partial, Substantial)	Min. Viewing Distance (m)	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			Construction	Operation	Construction	Operation	Construction	Operation
VSRs for STKSTW Major Works													
R1	Residents in Block 42 – 45 of Sha Tau Kok Chuen	Medium	Medium	Irreversible	Irreversible	Partial	150m	Medium	Medium	Short	Permanent	Small	Small
R2	Residents in Ha Tam Shui Hang	Medium	Medium	Irreversible	Irreversible	Partial	80m	Medium	Medium	Short	Permanent	Small	Small
R3	Residents in Muk Min Tau	High	Medium	Irreversible	Irreversible	Substantial	350m	Medium	Medium	Short	Permanent	Negligible	Negligible
O1	Workers /Officers in Sha Tau Kok Fire Station	Medium	Medium	Irreversible	Irreversible	Partial	130m	Medium	Medium	Short	Permanent	Small	Small
O2	Police Operation Base	Medium	Medium	Irreversible	Irreversible	Partial	25m	Medium	Medium	Short	Permanent	Intermediate	Intermediate
O3	Workers of Sha Tau Kok Fish Culture Zone	Medium	Medium	Irreversible	Irreversible	None	600m	Medium	Medium	Short	Permanent	Small	Small
T1	Motorists on Sha Tau Kok Road	Medium	Medium	Irreversible	Irreversible	Substantial	80m	Medium	Medium	Short	Permanent	Negligible	Negligible
T2	Marine users on Starling Inlet	Medium	Medium	Irreversible	Irreversible	None	120m	Medium	Medium	Short	Permanent	Small	Small
RE1	Recreational Users of Sha Tau Kok Chuen Area	Medium	Medium	Irreversible	Irreversible	Partial	30m	Medium	Medium	Short	Permanent	Small	Small

Expansion of Sha Tau Kok Sewage Treatment Works

ID No.	VSR	Scale of Works (Negligible/ Small/ Medium/ Large)		Reversibility (Reversible, Irreversible)		Blockage (None, Partial, Substantial)	Min. Viewing Distance (m)	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			Construction	Operation	Construction	Operation	Construction	Operation
RE2	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):	Medium	Medium	Irreversible	Irreversible	Partial (construction) Substantial (operation)	180m	Medium	Medium	Short	Permanent	Small	Negligible
RE3	Recreational Users of planned land use zoning REC(1)	Medium	Medium	Irreversible	Irreversible	Substantial	96m	Medium	Medium	Short	Permanent	Small	Small
RE4	Recreational Users at Yim Liu Ha	Medium	Medium	Irreversible	Irreversible	Partial	450m	Medium	Medium	Short	Permanent	Small	Small
VSRs for STKSPS Minor Works													
R4	Residents in Block 13-15 of Sha Tau Kok Chuen	Small	Negligible	Irreversible	Irreversible	Partial	90m	High	High	Short	Permanent	Small	Negligible
R5	Residents at 3-17 Shun Lung Street	Small	Negligible	Irreversible	Irreversible	None	15m	High	High	Short	Permanent	Small	Negligible
R6	Residents of Public Housing Development at Shun Hing Street	Small	Negligible	Irreversible	Irreversible	Partial	48m	High	High	Short	Permanent	Small	Negligible
RE5	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):	Small	Negligible	Irreversible	Irreversible	Partial	36m	High	High	Short	Permanent	Small	Negligible

* note: main elements of the project:

Expansion of Sha Tau Kok Sewage Treatment Works

1. Major works: removal of the existing STKSTW, construction of a new STKSTW and construction/demolition of a TSTP within the existing STKSTW boundary;
2. Minor works: demolition of the existing STKSPS and construction of a new gravity sewer along Shun Hing Street

I. Visual Impact Assessment for STK STW

Unmitigated Visual Impacts – Construction Phase

R1 –Residents in Block 42 – 45 of Sha Tau Kok Chuen:

- 9.10.9 The VSR will have views from the east on the major works for the new STKSTW and the TSTP. As the vegetation along the eastern boundary (i.e. LR6.10) of the project site will be retained on site during construction, the view of the construction will therefore be largely screened from this VSR.
- 9.10.10 The unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

R2 –Residents in Ha Tam Shui Hang:

- 9.10.11 The VSR will have view from the north on the major works of constructing the new STKSTW while the TSTP is not visible to this VSR due to blockage of trees and the new STKSTW under construction. As the vegetation along the eastern and northern boundary (i.e. LR6.10) of the project site will be retained on site during construction, the view of the construction will therefore be largely screened from this VSR.
- 9.10.12 The unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

R3 –Residents in Muk Min Tau:

- 9.10.13 The construction works at STKSTW site will be almost invisible to the VSR due to the substantial blockage of dense vegetation in between (vegetation of LR2.13 and LR4.1), long separation distance of over 350m from the proposed project site, good quality alternative view, and its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element).
- 9.10.14 The unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **insubstantial**.

O1 –Workers/Officers in Sha Tau Kok Fire Station:

- 9.10.15 This occupational VSR will have view from the highest vantage point in the Sha Tau Kok rural area on the major works of the proposed new STKSTW and the TSTP. The construction disturbance will be partially screened by the trees of LR6.10 and LR6.13 and further minimized due to their panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element).
- 9.10.16 The unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

O2 –Police Operation Base:

- 9.10.17 All the offices of the Police Operation Base are one-storey structures. The view to the site is partially screened by the trees of LR6.10 and the elevated slopes where LR6.10 located. Although the separation distant is short, considering the low sensitivity of the occupational VSR and very few people in this group, the unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

O3 –Workers of Sha Tau Kok Fish Culture Zone:

- 9.10.18 This occupational VSR will have a distant view on the proposed project site. Given the long separation distance of over 500m from the project site and the panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), the unmitigated visual impact to

this VSR during construction phase is therefore anticipated to be **slight adverse**.

T1 –Motorists on Sha Tau Kok Road:

- 9.10.19 Motorists on Sha Tau Kok Road will not experience visual impacts of significant magnitude due to their panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), blockage of views by existing roadside trees (LR6.5 and LR6.10) and the relatively low sensitivity of travelling VSR. Another fact is that motorists are travelling perpendicular to or away from the project site (rather than towards it) along the Sha Tau Kok Road. Therefore, the unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **insubstantial**.

