# 9. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

## 9.1 Introduction

The aim of this Section of the Report is to outline the landscape baseline conditions, planning and development control framework, and the Visually Sensitive Receivers (VSR's). It identifies the impacts that would occur during the construction of the Project and its operational phase, recommends mitigation measures and identifies residual effects apparent after mitigation. This section also outlines any accumulative impacts that could be attributed to the Project.

## 9.2 Standards and Legislation

The methodology for undertaking the landscape and visual impact assessment is in accordance with Annex 18 of the Technical Memorandum to the Environmental Impact Assessment Ordinance (EIAO).

The Landscape and Visual Impacts are considered as follows:

- Landscape impact assessment assesses the source and magnitude of developmental effects on the existing landscape elements, character and quality in the context of the site and its environs; and
- Visual impact assessment assesses the source and magnitude of effects caused by the proposed development on the existing views, visual amenity, character and quality of the visually sensitive receivers within the context of the site and its environs.

These are evaluated in accordance with Annex 10 of the Technical Memorandum to the EIAO.

## 9.3 Landscape Impact Assessment Methodology

The assessment of the potential impacts of a proposed scheme on the existing landscape comprises two sections:

- baseline survey; and
- potential landscape impacts assessment.

A baseline survey of the existing landscape character and quality has been undertaken from site inspections and desktop surveys. Landscape elements considered include:

- local topography;
- woodland extent and type;
- other vegetation types:
- built form:
- patterns of settlement:
- land use.
- scenic spots;
- details of local materials, styles, streetscapes, etc.
- prominent watercourses; and
- cultural and religious identity.

Confirmed developments either within the study area or adjacent to it are also considered. The baseline survey forms the basis of the landscape context by describing broadly homogenous units of similar character. The landscape character is rated into low, medium or high depending on the quality of elements present and their sensitivity to change and local or regional importance. The quality of the landscape is not only related to its visual amenity.
The assessment of the potential landscape impacts of the proposals will result from:

- identification of the sources of impact and their magnitude, that would be generated during construction and operation of the project; and
- identification of the principal landscape impacts, primarily in consideration of the degree of change to the baseline conditions. This assessment is undertaken for three distinct periods. These include the: construction phase, where impacts are largely considered to be of a temporary nature; opening year when all of the hard mitigation measures are in place but the soft landscape mitigation measures are deemed to be largely ineffective due to their lack of maturity; and design year, which is taken as fifteen years after the opening year when soft landscape elements are deemed to have reached a level of maturity commensurate with the performance of the proposed landscape mitigation design objectives.

The impacts are considered systematically in terms of the landscape elements, the site and its context with the overall landscape impact being a product of the following factors:

- the landscape character and its quality;
- source, nature and magnitude of potential impacts;
- the degree of change caused by each of the impacts to the existing landscape.
- tolerance of the landscape to absorb the change;
- significance of this change in consideration of the local and regional areas and other developments;
- cumulative effects on the landscape of this and neighbouring proposals; and
- identification of plant species of significant value, which should be conserved.

The impact is derived from the degree or magnitude of change, which the proposals will cause, to the existing landscape context and the ability to tolerate the change, i.e. its quality and sensitivity. The degree of impact is derived from the following matrix:

| **Magnitude of Change caused by proposals** | | | | |
|---|---|---|---|---|
| | High | Moderate Impact | Moderate / Significant Impact | Significant Impact |
| | Moderate | Slight / Moderate Impact | Moderate Impact | Moderate / Significant Impact |
| | Low | Slight Impact | Slight / Moderate Impact | Moderate Impact |
| | No change leading to negligible impact | Low | Medium | High |

**Sensitivity / Quality of Landscape**

The matrix above will apply in the assessment of the majority of situations, however, in certain cases, a deviation from this may occur e.g. the impact may be so major that a significant impact may occur to a low quality element.

The degree of impact is considered as follows:

| **Adverse / Beneficial Impacts** | | | |
|---|---|---|---|
| ***Significant*** | ***Moderate*** | ***Slight*** | ***Negligible*** |
| adverse/beneficial impact where the proposal would cause significant deterioration or improvement in existing landscape quality | adverse/beneficial impact where the proposal would cause a noticeable deterioration or improvement in existing landscape quality | adverse/beneficial impact where the proposal would cause a barely perceptible deterioration or improvement in the existing landscape quality | No discernible change in the existing landscape quality. |

## 9.4 Tree Survey Methodology

To minimise conflicts with existing vegetation, a full tree survey in accordance with Works Bureau Technical Circular (WBTC) No. 24/94 has been undertaken. This is to allow the fine-tuning of the design for the landscape and ensure that any significant trees would where possible, be protected during both the design and construction periods. However, due to the nature of the site and the numbers of trees involved, it was not practicable to survey each tree individually. It was therefore agreed with both AFCD and LCSD that the tree survey would be carried out in accordance with WBTC 24/94 where possible, unless the trees were located in inaccessible or unsafe places where a group survey method was used.

## 9.5 Visual Impact Assessment Methodology

The assessment of the potential visual impact of the scheme comprises two parts:

- baseline survey; and
- visual impact assessment.

The baseline survey of all views towards the proposals was undertaken by identifying the:

- visual envelope or visual zone within which the proposed development may be contained either wholly or partially within views. This must also include indirect effects such as offsite construction activities; and
- visually sensitive receivers (VSR's) within the visual envelope whose views will be affected by the project. The potential receivers are considered as three groups:

  (a) Views from residences - the most sensitive of receivers due to the high potential of intrusion on the visual amenity and quality of life.
  (b) View from workplaces - less sensitive than above due to visual amenity being less important within the work environment.
  (c) Views from public areas - including all areas apart from the above e.g., public parks, recreation grounds, footpaths, roads, cultural sites, etc. Sensitivity of this group depends on the transitory nature of the receiver, e.g. sitting in a park or travelling on a highway. Also considered is the degree of view or glimpsed views.

The sensitivity of each group is also influenced by its location and direction of view relative to the Project. Typical viewpoints from within each of the visually sensitive groups have identified and these views described; both present and future visually sensitive receivers are considered.

The baseline survey forms the basis of the visual character and quality of the site. The assessment of the potential visual impacts results from:

- identification of the sources of visual impacts, and their magnitude, that would be generated during construction of the Project and during the operational phase; and
- identification of the principal visual impacts primarily in consideration of the degree of change to the baseline conditions.

The impact assessment relates to the typical viewpoints within the visual receiver group, as identified previously, and their existing and potential views subsequent to the scheme development. The visual impact has resulted from consideration of the following:

- character of existing view;
- quality of existing view;
- context and location of the visually sensitive receiver;
- number of receivers at the visual receiver group;
- visual receiver group sensitivity;
- degree of change to existing views;
- other views available to visual receiver group;
- the cumulative effects on views of this and other neighbouring developments; and
- the viewing distance between the visually sensitive receiver and the visible part of the proposed scheme.

The degree of visual impact is rated in a similar fashion to the landscape impact i.e. significant, moderate, slight or negligible. The impacts may be beneficial or adverse. The assessment is undertaken for the construction phase, the opening year and the design year. The impact has been derived from the degree or magnitude of change, which the proposals would cause, to the existing visual context and its ability to tolerate the change i.e. its quality and sensitivity. The degree of impact has been derived from the following matrix:

| **Magnitude of Change caused by proposals** | | | | |
|---|---|---|---|---|
| | High | Moderate Impact | Moderate / Significant Impact | Significant Impact |
| | Moderate | Slight / Moderate Impact | Moderate Impact | Moderate / Significant Impact |
| | Low | Slight Impact | Slight / Moderate Impact | Moderate Impact |
| | No change leading to negligible impact | Low | Medium | High |

**Sensitivity / Quality of View**

The matrix above will apply in the assessment of the majority of situations, however, in certain cases, a deviation from this may occur e.g. the impact may be so major that a significant impact may occur to a low quality view.

The degree of impact is considered as follows:

| **Adverse / Beneficial Impacts** | | | |
|---|---|---|---|
| ***Significant*** | ***Moderate*** | ***Slight*** | ***Negligible*** |
| adverse/beneficial impact where the proposal would cause significant deterioration or improvement in existing views | adverse/beneficial impact where the proposal would cause a noticeable deterioration or improvement in existing views | adverse/beneficial impact where the proposal would cause a barely perceptible deterioration or improvement in the existing views. | no discernible change in the existing views. |

## 9.6 The Residual Impacts

The Residual Impacts are those that remain after the proposed mitigation measures have been implemented. This is often 10 to 15 years after the road has been opened to normal operation and when the soft landscape mitigation measures are deemed to have reached a level of maturity, which allows them to perform their original design objectives.

The level of impact is derived from the degree or magnitude of change, which the proposals would cause to the view, which would have existed during this period if the proposed scheme had not been constructed, and its ability to tolerate change, i.e. its quality and sensitivity taking into account the beneficial effects of the proposed mitigation. The degree of impact has been derived from the following matrix:

| **Magnitude of Change caused by proposals** | | | | |
|---|---|---|---|---|
| | High | *Acceptable with mitigation* | *Unacceptable / acceptable with mitigation* | *Unacceptable* |
| | Moderate | *Acceptable / acceptable with mitigation* | *Acceptable with mitigation* | *Unacceptable / acceptable with mitigation* |
| | Low | *Acceptable* | *Acceptable / acceptable with mitigation* | *Acceptable with mitigation* |
| | No change | *Low* | *Medium* | *High* |

**Sensitivity / Quality of View or Landscape Character which would have existed**

The degree of impact is considered as follows:

| Beneficial | Acceptable | Acceptable with mitigation | Unacceptable | Undetermined |
|---|---|---|---|---|
| The project will complement the landscape and visual character of its setting, will follow the relevant planning objectives and will improve overall and visual quality. | There will be no significant effects on the landscape, or significant visual effects caused by the appearance of the project, or no interference with key views. | There some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures. | The adverse affects are considered too excessive and are would not be reduced to an acceptable level by mitigation. | Significant adverse effects are likely but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question. |

## 9.7 Mitigation Measures

The identification of the landscape and visual impacts will highlight those sources of conflict requiring design solutions or modifications to reduce the impact and if possible, blend the development and associated activities in with the surrounding landscape. These mitigation measures take into account factors including:

- woodland, tree and shrub planting of new or disturbed slopes, amenity strips and areas, central reservations and adjacent to any new structures;
- consideration of the contouring of new slopes in order to blend them in with the existing topography;
- earth mounding and screening, structural or vegetated;
- highlighting unacceptable impacts and considering alternative scheme proposals.
- treatment of structural forms;
- hard landscape, furniture and other landscape; and
- significant landscape elements.

This will result in the formation of landscape mitigation proposals that would alleviate the previously identified landscape and visual impacts as far as possible.

## 9.8 Existing Landscape Context and Landscape Impacts

### *9.8.1 Existing Landscape Context and Visual Resources*

From Island House Interchange the existing highway generally runs in a northerly direction towards Fanling along a valley plain bounded by a series of local hills. These include Kau Lung Hang Shan (Cloudy Hill), Lung Shan, Wo Hop Shek and Tai Mo Shan. The existing landscape context forms a contrast between areas characterised by the high-rise urban new town such as Fanling and Tai Po to a more rural landscape of agricultural fields, villages and cottage areas in the central section of the existing scheme and the local hillsides. The existing road corridor forms a distinctive landscape character area and this is reinforced by the close proximity of the KCR line and the enclosure formed by the valley sides. The landscape character is described in Table 9.1 and summarised below. Figure 9.1 shows the assessment of landscape character and quality in the context of the study area. Photographs showing the existing landscape character are presented in Figure 9.2.

The existing highway follows what is initially a southwesterly direction from Island House Interchange on the southeastern outskirts of Tai Po running between the Lam Tsuen River to the north and new high-rise developments at the base of the Tai Po Kau hillside to the south. Beyond these developments, it continues past several local villages including Shan Tong New Village and Ha Wun Yiu, where it also crosses the channel. Island House, which is located on a small promontory in Tolo Harbour to the east of the interchange is a significant structure in terms of landscape quality and character. The Study Area ranges from the highly disturbed areas of Tai Po - and therefore low quality and sensitivity - to the relatively undisturbed hillsides of Tai Mo Shan, which are of a high quality and sensitivity.

Crossing the channel, the existing road takes a northerly alignment for a short distance before turning northwest, where it passes through the lower northern slopes of Tai Mo Shan. This has resulted in steep cuttings through the hillside, which although vegetated, still retains a largely engineered form. These areas of cutting are interspersed with sections of viaduct over the local valleys. The landscape character along this section of the existing road ranges from the disturbed hillsides of Tai Mo Shan and Mui Shue Hang to agricultural landscapes and village areas such as Shek Kwu Lung.

There are several important landscape features close to this section of the road. These include the temples at Ha Wan Yiu, Ma Wo and Pun Chun Yuen, together with the kilns at Sheung Wuh Yiu. Overall, the mixed rural and village character of these areas together with the level of disturbance results in medium level of landscape quality and sensitivity, although the presence of the temples and kilns are local features of high quality.

Beyond Mui Shue Heng, the road enters a broad valley between Kau Lung Hang Shan to the east and Wo Hop Shek to the west. The road descends from the hillsides at Mui Shue Heng to the valley floor. It continues to run at grade through a landscape that has a largely rural character dominated by agricultural land punctuated by numerous village and cottage areas. On reaching the small village of Kau Liu Ha, the road turns north crossing Lam Kam Road Interchange.

Within the valley are sites of several temples including that at Fong Ma Po and two more adjacent to Tai Hang and Nam Wa Po. There is also an extensive cemetery on the Wo Hop Shek hillside at the northern end of the valley. The existing landscape quality and sensitivity along this section is medium but with some local features such as the temples being of a higher quality.

At its northern end, the valley narrows and the road is forced into a northwesterly direction towards Fanling. It passes through the constriction formed by the lower slopes of Wo Hop Shek and Lung Shan. The existing road then continues through an area of village/cottage character on the outskirts of Fanling before entering the high-rise developments of the central areas of the town. This is an area of high disturbance with low landscape quality and sensitivity.

The road corridor forms a distinct landscape character, which is particularly evident within the confines of the valley. This corridor is reinforced by the proximity of the KCR line running parallel to the alignment of the road. The existing road is generally raised on embankment and is lined by roadside vegetation including trees, shrubs and grass areas. There are also pedestrian footpaths along the base of the embankment on both sides of the road for long sections of it. Although the road forms a strip of low quality landscape through the study area, the roadside vegetation where present, is generally an effective landscape buffer to views from the surrounding area and is therefore a sensitive landscape element of the corridor.

### *9.8.2 Impacts to Landscape and Visual Resources*

During the construction phase, works would be confined to a working corridor adjacent to the existing highways. The widening would require the regrading of the existing embankments and cut slopes, together with the construction of viaducts alongside the existing elevated sections. Many of the potential impacts would arise from visual intrusion caused by the actual work activities e.g. the visual appearance of the landscape changing, exposure of earthworks and works traffic. Impacts would also arise from the temporary works areas and contractors compounds.

