

8 Landscape and Visual Impact

8.1 Introduction

This chapter assesses the landscape and visual impacts associated with the NENT Landfill Extension during the construction, operation, restoration and aftercare phases.

The landscape and visual impact assessment (LVIA) has been carried out in accordance with the guidelines contained in Annexes 10 and 18 of the TM-EIAO as well as the requirements set out under clauses 3.4.6.

The proposed development will have impacts ranging from slight to moderate to the upland landscape at the northwest facing slope of Wo Keng, rural settlement Landscape of Tong To Shan Tsuen & Ngong Tong, grassland, shrubland and woodland within the Project site. The loss of 1.5 ha of existing landscape resource woodland and 5.8 ha of shrubland will be compensated by 26.83 ha (about 43% of the Project site) of woodland mix progressively planted in phases with about 148,100 nos. of tree seedlings/ whips. In addition, 19 ha of shrubland mix planting and 17.55 ha of grassland will be created in the restoration phase. The entire landfill extension will ultimately be restored and vegetated to match with its surrounding landform and vegetation patterns in the restoration and aftercare phases. The overall landscape and visual impact of the Project is acceptable with mitigation measures implemented.

8.2 Legislation, Standards and Guidelines

The relevant legislation and associated guidance notes applicable to the study for the assessment of landscape and visual implications include:

- EIAO Guidance Notes 8/2002 on Preparation of Landscape and Visual Impact Assessment under the EIAO.
- ETWB TC(W) No. 29/2004 on Registration of Old and Valuable Trees, and Guidelines for their Preservation.
- ETWB TC(W) No. 24/2004 on Specification Facilitating the Use of Concrete Paving Units Made of Recycle Aggregates.
- ETWB TC(W) No. 11/2004 on Cyber Manual for Greening
- ETWB TC(W) No. 2/2004 on Maintenance of Vegetation and Hard Landscape Features. (to be read in conjunction with WBTC(W) No. 14/2002).
- ETWB TC(W) No. 34/2003 on Community Involvement in Greening Works
- ETWB TC(W) No. 8/2005 on Aesthetic Design of Ancillary Buildings in Engineering Projects
- WBTC No. 7/2002 on Tree Planting in Public Works.
- WBTC No. 17/2000 Improvement to the Appearance of Slope.
- WBTC No. 25/1993 Control of Visual Impact of Slope.
- GEO Publication No. 1/2000 on Technical Guidelines on Landscape Treatment and Bio-Engineering for Man-made Slope and Retaining Walls.
- HyDTC No. 5/2000 on Control in the use of Shotcrete (Sprayed Concrete) in Slope Works.
- HyDGN No. LU/GN/001 on Management and Maintenance of Landscape Works along Public Roads
- Hong Kong Planning Standards and Guidelines.

8.3 Landscape And Visual Impact Assessment Methodology

8.3.1 General Methodology

Landscape impact assessment evaluates the source and magnitude of developmental effects on the existing landscape resources, character and quality in the context of the site and its environs; and visual impact assessment evaluates the source and magnitude of effects caused by the proposed development on the existing views, visual amenity, character and quality of views to the visually sensitive receptors within the context of the site and its environs.

The significant thresholds for the landscape and visual impacts are assessed for the construction phase and operation phase both with and without mitigation measures.

These residual impacts are then evaluated in accordance with Annex 10 of the Technical Memorandum to the EIAO. In order to illustrate these landscape and visual impacts and to demonstrate the effectiveness of the proposed landscape and visual mitigation measures, photomontages at selected representative viewpoints have been prepared to illustrate:

- existing baseline condition
- unmitigated impacts (day 1)
- mitigated impacts (day 1)
- mitigated impacts (year 10)

8.3.2 Baseline Study Methodology

8.3.2.1 Landscape Baseline Study Methodology

In accordance with the Study Brief, a baseline survey of the existing landscape character zones and landscape resources within 500m from the proposed development has been undertaken by a combination of site inspections and desktop surveys. Planned developments for both within the study area and adjacent to it are also considered.

The baseline survey forms the basis of the landscape context by describing broadly homogenous units of similar character. Environmental capital approach is adapted to classify the landscape into distinct landscape character areas (LCAs) based on distinct patterns or combinations of landscape resources / elements that occur consistently in a particular landscape. The landscape elements considered include:

- local topography;
- woodland and other vegetation types;
- built form, land use and patterns of settlement;
- scenic spots;
- details of local materials, architectural styles and streetscapes;
- natural coastline;
- prominent watercourses; and
- cultural and religious identity, including fung shui features.