T2 –Marine Users of Starling Inlet:

- 9.10.20 The main visual impact of this VSR will come from the major works for the new STKSTW, and the TSTP. This VSR will have widest view on the proposed project site among all identified VSRs as there is no blockage of view between the VSR and the project site from the southwest. However, taking into account the relatively low sensitivity of travelling VSR, limited numbers of people in this group and panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), and the available of good quality of alternative views, the unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE1 – Recreational Users of Sha Tau Kok Chuen Area:

- 9.10.21 This group of VSR represents the recreational users of the Sha Tau Kok Recreation Ground within the restricted frontier closed area behind the police's secondary boundary fence. The main visual impact will come from the major works of constructing the new STKSTW. However, the view of the VSR is largely screened by the trees of LR6.10 along the peripheral of the project site. Considering the blockage of view and limited numbers of people in this group, the overall unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE2 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):

- 9.10.22 This group of VSR can experience a wide view of the Starling Inlet along the Sha Tau Kok Promenade Sitting-out Area. Part of their view will cover the proposed STKSTW site to the west. The main visual impact of this VSR will come from the major works of constructing a TSTP and the new STKSTW during the construction stage. Taking into account that their dominant view is the seascape of Starling Inlet to the south instead of the view covering the proposed project to the west (i.e. the VSR will have alternative view of high amenity quality), the unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE3 – Recreational Users of planned land use zoning REC(1):

- 9.10.23 This is a planned VSR currently comprises abandoned agricultural lands, and fishpond, but planned for primarily low-intensity recreational developments to promote agri-tourism and eco-tourism under the OZP. The VSR will have view from the west on the major works for the new STKSTW, and the TSTP. The view of the VSR to the project site is partially screened by the mature vegetation along its coastal boundary. Although the VSR will have view on the project site in a closer distance, its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element) allows it to have good quality of alternative views to the pond area of LR4.1. The unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE4 – Recreational Users at Yim Liu Ha:

- 9.10.24 This group of VSR can experience a wide view of the seascape of Starling Inlet at Yim Liu Ha near the Sha Tau Kok public pier. The main visual impact of this VSR will come from the major works for the new STKSTW, and TSTP. Given the long separation distance over 400m and its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element) which provide the VSR good quality alternative to the south, the unmitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

Unmitigated Visual Impacts – Operation Phase

R1 –Residents in Block 42 – 45 of Sha Tau Kok Chuen:

- 9.10.25 This VSR will have partial view on the new STKSTW while the lower half of the new STKSTW will be well screened by the retained trees of LR6.10. As detailed in chapter 2, the proposed STKSTW will comprise only one single building block. Although the upper portion of the building will still be visible to the VSR, taking into account the simple structure and the available good quality of alternative view to the seascape to the south, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

R2 –Residents in Ha Tam Shui Hang:

- 9.10.26 The visual impact of this VSR will be similar to VSR R2. The view is partially screened by the trees of LR6.10 and upper portion of the new STKSTW will be visible to the VSR. Therefore, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

R3 –Residents in Muk Min Tau:

- 9.10.27 The new STKSTW will be almost invisible to the VSR due to the substantial blockage of dense vegetation in between (vegetation of LR2.13 and LR4.1), long separation distance of over 350m from the proposed project site, good quality alternative view, its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element).
- 9.10.28 The unmitigated visual impact to this VSR is therefore anticipated to be **insubstantial**.

O1 –Workers/Officers in Sha Tau Kok Fire Station:

- 9.10.29 This VSR will have partial view on the new STKSTW while the lower portion of the new STKSTW will be well screened by the trees of LR6.10. Although the upper portion of the building will still be visible to the VSR, taking into account the simple project layout (one single building block) and the panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element) experienced by the VSR, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

O2 –Police Operation Base:

- 9.10.30 The view is partially screened by the trees of LR6.10 and the elevated slopes where LR6.10 located. Although the separation distant is short, considering the low sensitivity of the occupational VSR and very few people in this group, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

O3 –Workers of Sha Tau Kok Fish Culture Zone:

- 9.10.31 This occupational VSR will have distant view to the new STKSTW. Given the long separation distance of over 500m from the project site and the panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

T1 –Motorists on Sha Tau Kok Road:

- 9.10.32 Motorists on Sha Tau Kok Road will not experience visual impacts of significant magnitude due to their moderate distance from the source of impacts, the panoramic quality of views, blockage of views by existing roadside trees (LR6.5 and LR6.10), the limited numbers of people using the road and the relatively low sensitivity of travelling VSRs. Another fact is that motorists are travelling perpendicular to or away from the

project site (rather than towards it) along the Sha Tau Kok Road. The unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **insubstantial**.

T2 – Marine Users of Starling Inlet:

- 9.10.33 The new STKSTW will be visible to the VSR as there is no major blockage of view between the VSR and the project site from the south. However, taking into account the relatively low sensitivity of travelling VSRs, the limited numbers of people in this group and panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element), the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

RE1 – Recreational Users of Sha Tau Kok Chuen Area:

- 9.10.34 The main visual impact of this VSR will come from the physical presence of the new STKSTW. This VSR will have partial view on the new STKSTW while the lower half of the new STKSTW will be well screened by the retained trees of LR6.10. Considering the blockage of view, limited numbers of people in this group, the Medium sensitivity and the relative simple project layout, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

RE2 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):

- 9.10.35 The view to the new STKSTW structure will be substantially blocked by the vegetation of LR6.8, LR6.12, LR6.13 and LR6.10. Therefore, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **insubstantial**.

RE3 – Recreational Users of planned land use zoning REC(1):

- 9.10.36 The physical presence of the new STKSTW would cause visual impact to this VSR during operation phase. However, the view to the new STKSTW is quite substantially screened by the trees of along the boundary of LR4.1. Good quality of alternative view to the west to the pond areas is also available to the VSR. The unmitigated visual impact to this VSR during operation phase is considered still within the range of **slight adverse**.

RE4 – Recreational Users at Yim Liu Ha:

- 9.10.37 The physical presence of the new STKSTW during the operation phase is not obvious to this VSR due to the partial blockage of views by the retained trees of LR6.10, LR6.12 and LR6.13 along the coast, the long separation distance of over 400m and its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element) which allows the VSR to have good quality alternative view to the seascape, the unmitigated visual impact to this VSR during operation phase is therefore anticipated to be **slight adverse**.

Summary of the Unmitigated Visual Impact

- 9.10.38 The assessment of the unmitigated impacts during the construction and operation phases is given in **Table 9.12** and mapped in **Figure 9.10**.
- 9.10.39 Photomontages of viewpoints from selected VSRs (**Figure 9.11**) are illustrated in **Figure 9.11a-g**.
- 9.10.40 Seven representative vantage points are selected to show the views of the proposed STKSTW from different directions (**Figure 9.11**):
- VSR R1: representative view from the east at higher elevation

Expansion of Sha Tau Kok Sewage Treatment Works

- VSR RE1: representative view from the east at ground level
- VSR RE2: additional view from the east for promenade users
- VSR O1: representative view from the northeast (highest vantage point over the Sha Tau Kok area)
- VSR R2: representative view from the northwest
- VSR T2: representative view from the south (widest view from the south)
- VSR RE3: representative view from the west