For much of the road, this would result in the disturbance and probable loss of roadside trees and shrub planting. Although the road corridor is of overall low quality and sensitivity, the loss of the roadside planting would be a significant impact as it currently provides an important landscape and visual buffer between the road and adjacent areas.

In general, the surrounding areas would not be directly affected by the widening, however, the loss of the roadside buffer would be a significant landscape impact for those areas in close proximity to the road. In addition, the requirement for viaducts alongside the existing road, particularly, in the southern part of the study area, would be another source of impact at the ground level due to the disturbance caused during construction. The widening would also result in a need for additional cut slopes through the Tai Mo Shan lower slopes, which would cause local landscape impacts to the hillside. However, the proposals must be considered in the context of the existing slopes that have already been subject to significant levels of disturbance and are likely therefore, to cause only moderate impacts.

Overall, the widening would result in the road corridor being a more prominent landscape feature locally during the opening year, particularly with the loss of the existing roadside vegetation, which acts as a reasonably effective buffer between the road and surrounding areas.

However, during the design year, a combination of the proposed hard mitigation measures and the growth to maturity of the proposed mitigation planting would do much to mitigate these adverse landscape and visual impacts. Nevertheless, there would be some residual adverse impacts due to the reduced area available for mitigation planting which would result in a slightly less effective visual integration of the proposed highway modifications. A summary of the landscape impacts is given in Table 9.1 and illustrated on Figure 9.1.

### *9.8.3 Existing Vegetation*

There are approximately 15,710 trees within the gazetted boundary for the proposed scheme. The hill slopes are densely vegetated with a combination of woodland and scrub vegetation on more exposed slopes. A number of large mature *Melaleuca leucadendron* trees situated in the southern part of the study area are of note. These trees tower above the existing route alignment serving to separate the road corridor from the surrounding landscape.

*Tree Groups*

During the survey, some 209 major tree groups where identified containing a total of 15,200 trees, the majority of which were species common to Hong Kong.

On the hill slopes, the existing trees are largely species that have been used as nurse species for the original landscape mitigation measures for the highway such as:- *Acacia auriculifolius*, *Acacia confusa* and *Casuarina equistetifolia*. There are also lesser numbers of tree species such as *Eucalyptus robusta, Bredelia monica, Celtis sinensis, Cinamomum camphora, Ficus microcarpa, Syzygium jambos, Schima superba, Castonopsis fissa, Sterculia lanceolata, Macaranga tanarius, Liquidamber formosana* and *Cassina siamea*.

Adjacent to village areas, typical species include *Dalbergia balansae, Euphoria longan* and *Cinamomum camphora*.

*Individual Trees*

In addition to significant trees within groups, approximately 500 individual trees were surveyed. The majority of these trees were species common to Hong Kong, however, there were notable specimens of *Acacia Confusa, Albizzia lebbek, Delonix rgia, Melaleuca leucadendron and Phoenix hanceana*.

*Impacts on Existing Vegetation*

The widening proposals including the proposed viaduct construction, regraded cuttings and embankments, the installation of noise barriers, in addition to modifications of the existing structures, have been considered carefully in order to minimise conflict with site topography and natural vegetation. However, owing to a number of constraints and requirements, the alignment for the road improvements allows a limited opportunity to retain trees. Wherever possible, recommendations have been made to transplant trees of high amenity value.

A more detailed assessment of the predicted impacts on the existing vegetation with the project limit for the proposed scheme is contained within the Tree Survey Report schedules. The ecology section of this report has identified a total woodland loss of approximately 10.53 ha due to the construction and operational phases of the proposed highway widening:

- Plantation woodlands, approximately 9.75 hectares (approximately 4.42% of the total resource found in the Study Area) of plantation woodland would be lost due to the proposed highway widening. Although these areas were judged as having a low ecological value they do form important landscape and visual resources particularly in screening the highway from VSR's.

- Natural woodlands, some fringe areas of natural woodland would be lost with an approximate total area of 0.74 hectares (0.34% of the total resource found in the Study Area). These areas are situated to the east of Hang Ha Po, and adjacent to Kam Shan. These areas have importance from both an ecological, and landscape and visual impact perspective.

- Fung Shui woodlands, approximately 0.04 hectares (0.02% of the total resource found in the Study Area) of woodland near Shek Kwu Lung would be lost due to the highway widening proposals. This woodland has ecological, cultural and landscape value.

*Tree Retention*

Generally any trees or tree groups on the fringes of the proposed slope works would be retained, as would the trees adjacent to the original road corridor. The extensive regrading of slopes would involve in some cases partial removal of tree groups. Where possible, the proposed cutting would be feathered at the edge of the proposed regraded slopes to allow trees to be retained. However, where it is not possible to retain trees it is recommended that these trees be felled or transplanted.

Approximately 4,950 of the trees surveyed would be retained under the current proposals, these include roadside trees not affected by the proposed realignment.

*Tree Transplantation Proposals*

In terms of assessing the feasibility of transplanting the trees, the following factors were taken into account:

- Trees were to have above average form, health and amenity value.
- Trees should be native or rare species.
- Ease of access - the majority of the existing trees are located on the steep slopes above the existing road. In most cases transplantation would be difficult and dangerous in these locations due to the gradient of the slopes and the inaccessibility of their situations. Only trees at toe and crest of slopes where machinery access is possible were assessed as being could be transplanted.
- The physical characteristics of the specimen trees - For example, the trees on steep slopes respond to the existing gradient with a higher proportion of roots on the downhill side and the rootball usually forms itself to the angle of slope. It is often difficult to find a similar location that is suitable for the transplantation of these trees. In addition, these trees often have an unbalanced crown that would make them unstable if transplanted to another location.
- Transplantation back onto a slope is often not practicable due to the difficulty of gaining safe access due to a combination of the nature of the slopes, the gradients involved and the stability of the machinery used.
- The survival rate of trees would be improved if a permanent location could be found immediately after being lifted as opposed to the use of a temporary holding nursery.

Taking all these factors into account the tree survey report recommends that approximately 207 trees could be transplanted. These are mainly trees surveyed individually and are accessible to the road.

*Tree Felling Proposals*

The Tree Survey Report concludes that it would not be feasible to retain or transplant approximately 10,153 of the existing trees for the following reasons:

- The scope of the proposed works and site formation precludes any opportunities to retain existing trees.
- The slopes are too steep to enable machinery access to transplant them.
- The necessary excavation and cutting into slopes, means it is technically unfeasible to retain the trees.
- The trees are of poor quality in terms of form and health. Many of the trees surveyed exhibit a leaning and contorted form due to the restricted growing conditions. These trees generally have a long trunk with poorly formed crown and few lateral branches.
- The tree if retained in a solitary position would become unstable and dangerous in windy conditions.
- Trees that are too large or mature to be transplanted successfully.

**Table 9.1 Existing Landscape Context and Landscape Impacts during the Opening Year *(refer to Figure 9.1 for the locations of Landscape Character Units).***

It should be noted that the proposed noise barriers have been taken into account during the assessment and although these structures form an additional source of impact, they exacerbate the existing level of impact rather than forming the sole source of visual impact. The following table shows the predicted impact for the proposed scheme during the construction phase when the proposed landscape mitigation proposals have not been implemented and during the opening year of the operational phase when the proposed landscape mitigation measures have not reached maturity.

| Landscape Character Unit LCU | Quality / Sensitivity | Landscape Impact | Degree of Impact | |
|---|---|---|---|---|
| | | | Construction | Operation |
| ***Village/Cottage Areas***<br><br>The cottage areas are located at various locations along the entire study area. They comprise a mix of low-rise modern village houses in an open irregular layout, although there are several closely regimented such as Hong Lok Yuen. The adjacent areas are a mix of agricultural fields, both used and unused punctuated by areas of scrub. It also includes areas of storage and local industry. Trees are generally confined to gardens and plot boundaries. Several particular features are present including:<br>Temple at Ha Wun Yu;<br>Kilns at Ha Wun Yu;<br>Temple at Ma Wo;<br>Temple at Pun Chun Yuen;<br>Temple at Fong Ma Po;<br>Temple adjacent to Tai Hang; and,<br>Temple adjacent to Nam Wa Po. | ***Medium*** | • Loss of adjacent tree and landscape vegetative buffer along roadside<br>• Potential impacts at southern end, due to construction of additional viaducts, to areas below road<br>• Disturbance and loss of housing at Tai Hang | ***Significant adverse impact*** in areas adjacent to road | ***Significant adverse impact*** in areas adjacent to road |
| ***Agricultural Fields***<br><br>These are areas dominated by fields with large areas being located along the Study Area. There is a mix of used and unused fields. Scattered houses are present, together with non-permanent wood and metal outhouses. Tree vegetation is present, generally in gardens, orchards and plot boundaries. | ***Medium*** | • Loss of adjacent tree and landscape vegetative buffer along roadside | ***Significant adverse impact*** in areas adjacent to road | ***Moderate adverse impact*** in areas adjacent to road |
| ***Disturbed Hillside***<br><br>Within the Study Area are the lower slopes of several hills such as those to the south and east. Although the upper slopes are relatively undisturbed, the lower slopes have large areas of disturbance due to quarries, formed slopes for access roads, platforms for housing and the road itself. In general, these slopes are vegetated with non-native tree species such as *Acacia confusa*. | ***Medium*** | • Regarding of slopes in the southern part of the road and disturbance to the slope tree planting. | ***Moderate to slight adverse impact*** | ***Slight adverse impact*** |

| Landscape Character Unit LCU | Quality / Sensitivity | Landscape Impact | Degree of Impact | |
|---|---|---|---|---|
| | | | Construction | Operation |
| ***Road Corridor***<br>The road corridor is a major feature of the study area. In general, it comprises the dual-3 lane carriageway on embankment, which is vegetated with a mix of trees, shrubs and grass. Tree species present include *Acacia confusa* and *Melaleuca leucadendron*. | ***Low (although the roadside planting is an important feature)*** | • Loss of roadside tree vegetation | ***Significant adverse impact*** | ***Moderate to slight adverse impact*** |
| ***High-rise New Town***<br>Two small areas of the Fanling and Tai Po new town developments are included within the Study Area at the northern and southern ends. These are typical of new town development in Hong Kong and comprise high-rise residential areas, in a framework of local open space. | ***Low*** | • Loss of adjacent tree and landscape vegetative buffer along roadside | ***Moderate adverse impact*** in areas adjacent to the road corridor. | ***Moderate adverse impact*** in areas adjacent to the road corridor. |

*9.8.4 Other Landscape Resources*

*Landform*

The landform of the Study Area ranges from the coastal plain around Tai Po bisected by the mouth of the Lem Tsuen River to the undulating landscape of the lower foothills of Tai Mo Shan, and the flat valley bottom formed between the mountain ranges of Kau Lung Hang Shan (440 mPD) and Pak Tai To Yan (479 mPD). As a result of this land form the main areas of existing cutting and embankment is situated in the southern half of the route between Tai Po and Wai Tau Tsuen. This area is formed by spurs extending from the lower foothills of the Tai Mo Shan mountain range and so is characterised by a number of small peaks punctuated by small valleys. As a result the existing Tolo Highway alignment is in this area is formed by characterised by a series of embankment or viaducts and cuttings.

The earthworks required to construct the original route have resulted in an engineered landscape of standard 45 degree slopes with berms at regular intervals although as the mitigation planting particularly the woodland areas mature this engineered form is less visually apparent. The proposed scheme would involve the extension of these main areas of cutting and embankment at the following main locations (refer to the landscape proposals plan which shows the area of proposed earthworks and the proposed landscape treatment of the finished slopes):

- Regraded embankment slope (chainage 0.00 to 1100.00) on the northern side of the existing carriageway. This new slope would be replace the existing embankment slope with no significant change to the character of the existing landform.
- Regraded embankment slopes (chainage 1250.00 to 1410.00 and 1525.00 to 1740.00) on the northern side of the existing carriageway north of Shang Tong New Village, this would involve the regrading of the existing embankment to the nullah and two small areas of cutting. The existing land form of this area has been heavily modified and so the proposals would not significantly alter the character of the existing landform.

- Regraded cutting slopes (chainage 2000.00 to 2180.00 and 2200.00 to 2375.00) on the northern and southern sides of the existing carriageway south of To Yuen Tung. These areas would involve the regrading of existing engineered slopes and so there would be no significant change in the impacts on the existing topography caused by the highway.

- Regraded embankment and cutting slopes (chainage 4000.00 to 4175.00 and 4175.00 to 4350.00) on the eastern side of the existing highway west of Mui Shue Hang. This would involve areas of regraded cutting and several new embankment slopes. As with the area described above these earthworks would replace existing areas and so there would be no significant modification to the existing landform in terms of its engineered profile.

The predicted impacts arising from these proposals would largely be of a similar level to those resulting from the existing earthworks as the proposals are generally replacing like with like in terms of the extent of the earthworks. There would initially be a *significant adverse impact* arising from the loss of existing vegetation and the construction activity surrounding the regrading. However the implementation of the proposed landscape mitigation measures would alleviate the main impacts to a similar level of significance to those which currently exist. The proposed landscape mitigation measures include local profiling and feathering of regraded slopes to achieve a more naturalistic slope profile and the establishment of compensatory and additional woodland planting to soften the form of the slopes. These slopes would be designed in accordance with the design principles recommended in WBTC 25/93 on Control of Visual Impacts of Slopes.

*Natural Stream Courses*

The valley landscape which forms the setting for the existing highway is traversed by a number of natural stream courses although many of these have been channelised where they are intercepted by the road alignment. There are approximately 8300 metres of natural rivers and streams, and 7300 metres of artificial drainage channels in the Study Area. The main watercourses being the Lam Tsuen Ho river which largely runs parallel to the highway alignment between Tai Po nad Wai Tau Tsuen where the river would be bridged. This would have a *negligible level* of impact on this landscape resource because it is already bridged by the highway and so the landscape quality of the river corridor in this area has already been degraded to an extent.

The second main watercourse is the Ma Wat Ho river which runs parallel to the highway from Tai Hang to to Kiu Tai where the river passes beneath the highway before continuing northward to Fanling. Approximately 200 metres of a channelised watercourse would be diverted (chainage 7300.00) to allow the construction of the new carriageway. This would however lead to a *slight adverse impact* as this section of the river is already heavily modified.

Another 60 metres of existing natural stream courses would be affected by the highway proposals, the location and extent of which are identified in the ecology section of this report. There are two main areas the first being streams originating in the lower foothills of Tai Mo Shan and the second area between Yuen Leng and Tai Hang. Many of these streams have already undergone significant modification during the original highway construction and so the further disturbance provided by the widening proposals would cause *slight to negligible adverse* impacts on these existing landscape resources.

### *9.8.5 Summary*

In broad terms, the existing landscape character is mixed comprising of the high-rise developments to the north and south of the study area, the rural agricultural and village/cottage areas in the middle and the road corridor as a major feature joining the two. The primary source of landscape impact would be from the loss of the roadside vegetation including some 10,153 existing trees together with the introduction of additional viaduct sections and new embankment and cut slopes. This would initially in the opening year result in a significant impact to the road corridor and to the neighbouring areas, which would be subject to visual intrusion due to loss of the landscape buffer between the two areas. The growth to maturity of the proposed mitigation planting would reduce the severity of many of these adverse visual impacts to acceptable levels. It should be noted however that the proposed planting would take a number of years to reach a stage where it would provide an effective screen although, the intermediate stages of growth would provide some mitigation for the predicted impacts. There would however be some residual adverse impacts although these would be negligible in terms of the impact on the landscape character, its perceived quality and sensitivity to change.