9.10.41 Each plan shows the existing view and views of operation phase of the project.

Recommended Mitigation Measures

- 9.10.42 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 visual 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.
- 9.10.43 As detailed in Section 2.5.4 in Chapter, there are five options of STKSTW expansion schemes considered during the development of the project.: 1A, 2A, 2B, 3A and 3B:
- Option 1: the STKSTW expansion is proposed within existing STW site but the TSTP will be located offsite. The offsite TSTP proposal would inevitably cause potential landscape and visual impact to offsite areas. This option is therefore not preferred from landscape and visual perspectives.
- Option 2A (preferred option): All construction works including the new STKSTW and TSTP will be located within existing STKSTW site. The area for TSTP at south-eastern corner of the site is proposed for tree planting after decommissioning.
- Option 2B: Similar to option 2A, all works are proposed within the existing STKSTW site, but the construction of the new STKSTW will be divided into two phases: Phase 1 on existing STK building while Phase 2 on the TSTP after its decommissioning. The major difference is the planting area will be significantly reduced by over 53% (from 0.15ha in Option 2A to 0.07ha in this option). Therefore, this is a less favourable option than option 2A from landscape and visual perspectives.
- Option 3A and 3B: Both options require the land of existing Police Operation Base (POB) site for expansion works and construction of the TSTP, while new POB will be relocated to LR2.11 – Grassland north of Sha Tau Kok Tsuen ([Figure 9.4](#)). These options therefore would cause larger landscape and visual impacts due to much larger site area, felling of more trees in LR6.10 – Trees surrounding STKSTW and permanent loss of LR2.11.
- 9.10.44 All these alternative options were carefully considered during the course of developing the proposed project to avoid and minimise potential landscape and visual impact as far as practical. As discussed above, option 2A is selected for its smaller project footprint (avoiding POB site), prevention of offsite impact (on LR2.11) and larger planting area (0.15ha).
- 9.10.45 Recommended specific 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 during detailed design and implemented as part of the construction works so that they shall be in place prior to or at least at the Day 1 of operational phase.

Table 9.10: Proposed Construction Phase Landscape and Visual Mitigation Measures

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Target Receivers
CM1	<p>Preservation of Existing Vegetation: Existing trees designated to be retained in-situ will be properly protected. Tree protection measures to be undertaken shall be in accordance with DEVB TC(W) 7/2015 on “Tree Preservation” and Guidelines on Tree Preservation during Development” by DEVB. This may include the clear demarcation and fencing-off of tree protection zones, tight site supervision and monitoring to prevent tree damage by construction activities, and periodic arboricultural inspection and maintenance to uphold tree health. A total of around 108 nos. of trees will be retained in-situ within the tree survey area.</p> <p>Under current proposal, no tree is recommended to be transplanted since the trees in conflict with the proposed works are not suitable to be transplanted. However, should transplantation be proposed in the detailed design stage after an update tree survey, the recommended final recipient sites should be adjacent to their current locations. Enough time should be reserved for tree transplantation works to increase the survival rate of the transplanting trees. To ensure the survival of transplanted trees, protection work should be considered. The tree transplantation proposal will 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 by DEVB.</p>	DSD	DSD (via Contractor)	LR6.10; LCA5; VSR R1, VSR R2, VSR O1, VSR O2, VSR T1, VSR RE1, VSR RE2, VSR RE4
CM2	<p>Control of Site Construction Activities: 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"> · Storage of materials should be carefully arranged to minimise potential landscape and visual impact. · The location and appearance of site accommodation should be carefully designed to minimise potential landscape and visual impact. · Site lighting should be carefully designed to prevent light spillage, · Extent of the works area and construction period should be minimised as far as practicable. · Screen hoarding with compatible design to blend into the surrounding natural environment should be considered (Screen hoarding may not be practicable for works of upgrading existing rising mains due to the spatial constraints of the works area along the Shun Hing Street). · Temporary works areas should be reinstated at the earliest possible opportunity. 	DSD	DSD (via Contractor)	LR6.10; LCA4; LCA5; VSR R1, VSR R2, VSR R3, VSR O1, VSR O2, VSR O3, VSR T1, VSR T2, VSR RE1, VSR RE2, VSR RE3 VSR RE4

Expansion of Sha Tau Kok Sewage Treatment Works

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Target Receivers
CM3	<p>Suitable design of the proposed TSTP:</p> <ul style="list-style-type: none"> ▪ Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance ▪ Responsive lighting design <ul style="list-style-type: none"> - Directional and full cut off lighting is recommended to minimise light spillage to the surroundings; - Minimise geographical spread of lighting, only applying for safety at the key access points of the TSTP; and - Limited lighting intensity to meet the minimum safety and operation requirement. 	DSD	DSD (via Contractor)	LCA5; VSR R1, VSR R3, VSR O1, VSR O3, VSR T2, VSR RE1, VSR RE2, VSR RE3 VSR RE4

Table 9.11: Proposed Operation Phase Landscape and Visual Mitigation Measures

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management Agency	Target Receivers
OM1	<p>Suitable design of the proposed STKSTW:</p> <ul style="list-style-type: none"> ▪ Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance ▪ Responsive lighting design <ul style="list-style-type: none"> - Directional and full cut off lighting is recommended within the boundaries of STKSTW to minimise light spillage to the surroundings; - Minimise geographical spread of lighting, only applying for safety at the key access points of the STKSTW; and - Limited lighting intensity to meet the minimum safety and operation requirement. 	DSD	DSD (via Contractor)	DSD	LCA5; VSR R1, VSR R2, VSR R3, VSR O1, VSR O2, VSR O3, VSR T1, VSR T2, VSR RE1, VSR RE3, VSR RE4
OM2	<p>Amenity / Compensatory Planting:</p> <p>0.15ha planting area (0.03ha amenity planting area and 0.12ha compensatory planting area) have been reserved in the preliminary design.</p> <p>i. 0.12ha of compensatory planting area is allocated for planting of 31 heavy standard trees (total DBH of 3.1m) to compensate the loss of 18 trees proposed to be felled (total DBH of 3.1m). The proposed compensation ratio is 1:1.72 and 1:1 in terms of tree number and total DBH respectively. The proposed new trees shall be native species of amenity value and at the same time of low maintenance requirements. Recommended tree species include <i>Schima superb</i>, <i>Cinnamomum burmannii</i> and <i>Schefflera heptaphylla</i>. This preliminary compensation proposal will form part of the tree removal application which will be controlled by the DEVB TC(W) 7/2015 – Tree Preservation. Tree risk assessment to all trees within the project site would be undertaken where applicable in accordance with Guidelines for Tree Risk Assessment and Management Arrangement;</p> <p>ii. Apart from compensatory tree planting, amenity planting of shrubs will be provided within the 0.03ha amenity planting area. A minimum of 1,380 shrubs will be planted. Recommended native shrub species include <i>Litsea rotundifolia</i>, <i>Rhaphiolepis indica</i> and <i>Rhodomyrtus tomentosa</i>.</p> <p>iii. the entire 0.15ha planting area (i.e. amenity and compensatory planting area) will be hydroseeded by native grass species <i>Eremochloa ophiuroides</i> to provide ground cover greening.</p>	DSD	DSD (via Contractor)	DSD	LR6.10; LCA5; VSR R1, VSR R2, VSR O3, VSR T1, VSR T2, VSR RE3, VSR RE4

Expansion of Sha Tau Kok Sewage Treatment Works

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Management Agency	Target Receivers
OM3	Amenity enhancement: Rooftop greening and vertical greening to mitigate the visual impact of STKSTW structures and soften the façades.	DSD	DSD (via Contractor)	DSD	LCA5; VSR R1, VSR R2, VSR R3, VSR O1, VSR O2, VSR O3, VSR T1, VSR T2, VSR RE1, VSR RE3, VSR RE4

Note: OM1-3 are operational phase landscape and visual mitigation measures, which are recommended to be well planned and designed at design stage to ensure these measures are properly incorporated and optimized in the project.

The location plan of proposed landscape mitigation measures are also mapped in [Figure 9.9](#) and [9.9a](#).

Mitigated Visual Impacts – Construction Phase

9.10.46 The evaluation of the mitigated conditions of the identified VSRs are described below:

R1 –Residents in Block 42 – 45 of Sha Tau Kok Chuen:

9.10.47 After implementation of the recommended mitigation measures of CM1-3, large proportion of the existing trees (of LR6.10) which screening the existing proposed project site will be preserved and protected throughout the construction period (CM1), proper control of construction activities (CM2) and the careful design of the TSTP could significantly reduce visual disturbance to the view of the VSR. Given that the construction of the upper part of the new STKSTW may still be visible by the VSR. The mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

R2 –Residents in Ha Tam Shui Hang:

9.10.48 The mitigated visual impact of this VSR will be similar to VSR R1. The view is partially screened by the trees of LR6.10 and the construction of the upper portion of the new STKSTW is visible to the VSR. Most trees of LR6.10 will be preserved and protected throughout the construction period (CM1) and proper control of construction activities (CM2) could significantly reduce visual disturbance to the view of the VSR. Therefore, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

R3 –Residents in Muk Min Tau:

9.10.49 The construction works at the STKSTW site will be almost invisible to the VSR due to the substantial blockage of dense vegetation in between (vegetation of LR2.13 and LR4.1), long separation distance of over 350m from the proposed project site, good quality alternative view, and its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element). The mitigation measures (in particular CM2 – proper control of construction activities) could further reduce the visual disturbance. The mitigated visual impact to this VSR during construction phase is therefore anticipated to be **insubstantial**.

O1 –Workers/Officers in Sha Tau Kok Fire Station:

9.10.50 After implementation of the recommended mitigation measures, those trees of LR6.10 which screening the proposed project site will be preserved throughout the construction period (CM1), proper control of construction activities (CM2) and the careful design of the TSTP (CM3) could significantly reduce visual disturbance to the view of the VSR. The panoramic quality of views providing the VSR good alternative view could also further reduce the impact to the VSR. Given that the construction of the upper part of the new STKSTW may still be visible by the VSR, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

O2 –Police Operation Base:

9.10.51 The recommended mitigation measures of preservation of existing trees (of LR6.10) which screening project site, erection of site hoarding and proper control of construction activities (i.e. CM1-2) could significantly reduce visual disturbance to the view of the VSR. Although in close proximity, considering the low sensitivity and very few people in this group, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

O3 –Workers of Sha Tau Kok Fish Culture Zone:

9.10.52 This occupational VSR will have distant view to the works activities in the site for the

proposed STKSTW and TSTP. Given the long separation distance of over 500m from the project site, current panoramic quality of views, and the mitigation of recommended proper control of construction activities (CM2) and the careful design of the TSTP (CM3), the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

T1 –Motorists on Sha Tau Kok Road:

- 9.10.53 Motorists on Sha Tau Kok Road will not experience visual impacts of significant magnitude due to their moderate distance from the source of impacts, the panoramic quality of views, substantial blockage of views by existing trees (LR6.5 and LR6.10) and the relatively low sensitivity of travelling VSR. The preservation of those screening trees under CM1 and proper control of site construction activities under CM2 could further reduce the visual disturbance. Another fact is that motorists are travelling perpendicular to or away from the project site (rather than towards it) along the Sha Tau Kok Road. The mitigated visual impact to this VSR during construction phase is therefore anticipated to be **insubstantial**.

T2 –Marine Users of Starling Inlet:

- 9.10.54 The main visual impact of this VSR will come from the works activities in the site for the proposed STKSTW and TSTP . The relevant mitigations include the proper control of site construction activities (CM2) and the careful design of the TSTP (CM3) to reduce the visual disturbance during the construction period. Further taking into account the relatively low sensitivity of the travelling VSR, limited numbers of people in this group and current panoramic quality of views, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE1 – Recreational Users of Sha Tau Kok Chuen Area:

- 9.10.55 The main visual impact of this VSR will come from the works activities in the site for the proposed STKSTW and TSTP. After implementation of the recommended mitigation measures (CM1-3), the trees (of LR6.10) which screening the project site will be preserved throughout the construction period, proper control of construction activities and the careful design of the TSTP could significantly reduce visual disturbance to the view of the VSR. Given that the construction of the upper part of the new STKSTW may still be visible by the VSR, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE2 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):

- 9.10.56 After implementation of the recommended mitigation measures (CM1-3), the trees (of LR6.10) which screening the project site will be preserved throughout the construction period, proper control of construction activities and the careful design of the TSTP could significantly reduce visual disturbance to the view of the VSR. The existing trees of LR6.8, LR6.12 and LR6.13 will further screen the construction site. The mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE3 – Recreational Users of planned land use zoning REC(1):

- 9.10.57 The proper control of construction activities (i.e. CM2) and the careful design of the TSTP (CM3) could significantly reduce visual disturbance to the view of the VSR. Although the project site is still visible to the VSR, the view is substantially blocked by the existing mature vegetation along the pond bunds of LR4.1. The VSR also has good quality alternative view to the pond area to the southwest. The mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

RE4 – Recreational Users at Yim Liu Ha:

9.10.58 After implementation of the recommended mitigation measures (CM1-3), the trees (of LR6.10) which partially screening the project site will be preserved throughout the construction period, proper control of construction activities and the careful design of the TSTP could significantly reduce visual disturbance to the view of the VSR. The existing trees of LR6.13 will further screen the construction site. Also taking into account the panoramic quality of views experienced by the VSR and long separate distance of over 400m, the mitigated visual impact to this VSR during construction phase is therefore anticipated to be **slight adverse**.

Mitigated Visual Impacts – Operation Phase

9.10.59 The evaluation of the mitigated conditions of the identified VSRs during the operation period are described below:

R1 –Residents in Block 42 – 45 of Sha Tau Kok Chuen:

9.10.60 This VSR will have partial view on the upper portion of the new STKSTW and the lower half of the new STKSTW will be well screened by the trees of LR6.10. The recommended measure of adopting appropriate building design (OM1) and amenity enhancement through vertical and roof greening (OM3) will largely reduce the visual disturbance to the VSR. Although the amenity and compensatory planting (OM2) may not be observed by the VSR due to the substantial blockage by existing mature trees of LR6.10, the implementation of OM2 could further enhance the screening of these trees of LR6.10. The proposed planting (OM2-3) may not be fully established at Day 1 of operation. Therefore, the mitigated visual impact to this VSR is anticipated to be **slight adverse** at Day 1 of operation.

9.10.61 After the fully establishment for 10 years of operation, the proposed planting will become mature and they will further soften and block the views of the hard structures. The mitigated visual impact to this VSR is anticipated to be **insubstantial** at Year 10 of operation.