## 9.9 Review of Planning and Development Control Framework

### *9.9.1 Existing Planning Context and Impacts*

The proposed widening of the highway has been planned within limited land take and where possible is contained within the existing highway boundary. A review of the planning studies and documents was undertaken to gain an insight into the planned role of the site, its context and to help determine the projects fit into the wider landscape context.

**Table 9.2 Review of Existing Planning and Development Control Framework *(Information extracted from Outline Zoning Plan numbers S/TP/11 - Tai Po, S/NE-KLH/1 – Kau Lung Hang and S/FSS/7 – Fanling/Sheung Shui )***

| Planning Designation / Location | Approx. Area Affected | Comments |
|---|---|---|
| ***North of Tolo Highway (S/TP/11 – Tai Po)*** | | |
| **1. Government, Institutional and Community** (West of Tai Po Market Station) | 0.38Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. This area has already been utilised for major infrastructure projects and so the proposed scheme would have little impact on the viability of the existing planning designation. |
| ***2. Green Belt** (South of Tai Po Market Station)* | 0Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. There is a general presumption against development within these areas, however, most of this area has been utilised during the construction of a nullah. The proposed scheme would not effect the planning designation for this area. |
| **3. Open Space** (South of Wan Tau Tong Estate) | 1.5Ha | The planning intention of this zone is to designate existing and proposed open spaces so as to provide active and passive recreational opportunities to serve the local population. Loss of all of the existing open space taken within the project limit would not affect the overall viability of the landscape resource for which this area was designated. |
| **4. Green Belt** (To Yuen Tung) | 0.55Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The area lost would be below the ridgeline to the north and so the loss of vegetation would be screened in views from the north and from within the Green Belt area thus not disrupting the basic landscape integrity of this area. |
| **5. Residential (Group B)** (South East of Grand Dynasty View) | 0Ha | The planning intention of this zone is to provide low density housing.<br>The proposed widening of the existing carriageway would not affect the viability of this planning designation. |
| **6. Government, Institutional and Community** (South of Ma Wo) | 0Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. Although this area is currently a monastery the proposed scheme would be constructed within existing land take and so no impacts would occur to the existing designated planning use |

| Planning Designation / Location | Approx. Area Affected | Comments |
|---|---|---|
| **7. Green Belt** (Ma Wo) | 0.8Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The area lost is immediately adjacent to the existing highway and most of it is south of the existing ridgeline having little impact upon the landscape integrity of the designated area. |
| **8. Government, Institutional or Community** (West of Pan Chung) | 0Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. The proposed scheme would be constructed within existing land take and so no impacts would occur to the existing designated planning use. |
| **9. Open Space** (South of Shek Kwu Lung ) | 0.33Ha | The planning intention of this zone is to designate existing and proposed open spaces so as to provide active and passive recreational opportunities to serve the local population. The area lost would be below the ridgeline to the north and so the loss of vegetation would be screened in views from the north and from within the Green Belt area, thus the basic integrity of the visible landscape framework would be maintained. |
| **10. Village Area** (Shek Kwu Lung) | 0.15Ha | The planning intention of this area is to demarcate both the existing villages and areas suitable for village expansion. The construction of the proposed scheme would involve the loss of part of the existing village area adjacent to the scheme with some loss of residential property however these losses would also facilitate the introduction of effective noise barriers. |
| **11. Green Belt** (West of Shek Kwu Lung) | 0.47Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. This area which includes part of the river valley has been developed to an extent however any losses of vegetation would be below the existing ridgeline thus reducing potential impacts from within the area and in views from the north thus maintaining the basic of the existing landscape framework. Part of this area has been developed with a school; the proposals would lead to the loss of a large part of the school grounds. This would have an adverse impact upon the designated use for this area. |
| **12. Open Space** (Mui Shue Hang) | 0.74Ha | The planning intention of this zone is to designate existing and proposed open spaces so as to provide active and passive recreational opportunities to serve the local population. The existing topography of this area being undulating and the extent of existing earthworks would greatly reduce any potential adverse impacts both from views within this area and from the north. |
| **13. Government, Institutional or Community** (East of Hang Ho Po) | 0.20Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. There would me minimal loss to this area maintaining the areas potential for development for the use designated. |

| Planning Designation / Location | Approx. Area Affected | Comments |
|---|---|---|
| ***South of Tolo Highway (S/TP/11 – Tai Po)*** | | |
| **14. Residential (Group B)** (Shan Tong) | 0Ha | The planning intention of this zone is to provide low density housing.<br>The proposed widening of the existing carriageway would not affect the viability of this planning designation. |
| **15. Green Belt** (West of Shan Tong) | 0Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The proposed scheme would be constructed within existing land take and so no impacts would occur to the existing designated planning use. |
| **16. Government, Institutional or Community** (West of Shan Tong) | 0Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. The proposed scheme would be constructed within existing land take and so no impacts would occur to the existing designated planning use. |
| **17. Residential (Group B)** (Shan Tong New Village) | 0Ha | The planning intention of this zone is to provide low density housing.<br>The proposed widening of the existing carriageway would not affect the viability of this planning designation. |
| **18. Green Belt** (East of Lai Chi Shan) | 0.13Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The proposed scheme would largely be constructed within existing land take although there would be a loss of a small area for the regrading of an existing embankment it would not affect the overall integrity of the landscape framework of this area. |
| **19. Green Belt** (Ha Wun Yiu to Mui Shue Hong) | 0.43Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The proposed scheme would largely be constructed within existing land take although there would be a loss of a small area the existing Green Belt it would not affect the landscape resource for which this area was designated. |
| ***East of Fanling Highway (S/NE-KLH/1 – Kau Lung Hang)*** | | |
| **20. Government, Institutional or Community** (West of Hong Lok Yuen) | 0Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. The proposed scheme would be constructed within existing land take and so there would be no adverse impact upon the designated planning use for this area. |

| Planning Designation / Location | Approx. Area Affected | Comments |
|---|---|---|
| **21. Government, Institutional and Community** (West of Yuen Leng) | 0.17Ha | The planning intention of this area is to provide sites for Government, institutional or community facilities serving the needs of the local as well as district population. The proposed scheme would largely be constructed within existing land take and so the proposed scheme would not affect the designated use for this area. |
| **22. Agricultural Areas** (Kiu Tau to Tong Hang) | 1.44Ha | The planning intention of this zone is to retain and safeguard good agricultural land for agricultural purposes. The proposed land take would allow the proposed realignment of the existing river course. |
| ***S/FSS/7 – Fanling / Sheung Shui*** | | |
| **23. Green Belt** (South of Wong Kong Shan) | 0.5Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. The proposed scheme would not affect the planning viability of this designation. |
| ***West of the Fanling Highway (S/NE-KLH/1 – Kau Lung Hang)*** | | |
| **24. Agricultural Areas (North and South of Wai Tau Tsuen)** | 0.97Ha | The planning intention of this zone is to retain and safeguard good agricultural land for agricultural purposes. This area of land take would allow the widening of the existing carriageway and the introduction of more comprehensive mitigation measures. The loss of this size of area in proportion to the overall area would not affect its designated use. |
| **25. Village Area** (Tai Hang) | 1.23Ha | The planning intention of this area is to demarcate both the existing villages and areas suitable for village expansion. This area of land take would allow the widening of the existing carriageway and the introduction of more comprehensive mitigation measures. |
| **26. Green Belt** (East of Nam Wo Po) | 0.3Ha | The planning intention of this zone is to define the limits of urban development areas by natural features and to contain urban sprawl, in addition to providing passive recreational outlets. Although designated as Green Belt the area lost would mostly consist of open storage and developed areas and so the proposed road widening would have no impact upon the areas designated use. |
| **27. Open Storage** (East of Nam Wo Po) | 0.24Ha | The planning intention of this zone is to accommodate the continuing demand for open storage and to regularise the haphazard proliferation of open storage areas within this zone. The area of open storage lost would be confined to a strip of land adjacent to the existing highway boundary. The size of the area lost would not affect the use for which this area was designated. |

| Planning Designation / Location | Approx. Area Affected | Comments |
|---|---|---|
| **28. Open Storage** ( West of Kiu Tau) | 0.20Ha | The planning intention of this zone is to accommodate the continuing demand for open storage and to regularise the haphazard proliferation of open storage areas within this zone. The area lost would mostly be existing open storage land adjacent to the existing highway boundary and residual areas in between infrastructure projects. The area lost would not affect the use for which this area was designated. |
| ***S/FSS/7 – Fanling / Sheung Shui*** | | |
| **29. Village Area** (Wo Hop Shek San Tsuen ) | 0Ha | The planning intention of this area is to demarcate both the existing villages and areas suitable for village expansion. The proposed construction of the highway widening would take place within the confines of the existing highway boundary and so no part of the village areas would be lost. There would be no impact on the areas designated planning use. |
| **30. Industrial Area** (East of Wo Hop Shek San Tsuen ) | 0Ha | The planning intention of this area is to provide an opportunity for existing industrial uses, many of which are carried out in temporary structures to operate efficiently by improving and expanding as necessary in the designated area. The proposed construction of the highway widening would not affect the viability of this planning designation. |
| **31. Open Space** (West of Wo Hing Road ) | 0Ha | The planning intention of this zone is to designate existing and proposed open spaces so as to provide active and passive recreational opportunities to serve the local population. The proposed construction of the highway widening would place within the confines of the existing highway boundary, there would be no impact on the areas designated planning use. |

### *9.9.2 Summary*

The proposed road widening would result in little impact on designated planned development. Table 9.3 below summarises the loss to each of the planning designations described and comments on the significance of these losses.

**Table 9.3 Summary of Losses to Designated Planning Zones Resulting from the Widening of Tolo Highway**

| Planning Designation | Approx. Total Area Affected (Ha) | Comments |
|---|---|---|
| **Residential (Group B) R (B)** | 0.00 | These areas are largely concentrated in the southern part of the Study Area to the west of Tai Po. Although there would be no loss of actual land area the proximity of the widened carriageway and the initial loss of road side vegetation would lead to a loss of visual amenity for these sites. However the establishment and growth to maturity of the proposed soft landscape mitigation measures would alleviate much of this predicted adverse impact. |

| Planning Designation | Approx. Total Area Affected (Ha) | Comments |
|---|---|---|
| **Village Type Development (V)** | 1.38 | The main area affected by the proposals would be the village area at Tai Hang to the west of the Fanling Highway where approximately 1.23 Hectares of the area identified on the OZP would be lost due to the widening scheme. This widening would also require the demolition of a number of existing village houses. However the planning viability of this zoning from a landscape perspective would not be affected by the proposals. The impacts on landscape character and visual amenity are discussed elsewhere. |
| **Industrial Area (GB)** | 0.00 | The proposed widening would not lead to any physical loss of land within adjacent industrial areas. The industrial area east of Wo Hop Shek San Tsuen, the only area, would be subject to some adverse impacts on its existing landscape setting and visual amenity, however this area does not represent a VSR due to the degraded nature of the landscape and its land use. The proposals would not affect the viability of this planning designation. |
| **Government, Institutional or Community (C/IC)** | 0.75 | For most of the sites adjacent to the road corridor the proposed widening would be within existing land take and so there would be no direct impact on the viability of these areas from a landscape planning perspective. The main area of physical loss of land would be at site 1 west of Tai Po Market Station, an area largely utilised for major infrastructure and so the proposals would not affect the viability of the planning designation. |
| **Open Space (O)** | 2.57 | Areas of Open Space contiguous with the existing highway boundary fall into three main the levels of impact, these are as follows:<br><br>• Area 3 (total area 1.5 Ha) this existing area is formed from residential land between the retrained river channel and the existing highway boundary and is currently formed by steep wooded slopes. This landscape would be restored with much of the existing land area following the construction phase of the project.<br><br>• Area 9 (total area 0.33 Ha) this existing area forms the western periphery of a large and irregular open space. The area lost forms part of the road side cutting and so is screened from internal views within the open spaces. The proposed scheme would not have a significant adverse impact on the this area from a landscape and visual impact perspective due to the comparatively small area of land take relative to the total area of open space and the screening effect of the existing landform.<br><br>• Area 12 (total area 0.74Ha) would be subject to significant loss of area although this area would be below the existing ridgeline to the east of the highway and so screened from views from within the remaining Open Space. Therefore the widening proposals would not have a significant adverse impact on the viability of the planning designation for this area. |

| Planning Designation | Approx. Total Area Affected (Ha) | Comments |
|---|---|---|
| **Agricultural (AGR)** | 2.41 | Two agricultural areas would be affected by the proposals the first eastern side of Fanling Highway between Kiu Tau and Tong Hang and the second on the western side of the highway to the north and south of Wai Tau Tsuen. Both of these areas have been degraded by the severance caused by the existing infrastructure developments and so further infringements into the existing area would not significantly affect the designated planned use for these locations. |
| **Green Belt (GB)** | 3.20 | Areas of Green Belt contiguous with the existing highway boundary fall into three main the levels of impact, these are as follows:<br><br>• 2 areas (4&7, total area 1.35 Ha) would be in cutting and so although a significant area of land would be lost due to the widening these areas would be screened in views by the existing land form and woodland.<br>• 4 areas (2, 15, 18 & 26, total area 0.43 Ha) would be subject to negligible or slight loss of area due to the widening proposals. The widening in these areas would be largely within existing or limited land take. With the exception of area 26 (total area 0.3 Ha) which although designated Green Belt the area affected is largely Open Storage and so the loss of area would not be significant from a landscape and visual impact perspective. |
| | | • 3 areas (11,19 & 23, total area 1.1 Ha) would be subject to significant loss of area although it should be noted that this area is formed by an approximately 20 metre wide ribbon of land parallel to the existing highway. The preservation of existing vegetation lining the highway boundary and the re-establishment of the roadside planting the landscape and visual impacts would not be as significant as the total area would suggest. |
| **Open Storage (GB)** | 0.44 | The nature of the activity on these sites, one adjacent to Nam Wa Po and the other Kiu Tai, has resulted in a degraded landscape of little value to the landscape character of the existing road corridor. Therefore the direct loss of land area would not have a significant affect on the landscape character of the area or the visual amenity of identified VSR's. The widening of the highway would leave the larger part of these areas intact and so would not affect the viability of the planning designation. |
| **Total** | 10.74 | |

Despite the loss of physical area (10.74 hectares in total), the proposed widening scheme would achieve a 'fit' into the planned future landscape and would not significantly affect the viability of its planning designations. In landscape terms the two most important designations affected are Green Belt and Open Space, the area lost 3.2 and 2.57 hectares respectively, the validity of their planning designations would remain intact in that they would be able continue to perform their planned role. Overall, the project would have a *slight adverse to negligible impact* on the viability of the existing Landscape Planning Designations within the Study Area.