R2 –Residents in Ha Tam Shui Hang:

9.10.62 The visual impact of this VSR will be similar to VSR R1. The view is partially screened by the trees of LR6.10 while the upper portion of the new STK STW is visible to the VSR. The recommended measure of adopting appropriate building design (OM1), amenity and compensatory planting (OM2) and amenity enhancement through vertical greening (OM3) will largely reduce the visual disturbance to the VSR. However, the proposed planting (OM2-3) may not be fully established at Day 1 of operation. Therefore, the mitigated visual impact to this VSR is anticipated to be **slight adverse** at Day 1 of operation.

9.10.63 After the fully establishment for 10 years of operation, the proposed planting will become mature and they will further soften and block the views of the hard structures. The mitigated visual impact to this VSR is anticipated to be **insubstantial** at Year 10 of operation.

R3 – Residents in Muk Min Tau:

9.10.64 The new STKSTW will be almost invisible to the VSR due to the substantial blockage of dense vegetation in between (vegetation of LR2.13 and LR4.1), long separation distance of over 350m from the proposed project site and its panoramic quality of views (a broad, expansive view within which several, distant features are observed and where the proposed project is only one element).

9.10.65 The recommended measure of adopting appropriate building design (OM1) and amenity enhancement through vertical greening (OM3) will further ensure the minimisation of visual disturbance to the VSR. The mitigated visual impact to this VSR is anticipated to be **insubstantial** at Day 1 and Year 10 of operation.

O1 –Workers/Officers in Sha Tau Kok Fire Station:

9.10.66 This VSR will have partial view on the new STKSTW as the lower portion of the new STKSTW will be well screened by the trees of LR6.10. The recommended measure of adopting appropriate building design (OM1) and amenity enhancement through vertical and roof greening (OM3) will further reduce the visual disturbance to the VSR, although the proposed roof greening and vertical greening (OM3) may not be fully established at Day 1 of operation. Therefore, mitigated visual impact to this VSR is

anticipated to be **slight adverse** at Day 1.

- 9.10.67 After the fully establishment for 10 years of operation, the proposed planting will become mature and will further soften and block the views of the hard structures. The mitigated visual impact to this VSR is anticipated to be **insubstantial** at Year 10 of operation.

O2 –Police Operation Base:

- 9.10.68 The view of the VSR is partially screened by the trees of LR6.10 and the elevated slopes where LR6.10 located. The recommended measure of adopting appropriate building design (OM1) and amenity enhancement through vertical greening (OM3) will further reduce the visual disturbance to the VSR, although the vertical greening (OM3) may not be fully established at Day 1 of operation. Therefore, the mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

- 9.10.69 After the fully establishment of OM3 at Year 10 of operation, the proposed planting become mature and will further soften and block the views of the hard structures. The mitigated visual impact is anticipated to be **insubstantial** at Year 10 of operation.

O3 –Workers of Sha Tau Kok Fish Culture Zone:

- 9.10.70 The recommended measure of adopting appropriate building design (OM1), amenity and compensatory planting (OM2) and amenity enhancement through vertical greening (OM3) will largely reduce the visual disturbance to the VSR, although the proposed amenity and compensatory planting (OM2) and vertical greening (OM3) may not be fully established at Day 1 of operation. The mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

- 9.10.71 After the full establishment for 10 years of operation, the proposed planting will become mature and could further soften and block the views of the hard structures. The mitigated visual impact is anticipated to be **insubstantial** at Year 10 of operation.

T1 –Motorists on Sha Tau Kok Road:

- 9.10.72 Motorists on Sha Tau Kok Road will not experience visual impacts of significant magnitude during the operation phase due to their moderate distance from the source of impacts, the panoramic quality of views, substantial blockage of views by existing roadside trees (LR6.5 and LR6.10) and the relatively low sensitivity of travelling VSR. The recommended mitigation measure of adopting appropriate building design (OM1), amenity and compensatory planting (OM2) and amenity enhancement through vertical greening (OM3) will further ensure the minimisation of the visual disturbance to the VSR. Another fact is that motorists are travelling perpendicular to or away from the project site (rather than towards it) along the Sha Tau Kok Road. The mitigated visual impact is anticipated to be **insubstantial** during operation (Day 1 and Year 10).

T2 –Marine Users of Starling Inlet:

- 9.10.73 The recommended measure of adopting appropriate building design (OM1), amenity and compensatory planting (OM2) and amenity enhancement through vertical greening (OM3) will largely reduce the visual disturbance to the VSR. Also taking into account the relatively low sensitivity of travelling VSR, the limited numbers of people in this group and panoramic quality of views, the mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

- 9.10.74 After the full establishment for 10 years of operation, the proposed planting will become mature and could further soften and block the views of the hard structures, despite the new STKSTW will still be clearly visible to the VSR. The mitigated visual impact is anticipated to be **slight adverse** at Year 10 of operation. However, the impact is unlikely to be significant due to the low sensitivity in nature of the VSR type, the

glimpse duration of view for travelling receiver and its panoramic quality of views over the Starling Inset seascape. The greening measures (OM2-3) also allows the site to become a transition landscape between the urban Sha Tau Kok Town and the rural land use zoning REC(1). The residual impact is therefore considered within acceptable range with the full implementation of the specific mitigation measures of OM1-3.

RE1 – Recreational Users of Sha Tau Kok Chuen Area:

9.10.75 This VSR will have partial view on the new STKSTW while the lower portion of the new STK STW will be well screened by the retained trees of LR6.10. In addition, this VSR has high quality alternative view to the south towards the seaside. The recommended mitigation measure of adopting appropriate building design (OM1) and amenity enhancement through vertical greening (OM3) will further reduce the visual disturbance to the VSR, although the proposed vertical greening requires few years of time for full establishment. Therefore, the mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

9.10.76 After the full establishment for 10 years of operation, the proposed planting will become mature and could further soften and block the views of the hard structures. The mitigated visual impact is anticipated to be **insubstantial** at Year 10 of operation.

RE2 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):

9.10.77 The views are substantially blocked by the vegetation of LR6.8, LR6.12, LR6.13 and LR6.10. Therefore, the mitigated visual impact is anticipated to be **insubstantial** at operation (Day 1 and Year 10).

RE3 – Recreational Users of planned land use zoning REC(1):

9.10.78 The recommended mitigation measure of adopting appropriate building design (OM1), compensatory and amenity planting (OM2) and amenity enhancement through vertical greening (OM3) will further reduce the visual disturbance to the VSR, although the proposed vertical greening requires few years of time for full establishment. The mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

9.10.79 After the full establishment for 10 years of operation, the proposed planting will become mature and could further soften and block the views of the hard structures. The mitigated visual impact is anticipated to be **insubstantial** at Year 10 of operation.

RE4 – Recreational Users at Yim Liu Ha:

9.10.80 The recommended mitigation measure of adopting appropriate building design (OM1), amenity planting (OM2) and amenity enhancement through vertical greening (OM3) will further reduce the visual disturbance to the VSR, although the proposed vertical greening requires few years of time for full establishment. The mitigated visual impact is anticipated to be **slight adverse** at Day 1 of operation.

9.10.81 After the full establishment for 10 years of operation, the proposed planting will become mature and could further soften and block the views of the hard structures. The mitigated visual impact is anticipated to be **insubstantial** at Year 10 of operation.

Summary of the Mitigated Visual Impact

- 9.10.82 The assessment of the unmitigated impacts during the construction and operation phases is given in **Table 9.12** and mapped [in Figure 9.10](#).
- 9.10.83 Photomontages of viewpoints from selected VSRs ([Figure 9.11](#)) are illustrated in [Figure 9.11a-g](#).
- 9.10.84 Each plan shows the existing view, view of Day 1 operation without mitigation, view of Day 1 with mitigation and view of Year 10 operation with mitigation of the project.

Expansion of Sha Tau Kok Sewage Treatment Works

Table 9.12: Significance of Visual Impacts in Construction and Operation Phases (STKSTW) *

* Notes: Adverse Impacts unless otherwise stated

ID No.	VSR	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
VSRs for Major Works of STKSTW										
R1	Residents in Block 42 – 45 of Sha Tau Kok Chuen	Medium	Small	Small	Slight	Slight	CM1-3 OM1-3	Slight	Slight	Insubstantial
R2	Residents in Ha Tam Shui Hang	Medium	Small	Small	Slight	Slight	CM1-2 OM1-3	Slight	Slight	Insubstantial
R3	Residents in Muk Min Tau	High	Negligible	Negligible	Insubstantial	Insubstantial	CM2 OM1, 3	Insubstantial	Insubstantial	Insubstantial
O1	Workers/Officers in Sha Tau Kok Fire Station	Low	Small	Small	Slight	Slight	CM1-3 OM1, 3	Slight	Slight	Insubstantial
O2	Police Operation Base	Low	Intermediate	Intermediate	Slight	Slight	CM1-2 OM1, 3	Slight	Slight	Insubstantial
O3	Workers of Sha Tau Kok Fish Culture Zone	Low	Small	Small	Slight	Slight	CM2-3 OM1-3	Slight	Slight	Insubstantial
T1	Motorists on Sha Tau Kok Road	Low	Negligible	Negligible	Insubstantial	Insubstantial	CM1-2 OM1-3	Insubstantial	Insubstantial	Insubstantial

Expansion of Sha Tau Kok Sewage Treatment Works

ID No.	VSR	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
T2	Marine users on Starling Inlet	Low	Small	Small	Slight	Slight	CM2-3 OM1-3	Slight	Slight	Slight
RE1	Recreational Users of Sha Tau Kok Chuen Area	Medium	Small	Small	Slight	Slight	CM1-3 OM1, 3	Slight	Slight	Insubstantial
RE2	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1):	Medium	Small	Negligible	Slight	Insubstantial	CM1-3	Slight	Insubstantial	Insubstantial
RE3	Recreational Users of planned land use zoning REC(1)	Medium	Small	Small	Slight	Slight	CM2-3 OM1-3	Slight	Slight	Insubstantial
RE4	Recreational Users at Yim Liu Ha	Medium	Small	Small	Slight	Slight	CM1-3 OM1-3	Slight	Slight	Insubstantial

II. Visual Impact Assessment for STKSPS

Unmitigated Visual Impacts – Construction Phase

R4 –Residents in Block 13-15 of Sha Tau Kok Chuen:

- 9.10.85 This VSR will have view from the north on the minor works of decommissioning of the STWSPS. Its view to the construction is largely blocked by the existing trees (i.e. LR6.8 and LR6.11) and the existing boundary wall of the STWSPS. Due to the small scale of works to be involved and blockage of views, the construction disturbance is limited. Before any mitigation measures, the unmitigated visual impact to this VSR is **slight adverse**.

R5 – Residents at 3-17 Shun Lung Street:

- 9.10.86 This VSR will have view from the east on the minor works of decommissioning of the STWSPS and part of the alignment of the upgrading existing rising mains. Although most of the site for STKSPS can be observed by this VSR, the construction disturbance is limited due to the small scale of works involved. Before any mitigation measures, the unmitigated visual impact to this VSR is **moderate adverse**.

R6 –Residents of Public Housing Development at Shun Hing Street:

- 9.10.87 This VSR will have view from the west on the minor works of decommissioning of the STWSPS and part of the alignment of the upgrading existing rising mains. Its view to the construction is partially blocked by the existing trees (i.e. LR2.16) and the existing boundary wall of the STWSPS. Due to the small scale of works to be involved, the construction disturbance is limited. Before any mitigation measures, the unmitigated visual impact to this VSR is **slight adverse**.

RE5 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2):

- 9.10.88 This group of VSR can experience a wide view of the Starling Inlet along the Sha Tau Kok Promenade Sitting-out Area to the south. Part of their view will cover the proposed minor works of demolition of the STKSPS to the north. The main visual impact of this VSR will come from the minor demolition works of the STWSPS and part of the alignment of a new gravity sewer during the construction stage. Taking into account the small scale of works to be involved for the proposed upgrading and decommissioning works and its high quality of alternative view to the south, the unmitigated visual impact to this VSR is **slight adverse**.

Unmitigated Visual Impacts – Operation Phase

R4 –Residents in Block 13-15 of Sha Tau Kok Chuen:

9.10.89 The affected section of the Shun Hing Street will be reinstated after the completion of proposed gravity sewer; and there will be no new structures after the demolition of the STK SPS. Therefore, the unmitigated visual impact to this VSR is **insubstantial**.

R5 – Residents at 3-17 Shun Lung Street:

9.10.90 The affected section of the Shun Hing Street will be reinstated after the completion of proposed gravity sewer; and there will be no new structures after the demolition of the STKSPS. Therefore, the unmitigated visual impact to this VSR is **insubstantial**.

R6 –Residents of Public Housing Development at Shun Hing Street:

9.10.91 The affected section of the Shun Hing Street will be reinstated after the completion of proposed gravity sewer; and there will be no new structures after the demolition of the STKSPS. Therefore, the unmitigated visual impact to this VSR is **insubstantial**.

RE5 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2):

9.10.92 The affected section of the Shun Hing Street will be reinstated after the completion of proposed gravity sewer; and there will be no new structures after the decommissioning the STKSPS. Therefore, the unmitigated visual impact to this VSR is **insubstantial**.

Summary of the Unmitigated Visual Impact

9.10.93 The assessment of the unmitigated impacts during the construction and operation phases is given in **Table 9.14** and mapped in [Figure 9.10](#).

9.10.94 Photomontages of viewpoints from selected VSRs ([Figure 9.11](#)) are illustrated in [Figure 9.11h-i](#).

9.10.95 Two representative vantage points are selected to show the views from two typical elevations ([Figure 9.11](#)):

- VSR R5: representative view to the site from the higher level
- VSR RE5: representative view to the site from ground level

Recommended Mitigation Measures

- 9.10.96 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 visual 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.
- 9.10.97 As detailed in Chapter 2, for the installation of gravity sewer and new outfall, trenchless method rather than surface dredging is adopted. This avoidance measure could significant reduce the visual impacts along the alignment.
- 9.10.98 For the minor works of SKTSPS, as the nature of this part of works is decommissioning rather than construction, the main visual impact would occur in construction phase. Recommended mitigation measure for construction phase impacts is summarised in the Table below. The construction phase mitigation measures listed below shall be adopted from the commencement of construction and throughout the entire construction period.