## 9.10 Existing Visual Context and Visual Impacts

### *9.10.1 Visual Envelope*

The visual envelope for a large part of the Project is contained by existing visual obstructions within what is essentially a flat rural area. These visual obstructions include the existing tree planting and the development associated with the villages. As a result, the extent of the visual envelope at the lower levels is confined to an area in close proximity to the proposed scheme. However, a second visual envelope would exist at higher levels extending to the existing ridgelines. This would be largely due to the presence of the high rise areas of Tai Po and Fanling, and the surrounding hillsides to the east, west and south. The extent of the visual envelope is shown on Figure 9.3.

### *9.10.2 Existing Visually Sensitive Receivers*

The existing landscape character of the road corridor is very similar through out its length. A consequence of this is that the visual amenity of the site is reasonably consistent throughout the Study Area for the proposed project. The situation is modified to an extent through the presence, at the northern and southern ends of the scheme, of the high-rise new towns of Tai Po and Fanling. These two conurbations bring a different character to the landscape of the Study Area through the introduction of vertical elements into what is essentially a horizontal landscape. The visual envelope clearly demonstrates that many of the views within the valley are partially screened by intermediate low-rise developments and vegetation. As many of the VSR's are at ground level or low-rise, the road screens the lower level views in the foreground. The background views comprise of those from local hillsides.
Much of the visual context along the road is similar to the VSR's and has thus been considered as groups, which are generally based on villages or developments. The location of these is shown on Figure 9.4 and described in Table 9.4.

### *9.10.3 Visual Impacts*

The main visual impacts to the VSR's will arise from the loss of the roadside vegetation (which currently screens the road together) with the new cut and fill slopes along the southern part of the Project. This will result in exposure of the road and traffic to views. Additionally, any requirement for noise mitigation measures, and in particular noise barriers, will potentially be an additional source of visual impact. The predicted visual impacts for the identified VSR's are summarised in Table 9.4 and shown on Figure 9.4.

### *9.10.4 Summary*

Overall, the primary source of visual impact will be the loss of the roadside vegetation resulting in exposure of the road to views from the surrounding landscape and identified visual receivers. The proposed use of noise barriers would form an additional source of visual intrusion in the areas they are located. The construction works and traffic will also cause additional visual impacts during the construction period, although these are temporary in nature.

As a consequence of the proximity and sensitive nature of many of the VSR's to the proposed works, the impacts would be significant adverse. The impact of the construction works on the more distant VSR's, such as visitors to the Wo Hop Shek Cemetery and walkers on the MacLehose Trail, are likely to be only slight and moderate adverse. This is largely due to the temporary nature of construction impacts and the existing level of disturbance caused by what is already a transport corridor that contains the KCR for part of its length. This is particularly apparent within a wider context of open views across the field areas towards the local hillsides.

## Table 9.4 Visually Sensitive Receivers and Visual Impacts

For the purposes of this assessment low rise was taken as 0-4 floors, medium rise as 5-10 floors and high rise as 11+ floors. It should also be noted that the proposed noise barriers have been taken into account during the assessment, and although these structures form an additional source of impact, they exacerbate the existing level of impact rather than forming the sole source of visual impact. The following table shows: a) the predicted impact for the proposed scheme during the construction phase when the proposed landscape mitigation proposals have not been implemented and b) during the opening year of the operational phase when the proposed soft landscape mitigation measures have not reached maturity.

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Existing View | Quality / Sensitivity | Impact | Degree of Impact | |
|---|---|---|---|---|---|---|
| | | | | | Construction | Operation |
| **1. Kwong Fuk Estate** | High-rise residential/ 250m | Views are over the urban areas of south Tai Po towards the road corridor with high-rise estates opposite. The primarily natural hillside of Tai Mo Shan is in the background | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers<br>• Introduction of new fill slopes | ***Significant adverse*** | ***Significant adverse*** |
| **2. The Paragon** | High-rise residential/ 100m | Views are primarily north over the road towards the high-rise urban areas of Tai Po. Secondary views are northeast over the Island House Interchange to Tolo Harbour. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **3. Grand Palisades** | High-rise residential/ 150m | Views are primarily north over the road towards the high-rise urban areas of Tai Po. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **4. Shan Tong New Village** | Low-rise residential/ 100m | Views towards the road are partially screened by intermediate buildings and vegetation. The high-rise areas of Tai Po are in the background. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works | ***Significant adverse*** | ***Significant adverse*** |
| **5. The Paramount** | High-rise residential/ 150m | Views are primarily north over the road towards the high-rise urban areas of Tai Po. Additional views are possible eastwards along the road with the lower natural slopes of Tai Mo Shan in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **6. Uptown Plaza** | High-rise residential/ 125m | Views are over the urban areas of south Tai Po towards the road corridor with high-rise estates opposite. The primarily natural hillside of Tai Mo Shan is in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Existing View | Quality / Sensitivity | Impact | Degree of Impact | |
|---|---|---|---|---|---|---|
| | | | | | Construction | Operation |
| **7. King Nga Court** | High-rise residential/ 130m | Views are south over the river to the road, towards the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **8. Wan Tau Tong Estate** | High-rise residential/ 200m | Views are south over the river to the road, towards the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers<br>• Introduction of new fill slopes | ***Significant adverse*** | ***Significant adverse*** |
| **9. Tak Nga Court** | High-rise residential/ 150m | Views are south over the river to the road, towards the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **10. Ha Wun Yiu** | Low-rise residential/ 50m | Views towards the road are partially screened by intermediate buildings and vegetation. The high-rise areas of Tai Po are in the background. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **11. Dynasty View** | High-rise residential/ 55m | Views towards the road are partially screened by intermediate buildings and vegetation with the natural slopes of Tai Mo Shan in the background. However, the elevated sections of road are a prominent feature. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views<br>• Introduction of new cut and fill slopes | ***Significant adverse*** | ***Significant adverse*** |
| **12. Pun Chun Yuen** | Low-rise residential/ 50m | Views towards the road are partially screened by intermediate buildings and vegetation. The high-rise areas of Tai Po are in the background. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **13. Shek Kwu Lung** | Low-rise residential/ 35m | Views towards the road are partially screened by intermediate buildings and vegetation with the natural slopes of Tai Mo Shan in the background. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **14. Tai Wo Estate** | High-rise residential/ 500m | Views are over the local village and cottage areas, towards the road, with the natural slopes of Tai Mo Shan in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Existing View | Quality / Sensitivity | Impact | Degree of Impact | |
|---|---|---|---|---|---|---|
| | | | | | Construction | Operation |
| **15. Parc Versailles** | High-rise residential/ 125m | Views are south over the road to the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **16. Tai Po Garden** | High-rise residential/ 250m | Views are south over the road to the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **17. Mui Shue Hang** | Low-rise residential/ 250m | Views, which are partially screened by the intermediate buildings and vegetation, are south over the road to the natural slopes of Tai Mo Shan. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **18. Hong Lok Yuen** | Low-rise residential/ 175m | Views towards the road are primarily screened by the intermediate buildings, vegetation and by the KCR line. The Wo Hop Shek hillside is in the background. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **19. Wai Tau Tsuen** | Low-rise residential/ 50m | Views, which are partially screened by the intermediate buildings and vegetation, are east towards the road to the houses of Hong Lok Yuen and the natural slopes of Kau Lung Hang Shan. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views<br>• | ***Significant adverse*** | ***Significant adverse*** |
| **20. Tai Hang** | Low-rise residential/ immediately adjacent to the alignment | Views, which are partially screened by the intermediate buildings and vegetation, are east towards the road and the natural slopes of Kau Lung Hang Shan. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **21. Tai Wo** | Low-rise residential/ 50m | Views, which are partially screened by the intermediate buildings, vegetation and KCR, are west towards the road and the natural slopes of Wo Hop Shek. | ***Medium*** | • Loss of vegetation as visual<br>• screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **22. Wo Hop Shek Cemetery** | Cultural site/ 50m | Views are from elevated locations over the valley, including the road and village areas to the east with Kau Lung Hang Shan in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Moderate adverse*** |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Existing View | Quality / Sensitivity | Impact | Degree of Impact | |
|---|---|---|---|---|---|---|
| | | | | | Construction | Operation |
| **23. Nam Wa Po** | Low-rise residential/ 300m | Views, which are partially screened by the intermediate buildings and vegetation, are east towards the road and the natural slopes of Kau Lung Hang Shan. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **24. Yuen Leng** | Low-rise residential/ 300m | Views, which are partially screened by the intermediate buildings, vegetation and KCR, are west towards the road and the natural slopes of Wo Hop Shek. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works | ***Significant adverse*** | ***Significant adverse*** |
| **25. Kiu Tai** | Low-rise residential/ 100m | Views, which are partially screened by the intermediate buildings and vegetation, are west towards the road and the natural slopes of Wo Hop Shek. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **26. Wo Hop Shek San Tsuen** | Low-rise residential/ 40m | Views, which are partially screened by the intermediate buildings and vegetation, are northeast towards the road and the natural slopes of Lung Shan. | ***Medium*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Significant adverse*** |
| **27. Dawning Views** | High-rise residential/ 175m | Views are over the local village and cottage areas towards the road with further cottage area and the KCR beyond. The Lung Shan hillsides are in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **28. Wa Ming Estate** | High-rise residential/ 600m | Views are over the local village and cottage areas towards the road with further cottage area and the KCR beyond. The Lung Shan hillsides are in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **29. King Shing Court** | High-rise residential/ 400m | Views are over the local village and cottage areas towards the road with further cottage area and the KCR beyond. The Lung Shan hillsides are in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **30. Avon Park** | High-rise residential/ 400m | Views are over the road towards cottage areas and the KCR beyond. The Lung Shan hillsides are in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Existing View | Quality / Sensitivity | Impact | Degree of Impact | |
|---|---|---|---|---|---|---|
| | | | | | Construction | Operation |
| **31. Fanling Centre** | High-rise residential/ 800m | Views are along the valley between Wo Hop Shek and Lung Shan with the road as a major element on the valley floor. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **32. Cheung Wah Estate** | High-rise residential/ 700m | Views are along the valley between Wo Hop Shek and Lung Shan with the road as a major element on the valley floor. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Significant adverse*** |
| **33. Kau Lung Hang Shan** | Walkers/ 1500m | Views are from elevated locations over the valley, including the road and village areas, to the west with Wo Hop Shek in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Moderate adverse*** |
| **34. MacLehose Trail (Kau Lung Hang Shan)** | Walkers/ 2100m | Views are from elevated locations over the valley, including the road and village areas, to the west with Wo Hop Shek in the background. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers | ***Significant adverse*** | ***Moderate adverse*** |
| **35. KCR Line** | Passengers immediately adjacent to alignment | In general, views are partially screened by intermediate buildings and vegetation towards the road with the Wo Hop Shek hillside in the background. | ***Low*** | • Loss of vegetation as visual screen along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Moderate adverse*** |
| **36. MacLehose Trail (Tai Mo Shan)** | Walkers/ 1600m | Views are over the road and local cottage areas towards the high-rise Tai Po. | ***Medium*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers<br>• Introduction of new cut and fill slopes | ***Slight adverse*** | ***Slight adverse*** |
| **37. Tolo Highway** | Passengers | The roadside planting and topography of the existing road corridor generally contain views of the proposals. However, some more open views are possible, particularly from the viaduct sections in the south. These are towards the high-rise areas of Tai Po. | ***Low*** | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of noise barriers screening views | ***Significant adverse*** | ***Moderate adverse*** |

## 9.11 Opportunities for Mitigation Measures

A preliminary landscape proposal plan has been prepared for the landscape mitigation of the proposed widening scheme based on the identified landscape and visual impacts. A more comprehensive package of proposals will be formulated during the detailed design stage of the project.

Within this report, the mitigation is described for each of the elements (i.e. sources of impact of the alignment) as well as an outline of the proposed design strategies for mitigation. The aim of the mitigation measures is to:

- alleviate those landscape and visual impacts which are unavoidable through the engineering and landscape design, where possible,
- enhance the existing landscape and visual context of the surrounding areas; and
- to provide a co-ordinated approach between the ecological and landscape mitigation proposals where there is an interface.

Drawing Nos. 551/L/5102 to 5108 and Figure 9.6 show the general approaches to the mitigation measures for the proposed scheme.

Several of the mitigation measures described are generic items, which will be undertaken as general mitigation e.g. stockpiling of topsoil.

### *9.11.1 Construction Phase*

*Preservation of Existing Vegetation*

An important mitigation for both the landscape and visual impacts is the retention of all existing planting, particularly trees. The mitigation proposals would avoid disturbance to the existing trees as far as practicable within the confines of the proposed Project.

A full tree survey and felling application will be submitted for approval by the relevant government departments in accordance with WBTC 24/94. All trees would be retained where possible, with particular regard to retaining tree groups. If due to the Project it becomes certain that some of the existing roadside trees would be lost then these would be transplanted where possible. Trees identified for retention within the project limit would be protected during the works with these protection measures being written into the contract documents. These would include the following provisions:

- The use of sturdy 1.8 metre protective fencing to be located at the edge of the tree canopy and not around the trunk.
- Prohibition of the storage of materials, the movement of construction vehicles and the washing of equipment including concrete mixers beneath the tree canopy.

The tree transplanting and planting works would be implemented by approved Landscape Contractors and inspected and approved on site by a qualified Landscape Architect. A tree protection / transplanting specification would be included within the contract documents.

*Temporary Works Areas*

Two locations have been identified for temporary works areas, the first is situated on the northern side of the existing highway to the east of Tai Po and the second south of Kiu Tai. Both of these sites are contiguous to the existing highway boundary in residual spaces between the highway and the existing KCR line. Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of

these works areas would be restored following the completion of the construction phase.

*Hoarding*

A hoarding would be erected in the most visually sensitive locations to screen the temporary construction works from the local VSR's. However, due to the length of the scheme and as parts of the road are raised on embankment or elevated, a hoarding may not be a practicable solution in some locations.

*Top Soils*

The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled to a maximum height of 2m. It should be either temporarily vegetated with hydroseeded grass during construction or, turned over on a regular basis to avoid acidification and the degradation of the organic material, and reused after completion. Alternatively, if this is not practicable, it should be considered for use elsewhere, including other projects.

*Protection of Important Landscape Features*

The landscape assessment has identified several temples, Island House and kilns as being important features within the study area. In general, these features are remote from the works, however, it should be ensured that these features are retained and adequately protected.

### *9.11.2 Operational Phase (after construction)*

*Footpath and Cycleway*

Two lengths of footpath / cycleway (270 m and 280 m respectively) at the base of the existing embankment would be reinstated after construction. Tree planting along the line of the reprovisioned footpath would provide shade for pedestrians. These are located between the reprovisioned footbridge at Nam Wah Po and the existing interchange Wo Hop Shek.

*Compensatory Planting*

The loss of existing vegetation would be a primary source of both the landscape and visual impacts. The road widening would be facilitated through the construction of extensions to the embankment and would have a soft finish. Where geotechnical considerations allow, new embankment slopes would have a gradient capable of retaining topsoil to a depth of at least 1m. Where this is not possible, alternative solutions would be required to provide a viable growing medium. These alternative solutions may include the excavation of planting pits and back filling with a suitable growing medium, the use of reinforced earth solutions such as geo-grid layers or geotextile honeycombs and the construction of berm planters. Hydro – seeding solutions may also be used in isolation or in combination with one of the methods described above.