Table 9.13: Proposed Construction Phase Landscape and Visual Mitigation Measures (STKSPS)

ID No.	Mitigation Measures	Funding Agency	Implementation Agency	Target Receivers
CM2	<p>Control of Site Construction Activities: 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"> · Storage of materials should be carefully arranged to minimise potential landscape and visual impact. · The location and appearance of site accommodation should be carefully designed to minimise potential landscape and visual impact. · Site lighting should be carefully designed to prevent light spillage, · Extent of the works area and construction period should be minimised as far as practicable. · Screen hoarding with compatible design to blend into the surrounding natural environmental should be considered (Screen hoarding may not be practicable for works of upgrading existing rising mains due to the spatial constraints of the works area along the Shun Hing Street). · Temporary works areas should be reinstated at the earliest possible opportunity. 	DSD	DSD (via Contractor)	LR6.10; LCA4; LCA5; VSR R1, VSR R2, VSR R3, VSR O1, VSR O2, VSR O3, VSR T1, VSR T2, VSR RE1, VSR RE2, VSR RE3 VSR RE4 VSR R4 VSR R5 VSR R6 VSR RE5

The location plan of proposed landscape mitigation measures is presented in [Figure 9.9](#) and [9.9a](#).

Mitigated Visual Impacts – Construction Phase

9.10.99 Relevant recommended mitigation measures are detailed in **Table 9.13**. The evaluation of the mitigated conditions of the identified VSRs are described below:

R4 –Residents in Block 13-15 of Sha Tau Kok Chuen:

9.10.100 The view to the construction site is substantially blocked by the trees of LR6.11. With implementation of mitigation measure CM2 – proper control of construction activities which could further reduce the visual disturbance arising from this small scale of works, the mitigated visual impact to this VSR is **slight adverse**.

R5 – Residents at 3-17 Shun Lung Street:

9.10.101 The visual disturbance to the VSR will be partially softened by the trees along Shun Lung Street (i.e. LR 6.11) and the existing boundary wall of the STWSPS. Although the construction activities are still visible from some upper floors of the VSR, taking into account the small scale of works and the recommended measure of CM2 – proper control of construction activities which could further reduce the visual disturbance by shortening the construction duration and limiting the temporary working area as far as practical, the mitigated visual impact to this VSR is **slight adverse**.

R6 –Residents of Public Housing Development at Shun Hing Street:

9.10.102 The view to the construction site is partially blocked by the trees of LR2.16. With the implementation of mitigation measure CM2 – proper control of construction activities which could further reduce the visual disturbance arising from this small scale of works, the mitigated visual impact to this VSR is **slight adverse**.

RE5 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2):

9.10.103 The view to the construction works is partially screened by the trees along Shun Hing Street (i.e. LR 6.8) and the existing boundary wall of the STWSPS. The proper control of site construction activities under CM2 could reduce the visual disturbance extent during the construction period. Although the construction activities are still visible, taking into account the small scale of works, the mitigated visual impact to this VSR is **slight adverse**.

Mitigated Visual Impacts – Operation Phase

9.10.104 The affected section of the Shun Hing Street will be reinstated after the completion of proposed gravity sewer; and there will be no new structures after the decommissioning the STKSPS. The SKTSPS site after the completion of works will be returned to LandsD and become an unallocated government land for future use. At the moment, the land use of the site is undetermined. Therefore, no mitigation measures are proposed in this stage.

R4 –Residents in Block 13-15 of Sha Tau Kok Chuen:

9.10.105 The visual impact to this VSR is **insubstantial** during operation (Day 1 and Year 10).

R5 – Residents at 3-17 Shun Lung Street:

9.10.106 The visual impact to this VSR is **insubstantial** during operation (Day 1 and Year 10).

R6 –Residents of Public Housing Development at Shun Hing Street:

9.10.107 The visual impact to this VSR is **insubstantial** during operation (Day 1 and Year 10).

RE5 – Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2):

9.10.108 The visual impact to this VSR is **insubstantial** during operation (Day 1 and Year 10).

Summary of the Mitigated Visual Impact

9.10.109 The assessment of the mitigated impacts during the construction and operation phases is given in **Table 9.14** and mapped in **Figure 9.10**.

9.10.110 Photomontages of viewpoints from selected VSRs (**Figure 9.11**) are illustrated in **Figure 9.11h-i**.

9.10.111 Each plan shows the existing view, and views of operation of the project.

Table 9.14: Significance of Visual Impacts in Construction and Operation Phases (STKSPS) *

* Notes: Adverse Impacts unless otherwise stated

ID No.	VSR	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
R4	Residents in Block 13-15 of Sha Tau Kok Chuen	Medium	Small	Negligible	Slight	Insubstantial	CM2	Slight	Insubstantial	Insubstantial
R5	Residents at 3-17 Shun Lung Street	High	Small	Negligible	Moderate	Insubstantial	CM2	Slight	Insubstantial	Insubstantial
R6	Residents of Public Housing Development at Shun Hing Street	Medium	Small	Negligible	Slight	Insubstantial	CM2	Slight	Insubstantial	Insubstantial
RE5	Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2):	Medium	Small	Negligible	Slight	Insubstantial	CM2	Slight	Insubstantial	Insubstantial

9.11 Cumulative Visual Impacts

9.11.1 Potential interfacing projects were identified in Section 2 and summarised in **Table 2.17**. The following is the assessment of potential cumulative landscape impacts of the identified projects.

Sediment Removal at Sha Tau Kok Fish Culture Zone, Boat Shelter and Approach Channel

9.11.2 The project is scheduled to commence in 2017 and be completed in 2018. The works of removing sediment at the fish culture zone would not give any change on the landscape and visual condition of the area. Therefore, no cumulative visual impact is expected from this project.

Drainage Improvement Works at North District

9.11.3 A section of the drainage alignment of this project will run along the Sha Tau Kok Road – Shek Chung Au. This project includes the construction of an approx. 1m diameter covered drainage pipe along the access road to STKSTW and installation of a pair of 1350 mm diameter underground drainage pipes, in which both elements are small scale in nature and therefore would not cause any significant additional visual impacts. No cumulative effect on the local visual condition is anticipated.

Public Rental Housing Estate at Sha Tau Kok

9.11.4 This is a public housing project undertaken by Hong Kong Housing Society (HKHS). This project has commenced in 2014 and to be completed by end of 2016. The project comprises a six-storey block which scale is compatible with the existing surrounding buildings. This project is close to the minor works of demolition of existing STKSPS and may have approximate six months of overlapping construction period. However, as stated in Section 9.7 and 9.10, the demolition works is very small scale in nature and therefore significant additional impact on the cumulative condition from our project is not anticipated.

9.12 Conclusions

9.12.1 A landscape and visual impact assessment (LVIA) has been conducted for the proposed project of Expansion of Sha Tau Kok Sewage Treatment Works (STKSTW).

9.12.2 The key sources of impacts include: site clearance for the new STKSTW site, works for the new permanent STKSTW / TSTP, removal of existing trees, construction activities for associated minor works of demolition of the existing Sha Tau Kok Sewage Pumping Station (STKSPS) and construction of a new gravity sewer along the vehicular access of Shun Hing Street at Sha Tau Kok.

9.12.3 **Baseline Study**

9.12.4 A total of 55 LR, 7 LCAs and 16 VSRs are identified in the baseline study. Those LR, LCA and VSRs which are potentially to be affected by the proposed project are listed below:

- *LR6.10 - Trees surrounding Sha Tau Kok Sewage Treatment Works*
- *LCA4 - Boundary Crossing Facilities Landscape*
- *LCA5 - Sha Tau Kok Rural Township Landscape*
- *VSR R1 - Residents in Block 42 – 45 of Sha Tau Kok Chuen*
- *VSR R2 - Residents in Ha Tam Shui Hang*
- *VSR R3 - Residents in Muk Min Tau*
- *VSR R4 - Residents in Block 13-15 of Sha Tau Kok Chuen*
- *VSR R5 - Residents at 3-17 Shun Lung Street*
- *VSR R6 - Residents of Public Housing Development at Shun Hing Street*
- *VSR O1 - Workers/Officers in Sha Tau Kok Fire Station*
- *VSR O2 - Police Operation Base*
- *VSR O3 - Workers of Sha Tau Kok Fish Culture Zone*
- *VSR T1 - Motorists on Sha Tau Kok Road*
- *VSR T2 - Marine users on Starling Inlet*
- *VSR RE1 - Recreational Users of Sha Tau Kok Chuen Area*
- *VSR RE2 - Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1)*
- *VSR RE3 - Recreational Users of Land Use Zoning REC(1)*
- *VSR RE4 - Recreational Users at Yim Liu Ha*
- *VSR RE5 - Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2)*

9.12.5 A tree survey was conducted in LR6.10 and a total of 126 trees were recorded. According to the preliminary findings, majority of the trees (108 trees, 84%) can be retained in-situ while a small portion of trees (18 trees with total DBH 3.1m, 16%) requires removal due to unavoidable conflicts. Under the preliminary proposal, 31 heavy standard trees (of total DBH of 3.1m) will be provided for tree compensation. The compensation ratio will be 1:1.72 and 1:1 for tree number and total DBH respectively. Hence, there will be no net loss of trees in terms of both quality and quantity.

9.12.6 **Recommended Mitigation Measures**

9.12.7 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 for impact avoidance, impact minimisation and landscape and visual enhancement as far as practical.

9.12.8 Recommended construction phase mitigation measures include:

- *CM1 – Preservation of Existing Trees*
- *CM2 – Proper Control of Site Construction Activities*
- *CM3 – Suitable design of the proposed TSTP*

9.12.9 Recommended operation phase mitigation measures include:

- *OM1 – Suitable design of the proposed STKSTW*
- *OM2 – Amenity / Compensatory Planting*
- *OM3 – Amenity enhancement*

9.12.10 **Summary of Residual Impacts**

Construction Phase

9.12.11 The following LR, LCAs and VSRs will receive **slight adverse** impact with mitigation measures during the construction period:

- *LR6.10 - Trees surrounding Sha Tau Kok Sewage Treatment Works*
- *LCA5 - Sha Tau Kok Rural Township Landscape*
- *VSR R1 - Residents in Block 42 – 45 of Sha Tau Kok Chuen*
- *VSR R2 - Residents in Ha Tam Shui Hang*
- *VSR R4 - Residents in Block 13-15 of Sha Tau Kok Chuen*
- *VSR R5 - Residents at 3-17 Shun Lung Street*
- *VSR R6 - Residents of Public Housing Development at Shun Hing Street*
- *VSR O1 - Workers/Officers in Sha Tau Kok Fire Station*
- *VSR O2 - Police Operation Base*
- *VSR O3 - Workers of Sha Tau Kok Fish Culture Zone*
- *VSR T2 - Marine users on Starling Inlet*
- *VSR RE1 - Recreational Users of Sha Tau Kok Chuen Area*
- *VSR RE2 - Recreational Users of Sha Tau Kok Promenade Sitting-out Area (1)*
- *VSR RE3 - Recreational Users of Land Use Zoning REC(1)*
- *VSR RE4 - Recreational Users at Yim Liu Ha*
- *VSR RE3 - Recreational Users of Sha Tau Kok Promenade Sitting-out Area (2)*

9.12.12 All other sensitive receivers will receive **insubstantial** impact with mitigation measures during the construction period.

Operation Phase (Day 1)

9.12.13 The following VSRs will receive **slight adverse** impact with mitigation measures during the operation period at Day 1:

- *VSR R1 - Residents in Block 42 – 45 of Sha Tau Kok Chuen*
- *VSR R2 - Residents in Ha Tam Shui Hang*
- *VSR O1 - Workers/Officers in Sha Tau Kok Fire Station*
- *VSR O2 - Police Operation Base*
- *VSR O3 - Workers of Sha Tau Kok Fish Culture Zone*
- *VSR T2 - Marine users on Starling Inlet*
- *VSR RE1 - Recreational Users of Sha Tau Kok Chuen Area*
- *VSR RE3 - Recreational Users of Land Use Zoning REC(1)*
- *VSR RE4 - Recreational Users at Yim Liu Ha*

9.12.14 All other sensitive receivers will receive **insubstantial** impact with mitigation measures during the construction period.

Operation Phase (Year 10)

9.12.15 The following receiver will receive **slight beneficial** impact with full establishment of mitigation measures during the operation period:

- *LR6.10 - Trees surrounding Sha Tau Kok Sewage Treatment Works*

9.12.16 The reason for the **slight** beneficial impact experienced by the LR6.10 is that there will be a net gain of tree planting area (increased to 0.42ha from original 0.31ha) and overall planting area (increased to 0.45ha from original 0.31ha) under the proposed operation phase mitigation measure OM2.

9.12.17 The following VSRs will receive **slight adverse** impact with mitigation measures during the operation period at Year 10:

- *VSR T2 - Marine users on Starling Inlet*

9.12.18 Although slight negative impact is identified to its view to the north, taking into account the high quality alternative views to other directions available to the east, south and west around the Starling Inlet, the extent of slight residual impacts is considered acceptable.

9.12.19 All other sensitive receivers will receive **insubstantial** impact with full establishment of mitigation measures during the operation period at Year 10.

9.12.20 **Overall Residual Landscape and Visual Impacts**

9.12.21 With the implementation of the recommended mitigation measures, the significance of impacts on the following LR will be **slight beneficial**. According to Annex 10, Clause 1.1 (a) of the EIAO – TM, the overall impact on this LR is considered **beneficial**:

- *LR6.10 - Trees surrounding Sha Tau Kok Sewage Treatment Works*

9.12.22 One VSR (VSR T2) would experience **slight adverse** mitigated impacts during the operation phase, which is considered within acceptable range due to the low sensitivity in nature of the travelling type VSR, the glimpse duration of view and its panoramic quality of views over the Starling Inset seascape. The significance of all other landscape and visual impacts will be **insubstantial**. The overall landscape and visual impacts are therefore considered **acceptable with mitigation measures**, according to Annex 10, Clause 1.1 (c) of the EIAO – TM.