The embankments would be planted with a mix of tree and shrub planting. The following principles have been considered during the design of these planting areas:

- Identifying a corridor separate from the utility corridors that impede landscape works.
- Tree and shrub screen planting including roadside and amenity planting. In certain locations, woodland planting would be appropriate with the species mix reflecting those affected with the eventual long-term objective of creating native woodland.
- Create a fast vegetative cover to ensure soil stability and quick visual effect for planting of disturbed areas. The long-term aim would be to allow native species to become dominant.

- Use of ornamental species in urban locations such as areas adjacent to residential development or on urban sections of the highway.
- Design to avoid emphasising the engineered form and linearity of the road. This would be achieved using a number of methods such as varying the type and height of vegetation along the roadside. Another method would be to allow the planted areas to extend further than the base of the embankment creating a greater depth to the planting. This would soften the transition between the engineered forms of the earthworks and create an irregular or organically shaped edge to the planting.
- Use of shade planting along the new footpath / cycleway. This would create a more comfortable environment both physically and visually for the users; and
- Use of low growing shrub planting in the central reserve of the highway where the forward visibility splays allow. Robust plant species would be used which have a low maintenance requirement.

Drawing Nos. 551/L/5102 to 5108 shows the landscape preliminary proposals for the proposed compensatory planting which would be implemented as mitigation for the predicted landscape and visual impacts attributable to the widening proposals. Appendix 9-1 also contains a list of suggested species that would be appropriate for these areas. The list includes species, which are indigenous to Hong Kong coastal and hillside locations in addition to a number of exotic nurse species. Therefore the proposed roadside woodland planting would have some ecological value in addition to its proposed landscape and visual value. The nurse species would be selectively felled following the successful establishment of the target indigenous species. Within the species list in Appendix 9-1 there is also a list of suggested amenity species for locations such as the more urban areas. Areas of woodland identified in the ecology section of this report as being natural woodland or having Fungi Shui importance that would be lost due to the proposed widening would be replaced as part of the landscape mitigation proposals. These replacement woodland areas would be established in locations as close to the areas lost as possible within the confines of the project limit.

The table contained in Appendix 9-2 lists the proposed soft landscape mitigation measures, identifies their location by chainage and gives an approximation of the area of each of these proposed landscape elements. The tree and shrub planting proposed as mitigation for the landscape and visual impacts predicted to accrue as a result of the widening scheme would include the following:

- 15. 34 hectares of mixed woodland with a shrub layer would be established involving the replanting of approximately 85,000 trees replacing the predicted loss of 10,153 trees. The calculations are made based on the assumption that the planting would involve the use of ‘whips’ at 1.5 metre centres. The final density of the woodland would less than the original planting due to management and maintenance operations such as the selective thinning of the stand to ensure adequate space for the developing crowns of the trees.

- 0.7 hectares of amenity tree and shrub planting would be established involving the planting of approximately 1000 trees. This estimate is based on the assumption that these trees would be planted at their final centres and that much bigger ‘standard’ sized tree will be used.

- 2.3 hectares of infill planting into areas of existing intermittent vegetation cover would be established involving the under planting of ‘whip’ sized trees into areas of poor vegetative cover. The total number of trees required will be calculated during the detailed design stage.
- 2.2 hectares of grassland.

The landscape mitigation measures have been designed to ensure compatibility with the proposals to be implemented under Project 561TH. This section of the highway is situated to the south of these proposals adjacent to Tolo Harbour

*Engineering Structures*

Particular attention has been given to the design, appearance and construction methods of the highway structures. Principles considered during the design includes:

- the structures should aim to match those existing along Tolo Highway for visual compatibility;
- the structures should aim to "touch" the ground as lightly as possible in order to minimise disturbance to the existing landscape and vegetation below the structures. This may be achieved by designing slender, rounded columns spaced the maximum distance apart. The deck and parapet will have a shallow profile to reduce its visual intrusion. The viaducts should be constructed using pre-cast methods and launched from columns rather than scaffolding;
- landform and vegetation in areas disturbed by construction works will be reinstated to blend with the existing landscape patterns;
- where light levels permit, vegetation will be reinstated below the structures. Trees and shrubs will be used wherever possible to minimise the apparent height of structures and to soften their appearance from a distance;
- maintenance access roads should where necessary be sensitively designed to minimise visual intrusion and physical disruption of the existing landscape, alternative paving materials should be considered where possible;
- columns will be rounded with vertical features to relate to the wider family of structures;
- at the ground level columns will have a textured finished in-keeping with local architectural and visual environment;
- fair faced concrete will not be used for parapets to minimise glare from the structure and to avoid staining;
- drainage structures would where possible be concealed within the structure,
- consideration would be given to the design and form of traffic sign / sign gantry and street lighting to create single design themes and avoid the structures creating excessive additional impacts; and
- in general, lighting along the roadside should be designed to avoid excessive light spillage raising the levels of ambient light levels in the local areas and in views from the VSR's.

*Noise Barriers*

The requirement for noise barriers along large sections of the highway would potentially be an added source of visual impact with the source of impact depending on their use and location. For example, the introduction of a high vertical element such as a noise barrier with a strong horizontal emphasis in an area of existing small scale landscape elements would be visually intrusive. On the bridges, the use of barriers would increase the perceived depth of the profile of the road causing a slender road deck, when viewed from distance, to become a visually heavy structure.

Noise barriers are proposed along much of the route alignment on both sides of the widened highway. The design of these barriers would be responsive to the landscape through which the highway would pass, this would essentially be low lying agricultural land, scattered cottage areas and steep wooded slopes. The barriers would through the use of colour panels extract the main colour elements from the landscape, these include various shades of green and terracotta. The arrangement of the coloured panels has been designed to provide an abstracted mirror image of this landscape. The use of a combination of opaque, tinted and clear panels would further reduce the visual impact caused by these structures and in some locations allow vehicle travellers views of the surrounding countryside and maintain existing views across the road corridor. The proposed barriers would be designed to avoid glare from both incident sunlight and vehicle headlights that could compromise driver safety. This would include the use of tinted glass and non-reflective surfaces. The proposed noise barriers would also reduce the impact on VSR's of street lighting both existing and proposed, and reduce the visual

impact of vehicular headlights.

This strategy would reduce the potential overall visual intrusion, which the proposed barriers would cause. Many of the barriers required would be along the roadside at the top of the embankment. At these locations, tall dense planting would be used to visually integrate where possible the barriers into the existing landscape or screen the barriers.

The barrier designs have been submitted to the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS) for approval. The committee's advice will be incorporated into the detailed design of these structures. Noise barrier designs would also be submitted to CHE / Lighting to ensure that the structures do not have any adverse effects on the highway lighting proposals.

*Noise Barrier Walling adjacent to Tai Hang Village.*

A wall would be constructed on the western side of the proposed noise barrier at Tai Hang in a traditional style appropriate to the village architecture. The wall would be some 3 metres in height with a tiled coping. This would serve to break up the visual mass of the proposed noise barrier and screen vehicular activity. The section of the noise barrier above the proposed wall would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.

*Footbridges*

The proposed footbridges would be located along the northern section of the scheme where the highway would pass through what is essentially a rural landscape characterised by low lying agricultural land, scattered cottage areas and steep wooded slopes. The concept for the design of the external finishes for the footbridges is, as with the proposed noise barriers, to respond to the rural landscape character of the area. The selection of colours and finishes have been designed to match the tones found in the existing views of the road corridor and so be as visually recessive as possible. Therefore the basic concept is to reflect the colours and tones of the landscape which the bridge structure would be viewed against. The view of the footbridges has been broken down into three basic scenarios, these are as follows:

- The step and ramp access sections on either side of the carriageway would use darker tones and earthy colours to reduce the visual prominence of the proposed structure. This treatment would address the visual impacts apparent in the peripheral sections of the vehicle traveller's forward view, for the vehicle traveller's side views, particularly those of passengers and the visual integration of the structures in views from visually sensitive receivers beside the highway.

- The central section of the proposed footbridge would incorporate lighter colours and medium tones, which reflect the main central elements of the vehicle traveller's forward views, the carriageway surface and the horizon. The use of closely matched colours and tones in the proposed colour treatment would also seek to reduce the incidence of light and shade arising from the intricacies of the structure and thus reduce the visual prominence of it.

- The roof structure of the footbridge would be seen from elevated views such as those available from Wo Hop Shek Cemetery. Therefore the choice of colours for the roofing material would reflected the colour and tones found in these views, that is the carriageway surface and the existing and proposed roadside planting.

Generally the use of matt finishes would also reduce the visual prominence of the footbridge structure. The differentiation of the colour treatment between the various elements of the bridge would also help reduce the apparent visual mass of it.

*Slopes*

The proposed alignment would require extensive earthworks and the formation of a new embankment along the roadside. The principles promoted in WBTC 25/93 Control of Visual Impact of slopes, would form the basis for the design of slopes in order to minimise visual impact. These include :

- avoidance of large slopes where possible;
- preservation where possible of existing vegetation, the extent of the works and therefore the slopes, would be minimised to avoid excessive disturbance to the existing vegetation;
- avoidance of hard landscape solutions where possible;
- improve surface treatment of rock slope; and
- improve detailing of associated features including surface channels, stairways, catch pits and drainage channels. The opportunity would be taken where possible to give the proposed earthworks a less engineered appearance through for example designing slopes with a more naturalistic form.

These measures would be incorporated into the overall design without compromising the existing landscape or creating additional adverse impacts, for example, by using already disturbed areas, works areas, contractor compounds, etc.

Where geotechnical considerations allow, the slopes will be designed with a minimum of 1m of topsoil so as to ensure a viable growing medium and the successful establishment of the proposed soft landscape mitigation. Where this is not possible innovative solutions would be sought to ensure the provision of a viable growing medium. These measures are listed above in the section describing the compensatory planting proposals.

*Sources of Landscape and Visual Impact with Mitigation Measures*

The landscape and visual impact assessment has identified the sources of impact to the existing landscape and visual amenity of VSR's, and the approaches to mitigation of these impacts have been described above. Table 9.5 and 9.6 summarises these sources of impact and the mitigation to alleviate them.

**Table 9.5 Sources of Landscape Impact and Mitigation Measures**

| Source of Landscape Impact | Mitigation Measures |
|---|---|
| Loss of tree planting and landscape buffer along roadside | • Preservation of existing vegetation, where possible, by modifications to alignment<br>• Tree Survey in accordance with WBTC 24/94 and tree felling, transplanting and retention proposals<br>• Conservation of topsoil<br>• Compensatory tree and shrub planting |
| Disturbance of temporary works areas situated to the east of Tai Po and south of Kiu Tau. | • Preservation of existing vegetation, where possible, through design of the works site, and protection from works activity during the construction period.<br>• Site design including the use of hoarding and temporary lighting to limit temporary landscape impacts.<br>• Conservation of topsoil for replacement following the construction period. |

| Source of Landscape Impact | Mitigation Measures |
|---|---|
| | • Restoration of existing landscape through the implementation tree and shrub planting |
| Disturbance and loss of housing at Tai Hang would cause the disruption of the existing settlement pattern and the loss of visual cohesion of the settlement edge. | • Preservation of the existing character of the remaining village area through the implementation of a landscape buffer zone to visually separate the village from the road corridor. This buffer would involve the use of noise barriers and soft landscape works which would consist of trees and shrub planting in the residual spaces resulting from the necessary demolition of residential property. This planting would not form a continuous screen but would reduce the apparent visual mass of the proposed noise barriers in views from Tai Hang. |
| Potential loss of footpath / cycleway, (subject to further study) | • Re-instatement or re-routing of footpath and cycleway where required |
| Regrading of slopes | • The regrading of slopes to follow the design principles as recommended in WBTC 25/93 on the Control of Visual Impacts of Slopes<br>• Drainage works on regraded slopes should be designed to minimise visual impact<br>• Minimisation of slope cutting and formation<br>• Retention of topsoil<br>• Regrading of slopes to produce more naturalistic contours, where possible<br>• Compensatory planting of slopes |

**Table 9.6 Sources of Visual Impacts and Mitigation Measures**

| Source of Visual Impacts | Mitigation Measures |
|---|---|
| Loss of roadside tree vegetation as screen and visual buffer | • Retention of vegetation, where possible<br>• Compensatory tree planting along roadside working in conjunction with the proposed noise barriers to reduce the potential visual intrusion caused by the widening proposals. |
| Views of construction works including the temporary works areas situated to the east of Tai Po and south of Kiu Tau. | • Construction of hoarding along works boundary at selected visually sensitive locations during construction period. It should be noted however that it may not be feasible to construct hoarding for the entire length of the proposed scheme. |
| Regrading and formation of new slopes | • The grading of slopes to follow the design principles as recommended in WBTC 25/93 on the Control of Visual Impacts of Slopes<br>• Regrading of slopes with naturalistic contours<br>• Planting of slopes, where possible |
| Construction of new road side retaining structures | • The colour and texture of the retaining structures designed to reduce their visual impacts<br>• Use of climbing and trailing plants on retaining structures and the use of screen planting to be considered to reduce the apparent visual mass of these structures |
| Additional, and extension of, road structures, e.g. viaducts | • Design of new structures to match those existing |

| Source of Visual Impacts | Mitigation Measures |
|---|---|
| Visual screening by noise barriers | • Design of noise barriers to be visually unobtrusive through the use of visually recessive colour and tone, and through the use of transparent materials where appropriate.<br>• The proposed use of tree and shrub planting to reduce the apparent visual mass of the proposed structures, ease their visual integration into the existing landscape and reduce their horizontal emphasis. |

## 9.12 Residual Impacts Subsequent to Mitigation

The presence of the existing highway and the intention to widen within existing land take would do much to minimise the potential for adverse landscape and visual impacts. However, there would be some residual impacts due to the scale of the widening works, particularly the requirement for slope regrading, additional viaducts, loss of existing tree planting and the provision of noise barriers for much of length of the proposed scheme. The predicted residual impacts for the proposed scheme are shown in Tables 9.6 and 9.7.
The scale of the impacts incurred due to the works is, in several locations too large to be totally mitigated these include the proposed vertical noise barriers. These types of impact are difficult to successfully alleviate at source using purely landscape mitigation measures although by the design year the proposed mitigation measures would provide some relief to the impacts caused and improve the visual integration of the scheme into the landscape context of the area.

The mitigation measures would mitigate many of the construction impacts, i.e. construction scars, but would not mitigate the impact of large scale manmade features. However, as has been alluded to above, the level of existing impact caused by Tolo and Fanling Highways would not be significantly different to that resulting from the proposals during the design year. Although for instance the introduction of noise barriers would have a significant adverse impact this would be offset to an extent by the existing landscape and visual impacts caused by vehicular activity.

The landscape mitigation proposals would aim to replace the areas of important woodland lost due to the widening proposals particularly that identified as being natural and Fung Shui woodlands, however there would be a slight deficit of plantation woodland due to the reduced area available for planting. This would lead to a slight residual impact in terms of the area of woodland, however the use of native species to replace some of the exotic species present in the existing plantations would have a beneficial impact.

A series of computer generated images and elevations are shown as Figure 9.8, the location of which are identified on Figure 9.7. While it has been intended to demonstrate the extent of the visual impacts due to the construction of the alignment, it is not possible at this stage to be conclusive concerning the mitigation measures until there is sufficient engineering information during the Preliminary Landscape Design. The figures, therefore, only show indicative measures to demonstrate the scale of mitigation possible rather than the definitive mitigation. Tables 9.6 and 9.7 detail the predicted residual impacts to landscape character and visual amenity subsequent to the implementation of the proposed mitigation measures.

## Table 9.7 Summary of Impacts during the Opening Year, Mitigation Measures and Residual Landscape Impacts during the Design Year

(The design year is taken as between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity which is sufficient for it to fulfil the original design objectives.)

| Landscape Character Unit | Summary of Landscape Impact | Magnitude of Change | | Landscape Sensitivity To change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|
| | | Construction | Operation | | | Construction | Operation |
| **LCU 1 Village Areas** | • Loss of adjacent tree and landscape vegetative buffer along roadside. (R & C)<br>• Potential impacts at southern end, due to construction of additional viaducts, to areas below road. (C)<br>• Disturbance and loss of housing at Tai Hang (R & C) | ***High*** | ***Low to Medium*** | ***'Medium sensitivity'*** due to the proximity of these village areas to the proposed scheme and the importance of existing roadside elements in preserving the perceived landscape character. | • Compensatory tree and shrub planting alongside the proposed scheme.<br>• Erection of temporary hoarding along the works boundary during the construction period.<br>• Tree and shrub planting at the base of viaduct columns to disrupt the horizontal emphasis of the proposed structure and ease the visual integration of the viaduct into the framework of the existing landscape.<br>• Construction of environmental barrier to mitigate adverse noise impacts due to the proposed scheme, and minimise the visual intrusion caused by carriageway with its associated structures and the movement of vehicles | ***'Slight adverse impact'*** in areas adjacent to the road alignment. | ***'Moderate adverse impact'*** due to the mitigating impacts of the existing disturbance caused by the existing road alignment. |

| Landscape Character Unit | Summary of Landscape Impact | Magnitude of Change | | Landscape Sensitivity To change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|
| | | Construction | Operation | | | Construction | Operation |
| **LCU 2 Agricultural Fields** | • Loss of adjacent tree and landscape vegetative buffer along roadside. (R & C) | ***High*** | ***Medium*** | ***'Medium'*** due to the due to the existing disturbance caused by the KCR line, the existing highway and visual detractors such as large scale built development. | • Compensatory tree and shrub planting alongside the proposed scheme to screen views of the proposed scheme.<br>• Woodland planting of remnants of fields severed by the proposed scheme using native tree and shrub species. This will improve the ability of the roadside planting to screen the visual impacts of the proposed scheme. It will also produce a more organically shaped edge, which will reduce the apparent engineered form of the scheme and ease its integration into the existing landscape. | ***'Slight adverse impact'*** in areas adjacent to the road alignment. | ***'Slight adverse impact'*** due to the sensitivity of existing landscape dominated by infrastructure such as the KCR line and the existing highway. |
| **LCU 3 Disturbed Hillside** | • Regrading of slopes in the southern part of the road and disturbance to the slope tree planting. (C) | ***Medium*** | ***Low*** | ***'Medium to high'*** due to the relatively unspoilt nature of the hillside landscape. | • Minimisation of slope cutting and the creation of a natural looking contour tying in with the local terrain.<br>• Design of slopes to create a less regular and engineered appearance particularly at the intersection between the existing terrain and the proposed earthworks.<br>• Partial vegetation of slopes to visually reduce the apparent scale of the earthworks when viewed from the surrounding landscape and from the carriageway. It will also mitigate any visual incongruities between the form of the existing and proposed landforms. | ***'Slight adverse impact'*** due to the sensitivity of the landscape and the viewing distances involved. | ***'Slight adverse impact'*** due to the mitigating impacts of the existing disturbance caused by the existing road alignment and the viewing distances involved. |

| Landscape Character Unit | Summary of Landscape Impact | Magnitude of Change | | Landscape Sensitivity To change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|
| | | Construction | Operation | | | Construction | Operation |
| **LCU 4 Road Corridor** | • Loss of roadside tree vegetation (R & C) | *Medium* | *Low* | ***'Low'*** due to the disturbance caused by the existing highway and KCR, and their associated structures which form visually detracting elements within the road corridor. | • Compensatory tree and shrub planting alongside the proposed scheme to screen views of it.<br>• The opening of framed and filtered views through the proposed roadside planting to allow vehicle travellers visual access to the surrounding landscape. This would not however be acceptable in areas adjacent to Visually Sensitive Receivers and where the proposed scheme passes through particularly sensitive landscapes. | ***'Slight adverse to neutral impact'*** in areas adjacent to the road alignment. | ***'Slight adverse impact'*** due to the mitigating impacts of the existing disturbance caused by the existing road alignment. |
| **LCU 5 High-rise New Town** | • Loss of adjacent tree and landscape vegetative buffer along roadside. Impacts limited to landscape character. (C) | ***Medium*** | ***Low*** | ***'Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the distance from the proposed scheme. | • Compensatory tree and shrub planting alongside the proposed scheme to screen views of it from low-rise development.<br>• Compensatory tree and shrub planting alongside the proposed scheme would not screen it from high level views from high-rise development however it would ease the schemes visual integration into the existing landscape frame work and thus reduce any visual intrusion arising from the schemes 'fit'. | ***'Slight adverse to neutral impact'*** in areas adjacent to the road alignment. | ***'Slight adverse impact'*** due to the mitigating impacts of the existing disturbance caused by the existing road alignment. |

Key: Type of Impacts — R - Impact on Landscape Resources; C - Impact on Landscape Character
Magnitude of Change: None, Low, Moderate or High
Landscape Sensitivity: Low, Moderate or High
Residual Impacts: Refer to matrix (section 9.3 above)
Construction – Construction Phase
Operation – Operational Phase

## Table 9.8 Summary of Mitigation Measures and Residual Visual Impacts

(The design year is taken for the purposes of this study as between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity which is sufficient for it to fulfil the original design objectives.)

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **1. Kwong Fuk Estate** | High-rise residential/ 250m | • Properties have both high level views of the Proposed Scheme<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 10m noise barrier between VSR's and proposed carriageway<br>• Introduction of limited new fill slopes although much of the proposals in this location are at or near grade | ***High*** | ***Med*** | ***'Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the viewing distance from the proposed scheme. | • Compensatory tree and shrub planting alongside the proposed scheme.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area during the construction period.<br>• Restoration of the landscape of the temporary works areas.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of new fill area slopes with smooth and more curved form to reduce the engineered appearance of the proposals and integrate earthworks into the existing landscape.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, the proximity of the temporary works area and the temporary loss of roadside vegetation. The predicted impacts would be mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment and the proposed landscape mitigation measures. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **2. The Paragon** | Medium-rise residential/ 100m | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of 7 and 8m high noise barriers in between the VSR's and the proposed carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever<br>• Construction of bridge number 11 alongside the existing structure. The northbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the viewing distance from the proposed scheme. | • Compensatory tree and shrub planting alongside the proposed scheme.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area during the construction period.<br>• Restoration of the landscape of the temporary works areas.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of cantilevered barrier with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Mounding and planting adjacent to the cantilevered barrier to reduce the apparent visual mass of the structure and soften its form<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, the proximity of the temporary works area and the temporary loss of roadside vegetation. These predicted impacts would be mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment and the proposed landscape mitigation measures. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **3. Grand Palisades** | Medium-rise residential/ 150m | • Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 7m high vertical barrier in the central reservation.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever.<br>• Construction of bridge number 11 along side the existing structure. The northbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Medium to Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the viewing distance from the proposed scheme. | • Compensatory tree and shrub planting alongside the proposed scheme.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area during the construction period.<br>• Restoration of the landscape of the temporary works areas.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Mounding and planting adjacent to the retaining structure to reduce the apparent visual mass of the structure and soften its form.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate to slight adverse Impact'*** due to the scale of the proposed works, the proximity of the proposed temporary works area and the temporary loss of roadside vegetation. These predicted impacts would be mitigated to an extent by the viewing distances involved and the intervening presence of development. The proposed widening would be on the northern side of the carriageway and so construction works would be screened to an extent by the existing roadside vegetation on the southern side of the carriageway. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **4. Shan Tong New Village** | Low-rise residential/ 100m | • Views of construction works<br>• Construction of a 5.5m vertical barrier with a 3m cantilever in between the existing carriageway and the VSR's<br>• Construction of bridge number 11 along side the existing structure. The northbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Medium to Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway, and the viewing distance from the proposed scheme. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate to slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the intervening presence of development. The proposed widening would be on the northern side of the carriageway and so construction works would be screened to an extent by the existing roadside vegetation on the southern side of the carriageway. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment and the implementation of the proposed landscape mitigation planting. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **5. The Para-mount** | High-rise residential/ 150m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Views of construction works<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Introduction of a 5m high vertical barrier on the southern side of the carriageway in between the Proposed Scheme and the VSR's.<br>• Construction of bridge number 10 along side the existing structure. The northbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Low'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the viewing distance from the proposed scheme. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape..<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **6. Uptown Plaza** | High-rise residential/ 125m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Construction of retaining wall to facilitate the extension to the existing embankment.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever.<br>• Construction of bridge number 11 along side the existing structure. The southbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Low to Medium'*** sensitivity to change due to the existing level of built development, the proximity of visually detracting landscape elements such as the existing highway and the viewing distance from the proposed scheme. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate to slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment and intervening built development. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **7. King Nga Court** | High-rise residential/ 130m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Construction of retaining wall to facilitate the extension to the existing embankment.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever.<br>• Construction of bridge number 11 along side the existing structure. The southbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Medium'*** sensitivity to change due to the quality of the existing views to the south with Tai Mo Shan in the background degraded to an extent by the level of built development and the proximity of visually detracting landscape elements such as the existing highway. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape measures including the proposed compensatory planting proposals and the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **8. Wan Tau Tong Estate** | High-rise residential/ 200m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Construction of retaining wall to facilitate the extension to the existing embankment.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever.<br>• Construction of bridge number 11 along side the existing structure. The southbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Medium'*** sensitivity to change due to the quality of the existing views to the south with Tai Mo Shan in the background degraded to an extent by the level of built development and the proximity of visually detracting landscape elements such as the existing highway. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape measures and the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **9. Tak Nga Court** | High-rise residential/ 150m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Construction of retaining wall to facilitate the extension to the existing embankment.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever.<br>• Construction of bridge number 11 along side the existing structure. The southbound carriageway would be open to views from the south. | ***High*** | ***Med*** | ***'Medium'*** sensitivity to change due to the quality of the existing views to the south with Tai Mo Shan in the background degraded to an extent by the level of built development and the proximity of visually detracting landscape elements such as the existing highway. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of noise barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape measures and the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **10. Ha Wun Yiu** | Low-rise residential/ 50m | • Low-rise views interrupted by the existing landform, development and vegetation.<br>• Views of construction works.<br>• Introduction of a 3m high vertical barrier in the central reservation.<br>• Construction of 6m high vertical barrier in the central reservation of bridge 10.<br>• The northbound carriageway would continue to be open to views from the south. | ***High*** | ***Low*** | ***'Medium to Low'*** sensitivity to change due to the quality of the existing views to the north, which is dominated by, built development particularly the high rise development of Tai Po. Views are also partially obscured by intervening vegetation and built development. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the intervening presence of development. The proposed widening would be on the northern side of the carriageway and so construction works would be screened to an extent by the existing roadside vegetation on the southern side of the carriageway. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **11. Dynasty View** | High-rise residential/ 55m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views interrupted by the existing landform, development and vegetation<br>• Loss of vegetation as visual buffer along roadside<br>• Views of construction works<br>• Construction of retaining wall to facilitate the extension to the existing embankment with newly graded slopes.<br>• Construction of a vertical barrier, ranging from between 3 and 5m in height, in between VSR's and the proposed new carriageway. | ***High*** | ***Low*** | ***'Medium'*** sensitivity to change due to the quality of the existing views to the south with Tai Mo Shan in the background degraded to an extent by the proximity of existing highway, which forms the foreground in views. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate to slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the proximity of the existing highway and the elevated viewing position. | ***'Slight adverse impact'*** due to the mitigating impacts of the visual disturbance caused by the proximity existing road alignment and the elevated view of it. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **12. Pun Chun Yuen** | Low-rise residential/ 50m | • Low-rise views from residential property on the hillside over looking the Proposed Scheme interrupted by existing landform, development and vegetation.<br>• Views of construction works<br>• Loss of some of the existing roadside vegetation, which currently acts as a visual buffer.<br>• Construction of a vertical barrier 2m in height, in the central reservation of bridge 12. Northbound vehicular activity would continue to be open to views from the west. | ***High*** | ***Med*** | ***'Medium to Low'*** sensitivity to change due to the quality of the existing views to the north, which are characterised by, built development particularly the high rise development of Tai Po. Views are also partially obscured by intervening vegetation and built development. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the intervening presence of development and existing vegetation. The proposed widening would be on the northern side of the carriageway and so construction works would be screened to an extent by the existing roadside vegetation on the southern side of the carriageway. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **13. Shek Kwu Lung** | Low-rise residential/ 35m | • Low-rise views from residential property on the hillside over looking the Proposed Scheme interrupted by existing landform, development and vegetation.<br>• Views of construction works<br>• Loss of much of the existing roadside vegetation, which currently acts as a visual buffer.<br>• Construction of a vertical barrier ranging in height from 4 to 6m screening views of southbound vehicular activity. Northbound vehicular activity would be screened by 2m high vertical barrier in the central reservation.<br>• Construction of bridge number 12 along side the existing structure. | ***High*** | ***Med*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway and its associated structures in views to the south. | • Retention and protection from construction activity of existing planting where possible. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused by extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight to Moderate adverse Impact'*** due to the scale and proximity of the proposed works, and the temporary loss of roadside vegetation mitigated to an extent by the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **14. Tai Wo Estate** | High-rise residential/ 500m | • Low-rise views from residential property on the hillside over looking the Proposed Scheme interrupted by existing landform, development and vegetation. The adverse visual impacts caused by the Proposed Scheme are mitigated to an extent by the viewing distances involved and intervening development such as the existing KCR line.<br>• Views of construction works<br>• Loss of much of the existing roadside vegetation, which currently acts as a visual buffer.<br>• Construction of a vertical barrier 6m in height screening views of southbound vehicular activity. Northbound vehicular activity would be screened by 2m high vertical barrier in the central reservation. | ***Med*** | ***Low*** | ***'Medium'*** sensitivity to change due to the quality of the existing views over the local village and cottage areas, towards the road, with the natural slopes of Tai Mo Shan in the background. | • Where possible the retention and protection from construction activity of existing planting. Compensatory tree and shrub planting where required.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure within the road corridor. | ***'Neutral to Slight adverse impact'*** due to the mitigating effects of the viewing distances involved, and the level of existing development within the road corridor. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **15. Parc Versailles** | High-rise residential/ 125m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views severely interrupted by the existing landform, development and vegetation<br>• Loss of much of the significant vegetation as visual buffer along roadside<br>• Views of construction works<br>• Construction of a vertical barrier, ranging from between 3 and 5m in height, in between VSR's and the proposed new carriageway.<br>• Construction of bridge number 12 along side the existing structure | ***High*** | ***Low*** | ***'Medium to Low'*** sensitivity to change due to the quality of the existing views south towards the existing highway and built development of Shek Kwu Lung, However the existing valley side and lower hill slopes of Tai Mo Shan do much to improve this view. | • Compensatory tree and shrub planting. The movement of the existing slip road to a more southerly alignment would release additional land for roadside woodland planting within the residual areas. This additional or residual land would be situated between the proposed road widening and the adjacent VSR's, and so once mature it would provide additional screening and an improvement in the visual amenity from these properties.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to match existing with minimal visual intrusion being caused due to the thin profile, narrow columns, extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, their proximity to the VSR, its elevated viewing position and the temporary loss of road side vegetation. | ***'Neutral impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment and the proposed new mitigation planting in the residual areas from the realignment of the existing slip road. The high quality element of this view the background would be unaffected by these proposals. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **16. Tai Po Garden** | High-rise residential/ 250m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views partially interrupted by the existing landform, development and vegetation<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Construction of embankment extension slopes, typically 1 in 2. Areas of cutting are screened in views by the existing landform<br>• Views of construction works<br>• Construction of a vertical barrier, ranging from between 2 and 4m in height, in between VSR's and the proposed new carriageway. | ***High*** | ***Low*** | ***'Medium to Low'*** sensitivity to change due to the quality of the existing views south towards the existing highway, the elevated viewing positions and the built development of Shek Kwu Lung, However the existing valley side and lower hill slopes of Tai Mo Shan do much to improve this view. | • Compensatory tree and shrub planting. The movement of the existing slip road to a more southerly alignment would release additional land for roadside woodland planting within the residual areas. This additional or residual land would be situated between the proposed road widening and the adjacent VSR's, and so once mature it would provide additional screening and an improvement in the visual amenity from these properties.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Neutral to Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. The movement of the proposed slip road would allow an opportunity for more extensive roadside planting |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **17. Mui Shue Hang** | Low-rise residential/ 250m | • Low-rise views significantly interrupted by the existing landform of small knolls, development and vegetation<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Construction of embankment extension slopes, typically 1 in 2. Areas of cutting would be screened in views by the existing landform<br>• Interrupted views of the construction works<br>• Construction of proposed retaining wall to facilitate new embankment extension. | ***Med*** | ***Low*** | ***'Medium to Low'*** sensitivity to change due to the quality of the existing views south towards the existing highway, the elevated viewing positions and the built development of Shek Kwu Lung, However the existing valley side and lower hill slopes of Tai Mo Shan do much to improve this view. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of proposed retaining structures with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, their proximity to VSR's and the temporary loss of road side vegetation. This would be mitigated to an extent by the proximity of the existing highway. | ***'Slight adverse impact'*** due to the proposed roadside mitigation planting and the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **18. Hong Lok Yuen** | Low-rise residential/ 175m | • Low-rise views significantly interrupted by the existing landform of small knolls, development and vegetation.<br>• Adverse visual impacts arising from the construction and operation of the proposed scheme would be mitigated to an extent due to the viewing distances involved and the existing intervening development such as the KCR line.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of the proposed Lam Kam Road Flyover extension in line with the existing structure. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the screening effect of the intervening built development, existing vegetation and the KCR track with its associated structures. The existing hill slopes of the valley sides form the background to views from this position. | • Compensatory tree and shrub planting.<br>• Where feasible erection of temporary hoarding along the works boundary during the construction period.<br>• Design of viaduct with thin profile and narrow columns<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the existing visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **19. Wai Tau Tsuen** | Low-rise residential/ 50m | • Low-rise views significantly interrupted by the existing landform, development and vegetation.<br>• Adverse visual impacts arising from the construction and operation of the proposed scheme would be mitigated to an extent due to the viewing distances involved and the existing intervening development such as the KCR line.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of the proposed Lam Kam Road Flyover extension in line with the existing structure.<br>• Construction of a vertical barrier 4m in height, partially screening views of the proposed new carriageway | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the screening effect of the intervening built development and existing vegetation. The houses of Hong Lok Yuen and the natural slopes of Kau Lung Hang Shan form the background to these views.. | • Compensatory tree and shrub planting.<br>• Where feasible erection of temporary hoarding along the works boundary during the construction period.<br>• Design of viaduct with thin profile and narrow columns<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the existing visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **20. Tai Hang** | Low-rise residential/ immediate-ly adjacent to the alignment | • Low-rise views partially interrupted by the existing landform, development and vegetation.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Introduction of a 3m high vertical barrier to screen the proposed slip road<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 4m high vertical barrier in the central reservation.<br>• Existing footbridge demolished replacement built 300m to the south. | ***High*** | ***Low*** | ***'Medium'*** sensitivity to change due to the screening effect of the intervening built development and the proximity of the existing highway. | • Compensatory tree and shrub planting in the residual space left as a result of the proposed demolition of roadside properties.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the proximity of the proposed works to VSR's. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment, the proposed mitigation planting and the visual screening effect of the proposed noise barriers. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **21. Tai Wo** | Low-rise residential/ 50m | • Low-rise views partially interrupted by the existing landform, development and vegetation.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 5m high vertical barrier in the central reservation.<br>• Existing footbridges retained. | ***Med*** | ***None to Low*** | ***'Low'*** sensitivity to change due to the screening effect of the intervening KCR line with its noise barriers (currently being constructed), the disturbance caused by the existing highway and the viewing distances involved. The foothills of Hang Shan and Wo Hop Shek form the background to these views. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape..<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the intervening presence of the KCR line and existing highway. | ***'Neutral to slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment, the intervening KCR line and the proposed mitigation planting. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **22. Wo Hop Shek Cemetery** | Cultural site/ 500m | • Views from cemetery on terraced hillside partially interrupted by existing landform, development and vegetation.<br>• Adverse visual impacts would be mitigated to an extent by the viewing distances involved, the existing highway and intervening development.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Introduction of a 4m high vertical barrier to screen the reprovided Tai Wo Service Road West<br>• Construction of a 6m vertical barrier to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Existing footbridges retained. | ***Med to Low.*** | ***Low to None.*** | ***'Low'*** sensitivity to change due to the level of existing development in the valley including infrastructure such as the existing highway and the KCR, the viewing distances involved, the elevated viewing position and the visual interruption caused by the vegetation associated with the cemetery. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area during the construction period.<br>• Restoration of the landscape of the temporary works area south of Kui Tau.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight adverse Impact'*** despite the scale of the proposed works, the proposed temporary works area south of Kui Tau and the temporary loss of roadside vegetation. This is largely due to the viewing distances involved, the visual interruption caused by the existing vegetation, the elevated viewing position and the level of development in the existing road corridor. | ***'Slight adverse to neutral impact'*** due to the restoration of much of the existing landscapes, the viewing distances involved and the level of visual impact attributable to the existing highway. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **23. Nam Wa Po** | Low-rise residential/ 300m | • Low-rise views from the base of the hillside partially interrupted by the existing landform, development and vegetation.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Introduction of a 4m high vertical barrier to screen the reprovided Tai Wo Service Road West<br>• Construction of a 6m vertical barrier to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Existing footbridges retained. | ***High*** | ***Low*** | ***'Low'*** sensitivity to change due to the level of existing development in the valley including infrastructure such as the existing highway and the KCR line, the viewing distances involved, the elevated viewing position and the visual interruption caused by the intervening development and vegetation. The natural slopes of Kau Lung Hang Shan form the background to any views. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Existing footbridges refurbished.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **24. Yuen Leng** | Low-rise residential/ 300m | • Low-rise views partially interrupted by the existing landform, development and vegetation. Much of the potential adverse visual impact would be mitigated to an extent by the intervening road and rail development.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of a 5.5m vertical barrier with a 3m cantilever, and a 5m vertical barrier to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the level of existing development in the valley including infrastructure such as the existing highway and the KCR line, the viewing distances involved, the elevated viewing position and the visual interruption caused by the intervening development and vegetation. The natural slopes of Wo Hop Shek form the background to any views. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area during the construction period.<br>• Restoration of the landscape of the temporary works area south of Kui Tau.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, the proximity of the proposed temporary works area and the temporary loss of roadside vegetation. These predicted impacts would be mitigated to an extent by the viewing distances involved and the presence intervening built development and infrastructure such as the existing KCR line. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed restoration of much of the existing landscape, the visual disturbance caused by the existing road and rail alignment, and the viewing distances involved. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **25. Kiu Tai** | Low-rise residential/ 100m | • Low-rise views in close proximity to the proposed highway widening.<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of a vertical barrier ranging from 6 to 9m in height.<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 20m south of the demolished footbridge.<br>• The proposed river diversion. | ***High*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The natural slopes of Wo Hop Shek form the background to any views. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary and adjacent to the temporary works area south of Kui Tau during the construction period.<br>• Restoration of the landscape of the temporary works area.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works, the proximity of the proposed temporary works site south of Kui Tau and the temporary loss of roadside vegetation. The predicted impacts would be mitigated to an extent by the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape planting proposals and the visual disturbance impacts attributable to the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **26. Wo Hop Shek San Tsuen** | Low-rise residential/ 40m | • Low-rise views partially interrupted by the existing landform, development and vegetation<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Construction of a vertical barrier ranging from 6 to 7m in height.<br>• Introduction of a vertical barrier ranging from 6 to 7m in height in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The natural slopes of Lung Shan form the background to views to the north east and east. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation mitigated to an extent by the interruption of views by the existing built development and intervening vegetation, the disruption caused by the existing highway. | ***'Slight adverse impact'*** due to the mitigating affects of the proposed landscape mitigation proposals and the level of existing visual disturbance caused by the existing road alignment. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
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| | | | Construction | Operation | | | Construction | Operation |
| **27. Dawning Views** | High-rise residential/ 175m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• Much of the potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road development in the area<br>• Loss of much of the significant vegetation as visual buffer along roadside<br>• Views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The natural slopes of Lung Shan form the background to views to the north east and east. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of road side vegetation mitigated to an extent by the viewing distances, the elevated viewing position, the visual disturbance caused by existing development within the valley such as the existing highway and the KCR line. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape proposals including the proposed compensatory planting, the viewing distances involved and the level of existing visual disturbance caused by existing development. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **28. Wa Ming Estate** | High-rise residential/ 600m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road development in the area and the viewing distances involved.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med to Low*** | ***Low*** | ***'Low'*** sensitivity to change due to the level of existing development in the valley including infrastructure such as the existing highway and the KCR line, the viewing distances involved and the elevated viewing position. Beyond the valley floor the natural slopes of Lung Shan form the background to views to the north east and east. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of road side vegetation. This would be mitigated to an extent by the viewing distances involved, the elevated viewing distances, disruption of low level views by existing development and vegetation, and the level of existing development within the valley. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape proposals, the viewing distances involved and the level of traffic disturbance caused by existing development. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **29. King Shing Court** | High-rise residential/ 400m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road development in the area and the viewing distances involved.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The natural slopes of Lung Shan form the background to views to the north east and east. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of road side vegetation. These effects would be mitigated to an extent by the viewing distances, the elevated viewing position, and the visual disturbance caused by existing development within the valley such as the existing highway and the KCR line. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed mitigation proposals, the viewing distances involved and the level of existing visual disturbance caused by existing development. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **30. Avon Park** | High-rise residential/ 400m | • High-rise views of the Proposed Scheme largely uninterrupted. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road development in the area and the viewing distances involved.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The natural slopes of Lung Shan form the background to views to the north east and east. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of road side vegetation. These impacts would be mitigated to an extent by the viewing distances, the elevated viewing position, and the visual disturbance caused by existing development within the valley such as the existing highway and the KCR line. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape mitigation proposals, the viewing distances involved and the level of existing visual disturbance caused by existing development. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **31. Fanling Centre** | High-rise residential/ 800m | • High-rise views of the Proposed Scheme partially interrupted by intervening high-rise development. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road and built development in the area, and the viewing distances involved.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Interrupted views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development on the urban fringe of Fanling and in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The slopes of Wo Hop Shek and the development associated with Wah Ming Estate form the background to views to the south. | • Compensatory tree and shrub planting along the edge of the proposed highway widening alignment.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation. These predicted impacts would be mitigated to an extent by the viewing distances involved and the presence of existing built development and infrastructure. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape mitigation proposals, the viewing distances involved and the level of existing visual disturbance caused by existing development within the road corridor. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **32. Cheung Wah Estate** | High-rise residential/ 700m | • High-rise views of the Proposed Scheme partially interrupted by intervening high-rise development.. Low-rise views severely interrupted by the existing landform, development and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the existing level adverse impact caused by the existing road and built development in the area, and the viewing distances involved.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Interrupted views of construction works<br>• Construction of a vertical barrier 6m in height, in between VSR's and the proposed new carriageway.<br>• Construction of a 5.5m vertical barrier with a 3m cantilever to screen the proposed carriageway<br>• Introduction of a 6m high vertical barrier in the central reservation.<br>• Proposed reprovisioned footbridge 60m west of the demolished footbridge. | ***Med to Low*** | ***Low*** | ***'Low'*** sensitivity to change due to the proximity of the existing highway, level of existing development on the urban fringe of Fanling and in the valley including infrastructure such as the existing highway and the KCR line, and the visual interruption caused by the intervening development and vegetation. The slopes of Wo Hop Shek and the development associated with Wah Ming Estate form the background to views to the south. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers and retaining structure with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Bridge design to exhibit innovative design with minimal visual intrusion being caused due to the thin profile, narrow columns, lack of extraneous structure and finishes.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage and minimise glare to VSR's | ***'Moderate to slight adverse Impact'*** due to the scale of the proposed works and the temporary loss of roadside vegetation . These predicted impacts would be mitigated to an extent by the viewing distances involved and the presence of intervening built development including high rise residential development. | ***'Slight adverse impact'*** due to the mitigating effects of the proposed landscape mitigation proposals, the viewing distances involved and the level of existing visual disturbance caused by existing development within the road corridor. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **33. Kau Lung Hang Shan** | Walkers/ 1500m | • High level views partially interrupted by existing development, landform and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the viewing distances and the existing level of road and built development in the area adjacent to the Proposed Scheme.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Interrupted views of construction works<br>• Construction of highway structures such as the vertical barriers and footbridges would have little adverse visual impact in views from this distance. | ***Low*** | ***Low to None*** | ***'Low'*** sensitivity to change due to the viewing distances involved and the elevation of the viewing position overlooking a valley landscape characterised by development including the existing highway and KCR lines. The hill slopes of Wo Hop Shek, Pak Tai To Yen and Tai To Yen form the landscape setting for views of the valley landscape. | • Compensatory tree and shrub planting to visually integrate the proposed scheme into the existing landscape structure when viewed from elevated and distant viewpoints.<br>• Restoration of the landscape of the temporary works area south of Kui Tau.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage. | ***'Slight adverse to Neutral Impact'*** due to the viewing distances involved and the scale of the proposed works relative to the breadth of the view available to walkers from this position. The proposals would also be mitigated to an extent by the existing level of development on the valley floor particularly within the road corridor. | ***'Neutral impact'*** due to the mitigating effects of the proposed landscape measures including the proposed compensatory planting proposals, the elevation of the viewing position and the viewing distances involved. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **34.MacLehose Trail (Kau Lung Hang Shan)** | Walkers/ 2100m | • High level views partially interrupted by existing development, landform and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the viewing distances and the existing level of road and built development in the area adjacent to the Proposed Scheme.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Interrupted views of construction works<br>• Construction of highway structures such as the vertical barriers and footbridges would have little adverse visual impact in views from this distance. | ***Low*** | ***Low to None*** | ***'Low'*** sensitivity to change due to the viewing distances involved and the elevation of the viewing position overlooking a valley landscape characterised by development including the existing highway and KCR lines. The hill slopes of Wo Hop Shek, Pak Tai To Yan and Tai To Yan form the landscape setting for views of the valley landscape. | • Compensatory tree and shrub planting to visually integrate the proposed scheme into the existing landscape structure when viewed from elevated and distant viewpoints.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage. | ***'Slight adverse to Neutral Impact'*** due to the viewing distances involved and the scale of the proposed works relative to the breadth of the view available to walkers from this position. The proposals would also be mitigated to an extent by the existing level of development on the valley floor. | ***'Neutral impact'*** due to the mitigating effects of the proposed landscape measures including compensatory planting, the elevation of the viewing position and the viewing distances involved. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **35. KCR Line** | Passengers/ immediate-ly adjacent to the alignment | • Views intermittently interrupted by the existing landform, development and vegetation<br>• Loss of much of the significant vegetation as visual buffer along roadside.<br>• Interrupted views of the construction works<br>• Introduction of a 4 to 6m high vertical barrier at the edge of the proposed scheme would screen views the proposed carriageway with of it. | ***High*** | ***Low*** | ***'Medium'*** sensitivity to change due to the nature of the view running parallel to much of the length of the proposed highway widening. The viewing position would be on a longitudinal basis as opposed to a point source described for the other visually sensitive receivers. | • Compensatory tree and shrub planting.<br>• Erection of temporary hoarding in visually sensitive locations along the works boundary during the construction period.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage. | ***'Significant Adverse Impact'*** due to the proximity of the proposed scheme and the linear nature of the viewing position. | ***'Slight adverse impact'*** although the level of impact would be 'moderate adverse in some locations due to the due to the scale and proximity of the proposed noise barriers relative to the viewing position. The proposed landscape mitigation proposals would reduce adverse visual impacts to an extent. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **36.MacLehose Trail (Tai Mo Shan)** | Walkers/ 1600m | • High level views partially interrupted by existing development, landform and vegetation.<br>• The potential adverse visual impacts would be mitigated to an extent by the viewing distances and the existing level of road and built development in the area adjacent to the Proposed Scheme.<br>• Loss of much of the significant vegetation lining the highway, this eases the existing schemes visual integration into the existing landscape framework.<br>• Interrupted views of construction works<br>• Construction of highway structures such as the vertical barriers and footbridges would have little adverse visual impact in views from this distance. | ***Low*** | ***Low to None*** | ***'Low'*** sensitivity to change due to the viewing distances involved and the elevation of the viewing position overlooking a valley landscape characterised by development including the existing highway and KCR lines. The hill slopes of Wo Hop Shek, Pak Tai To Yan and Tai To Yan form the landscape setting for views of the valley landscape. | • Compensatory tree and shrub planting to visually integrate the proposed scheme into the existing landscape structure when viewed from elevated and distant viewpoints.<br>• Careful location and use of directional highway lighting fixtures to reduce light spillage. | ***'Slight adverse to Neutral Impact'*** due to the viewing distances involved and the scale of the proposed works relative to the breath of the view available to walkers from this position. The proposals would also be mitigated to an extent by the existing level of development on the valley floor particularly that within the road corridor. | ***'Neutral impact'*** due to the mitigating effects of the proposed landscape measures including the compensatory planting proposals, the elevation of the viewing position and the viewing distances involved. |

| Visually Sensitive Receiver (VSR) Group | VSR Type/ Approx. Viewing Distance | Summary of Landscape Impact | Magnitude of Change | | Sensitivity of View to Change | Mitigation Measures | Residual Impact during the Design Year | |
|---|---|---|---|---|---|---|---|---|
| | | | Construction | Operation | | | Construction | Operation |
| **37. Tolo Highway** | Passengers | • Views of the surrounding landscape experienced by vehicle travellers would be partially interrupted by the existing landform, development and vegetation.<br>• Loss of much of the significant vegetation as visual buffer along roadside would expose views of the existing residential development to the east of the highway.<br>• Open views of the construction works<br>• Construction of a vertical barrier 5m in height. | ***High*** | ***Med*** | 'Medium' sensitivity to change' due to the existing roadside planting and topography of the existing road corridor which provide filtered and framed views of the landscape beyond the road corridor. More open views are available from the viaduct sections in the south and of the hill slopes of the eastern and western valley sides. | • Compensatory tree and shrub planting with some specially created viewpoints allowing both filtered and famed views of the surrounding landscape in locations away from VSR's.<br>• Design of vertical barriers with opaque lower sections to screen carriageway and vehicular activity. The upper section would be transparent reducing the visual mass of the structure and allowing views of the landscape beyond. The barriers would also be designed to minimise glare from sunlight and vehicle headlights. The use of tree and shrub planting would reduce the horizontal visual emphasis of the noise barrier structure, reduce its apparent visual mass and help integrate the structure into the existing landscape.<br>• Design of barriers with sympathetic form, textured finish, and appropriate use of colour and tone. | ***'Slight adverse to neutral impact'*** in areas adjacent to the road alignment. | ***'Moderate adverse impact'*** due to the visual containment created by the proposed noise barriers situated at the edge of the carriageways and in some locations in the central reserve. These proposed barriers would line a large part of the proposed scheme creating in some places a tunnel effect. However the use of transparent noise barrier sections would allow some visual access to the landscape beyond. |

Key:

VSR Type
- HRR - High Rise Residential
- MRR - Medium Rise Residential
- LRR - Low Rise Residential
- VT - Vehicle Travellers

Primary Sources of Impacts: During Construction
During the Design Year (Taken as approximately 10 –15 years after the scheme opening when the proposed soft landscape mitigation is deemed to have reached a maturity commensurate with the performance of the proposed mitigation objectives)

Landscape Sensitivity: Low, Medium or High
Magnitude of Change: None, Low, Moderate or High
Residual Impacts: Refer to matrix (section 9.5 and 9.6 above)
Construction – Construction Phase
Operation – Operational Phase

## 9.13 Programme for Landscape Works

The landscape works will closely follow the completion of the civil engineering contracts, as is shown in Table 9.9 below. The Design Year is for the purposes of this study taken as approximately 10 – 15 years after the scheme opening when the proposed soft landscape mitigation is deemed to have reached a level of maturity commensurate with the performance of the proposed mitigation objectives.

**Table 9.9 Provisional Programme for Landscape Works**

| Section of Highway | Approximate Time Scale | | | |
|---|---|---|---|---|
| | **General Civil Engineering Works** | **Noise Barrier Construction** | **Implementation of Landscape Works** | **Design Year** |
| (i) Between Island House and Tat Wan | June 2002 to January 2005 | April 2004 to August 2005 | April 2004 to August 2005 | 2020 |
| (ii) Between Tat Wan and Tai Po Tai Wo Road | June 2002 to November 2004 | August 2004 to June 2005 | April 2005 to November 2005 | 2020 |
| (iii)Between Tai Po Tai Wo Road and Hong Lok Yuen Road | June 2002 to June 2005 | October 2004 to June 2005 | May 2005 to October 2005 | 2020 |
| (iv)Between Hong Lok Yuen Road and Pak Wo Road. | February 2003 to April 2005 | August 2004 to August 2005 | May 2005 to November 2005 | 2020 |

At this stage, the above programme is preliminary and subject to finalisation during the detail design stages of the project. At the very latest, the implementation of the landscape works should be undertaken in the planting season following the sectional completion of the engineering works. The landscape maintenance for soft works are expected to include:

- Regular maintenance, including irrigation, pruning, etc. for ornamental trees and shrubs. All ornamental areas would be accessible to maintenance vehicles;
- Informal maintenance for woodland planting. The proposed woodland planting would be designed to be low maintenance and would require no regular maintenance programme beyond the initial establishment period. This is an important consideration particularly where access is difficult for example in roadside locations and on steep slopes. In these situations maintenance would be on an on-call basis only.

## 9.14 Implementation, Management and Maintenance of the Landscape Works

Table 9.10 outlines the implementation, management and maintenance responsibilities for the landscape works and items associated with this project.

**Table 9.10 Implementation, Management and Maintenance of the Landscape Works**

| Landscape Item | Proposed Implementation | Management Department | Maintenance Department |
|---|---|---|---|
| Roadside hardworks | HyD | HyD | HyD |
| Roadside planting (within HyD Reserve) | HyD | LCSD | LCSD |
| Roadside planting (within 30m of roadside, excluding HyD Reserve) | HyD | LCSD | LCSD |
| Planting (beyond 30m of roadside), if required | HyD | LCSD | AFCD* / LCSD |
| Amenity Areas | HyD | LCSD /HyD** | LCSD/HyD ** |
| Noise Barriers | HyD | HyD | HyD |

*AFCD will take up maintenance works of vegetation planted provided that (a) the planting is an ecological measure as recommended in Section 8 of this report and (b) the planting is on unallocated government land.

**HyD will be responsible for the management and maintenance of hard works in the amenity areas.

This has been based on the WBTC 18/94, Management and Maintenance of both Natural Vegetation and Landscape Works. The design for any landscape mitigation measures would allow for safe access for routine maintenance both of the soft works and the proposed engineering structures including the proposed noise barriers.

## 9.15 Summary

The construction phase of the proposed scheme would result in sources of landscape impact arising from the loss of existing vegetation, the scale of the proposed earthworks and the nature of the construction activities to be undertaken. During the construction phase, currently programmed for between 2002 and 2005, the impacts on the existing landscape character of the study area would range from *slight to significant adverse.* The predicted impacts are a reflection of the nature of the proposed construction activities mitigated to an extent by the existing level of disturbance caused by the highway. These predicted landscape impacts would be largely confined to areas, which are adjacent to the road corridor. Although a relatively high level of adverse landscape impact is predicted for the construction phase, these effects would be largely temporary in nature.

The predicted impacts of the construction phase of the proposed scheme on the planning and development control framework of the study area would generally not affect the viability of the planning designations adjacent to the highway boundary. Although significant area of Green Belt and Open Space (3.20 hectares and 2.57 hectares respectively) would be lost due to the widening proposals, however these losses would generally not have a significant impact on the viability of the planning designations. The construction phase would have a temporary adverse impact on the Green Belt and Open Space designations due to the loss of roadside planting and the scale of the proposed earthworks. The main impacts would be to the landscape setting and the visual amenity of these designated areas.

The loss of roadside planting during the construction phase would initially have a large adverse visual impact on VSR's within the road corridor and beyond. The loss of the existing roadside vegetation would expose views of the highway, and lead to a loss of the visual integration between the road corridor and the surrounding landscape.

The proposed areas of cut and fill will be visually prominent both within the road corridor and within the wider landscape context of the schemes visual envelope. However the existing level of visual disturbance caused by the highway and its associated structures would do much to lessen the perceived level of change or impact caused by the proposed works. The proposed highway structures with the exception of the noise barriers are generally replacing existing ones and so the level of adverse visual impact would remain largely unchanged. However the proposed barriers and highway structures would, even with the design approach described above, form large and visually prominent structures both within the road corridor and the wider landscape context. Mitigation measures such as the proposed hoarding of some of the most sensitive areas would reduce the level of the some of the predicted impacts, however generally the predicted level of impact would be *significant adverse* during the construction phase. Although as has been described above the adverse visual impacts predicted for the construction phase would be largely temporary in nature.

During the design year, generally described as between ten and fifteen years after opening (2020) although in practice often well in advance, the compensatory planting would have reached a level of maturity whereby it will perform the design role for which it was planted. This planting would as described in section 9.11.2 above and as shown on Drawing 551/L/5102 to 5108 would ease the integration of the proposed scheme into the landscape context of the study area. This would be achieved through the softening of the form of the proposed earthworks and highway structures. The proposed planting would also form a physical link with existing areas of woodland, both natural and plantation, to integrate these proposals into the landscape framework of the study area. This proposed soft landscape treatment of the roadside areas is also designed to compensate for the loss of landscape resources such as the trees identified in the Tree Survey Report lost during the construction period. Overall during the design year there would be a *moderate to slight adverse impact* on the landscape character, landscape resources and the perceived landscape quality of this area. This is largely due to the balance between the existing level of landscape impacts attributable to the highway and the proposed mitigation measures. However, these proposed landscape measures cannot mitigate all the adverse impacts caused by the widening of the highway. The residual impacts resulting from the mitigated scheme would be *'acceptable with mitigation'* that is there *'will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures'*.

The predicted impacts of the proposed scheme on the planning and development control framework of the study area during the design year would generally not affect the viability of the planning designations adjacent to the highway boundary. Although in total, a significant area of the designated zones such as Green Belt and Open Space would be lost due to the widening proposals, the extent of the physical loss would be minimised where possible, and the impact of these losses on the landscape and visual amenity of these areas would not affect their viability in terms of the planning intent of these zones. This loss of area would lead to some residual adverse impacts although these would not be significant in nature. Overall, the project would have a slight adverse to negligible impact on the viability of the existing planning and development control framework in terms of the schemes 'fit' into the future landscape and the viability of the existing planning designations.

During the design year the visual impacts attributable to the proposed widening scheme would range from *'neutral to moderate adverse'*, although overall the level of impact would be *'slight'*. This would be largely due to the combination of the proposed noise barriers along much of the highways length which would screen vehicular activity, and the proposed woodland planting which would further screen the highway and its structures in many views. It would also ease the visual integration of the barriers into the landscape, punctuate the horizontal emphasis of the barriers and reduce their apparent visual mass. The design of the highway structures including the proposed visually recessive colour finishes would seek to minimise their visibility within the road corridor both for vehicle travellers and adjacent VSR's.

The level of residual adverse visual impacts would be relatively low, although not totally mitigated, due to the level of disturbance caused by the existing highway and adjacent development, and the combined effect of the proposed mitigation measures. For the majority of the visual impacts predicted to occur as a result of the operational phase the residual impact would be '*acceptable with mitigation*'. That is there will be some adverse visual impacts resulting from the scheme but that these impacts would be '*eliminated, reduced or offset to a large extent by specific measures'*.