The individual landscape character areas (LCAs) / landscape resources (LRs) are described qualitatively and quantitatively. The individual LR at baseline study and those to be affected due to the Project will be quantified. Their sensitivities are then evaluated and rated as low, medium or high based on the following factors:

- quality and value of landscape character/ resources;
- importance and rarity of special landscape resources;
- ability of the landscape to accommodate change without compromising its essential nature.
- significance of the change in local and regional context; and
- maturity of the landscape.

The sensitivity of the landscape character areas (LCAs) / landscape resources (LRs) has been assessed against the scale shown in Table 8.1.

Table 8.1: Sensitivity of landscape character area/ landscape resources

High	e.g. important components of a landscape of particularly distinctive character susceptible to relatively small changes.
Medium	e.g. a landscape of moderately valued characteristics reasonably tolerant to change.
Low	e.g. a relatively unimportant landscape able to absorb significant change.

8.3.2.2 Visual Baseline Study Methodology

The baseline survey of views towards the proposed development will be carried out by identifying:

- The visual envelope (zone of visual influence) which is, according to EIAO GN No. 8/2002, generally the viewshed formed by natural/man-made features such as ridgeline or building blocks. The visual envelope may contain areas, which are fully visible, partly visible and non-visible from the proposed development. The visual envelope of the Project will be presented on relevant plans.
- The visually sensitive receivers (VSRs) within the visual envelope whose views will be affected by the development.

The baseline survey was conducted by taking photographs at typical views and describing and recording their character and value within the visual envelope from low-level viewpoints (street level), high-level viewpoints (high-rise buildings or hillside vantage points) and sea-level viewpoints (ferry passengers). Wherever possible, both present and future VSRs will be considered. Criteria for Ranking Sensitivity of VSRs are:

- Type of representative receiver population;
- Value and quality of existing views;
- Estimated number of representative receiver population;
- Availability and amenity of alternative views;
- Duration or frequency of views; and
- Degree of visibility.

8.3.3 Source of Impact and Impact Assessment Methodology

8.3.3.1 General

The assessment of the potential landscape and visual impacts of the proposed development will result from:

- identification of the sources and magnitude of impacts that would be generated during construction and operation phase, as well as restoration and aftercare phase.
- identification of the principal landscape and visual impacts, primarily in consideration of the degree of change to the baseline conditions.

8.3.3.2 Magnitude of Change (Landscape) Assessment Methodology

Some common factors that will be considered in deriving the magnitude of change in assessing landscape impacts are as follows:

- compatibility of the Project with the surrounding landscape;
- duration of impacts under construction, operation, restoration and aftercare phases;
- scale of development;
- reversibility of change; and
- quantification of landscape resources affected.

The magnitude of change in the landscape will be classified as "negligible", "small", "intermediate" and "large" based on the above criteria.

8.3.3.3 Magnitude of Change (Visual) Assessment Methodology

Some common factors that will be considered in deriving the magnitude of change in assessing visual impacts are as follows:

- compatibility of the Project with the surrounding landscape;
- duration of impacts under construction, operation, restoration and aftercare phases;
- scale of development;
- reversibility of change;
- viewing distance; and
- potential blockage of view.

The magnitude of change to the views will be classified as “negligible”, “small”, “intermediate” and “large” based on the above criteria.

8.3.3.4 Significance of Impact Assessment Methodology

Significance of Impact is a function of sensitivity of receptors and magnitude of change. The analysis of the significance threshold for the landscape and visual impacts during construction and operation phase, as well as restoration and aftercare phase will be presented in the form of matrix (Table 8.2).

Table 8.2: Significance of Impact

		Sensitivity of Receptors		
		Low	Medium	High
Magnitude of Change caused by development	Large	<i>Moderate</i>	<i>Moderate to Significant</i>	<i>Significant</i>
	Intermediate	<i>Slight to moderate</i>	<i>Moderate</i>	<i>Moderate to Significant</i>
	Small	<i>Slight</i>	<i>Slight to moderate</i>	<i>Moderate</i>
	Negligible	<i>Negligible</i>	<i>Negligible</i>	<i>Negligible</i>

8.3.3.5 Mitigation Measures Approaches

The identification of the landscape and visual impacts will highlight the potential primary sources of impacts and their magnitude of change caused to sensitive receivers. Corresponding mitigation measures will be proposed to avoid and reduce the identified sources of impacts. Furthermore, mitigation measures to remedy and compensate unavoidable impact will be proposed to minimise the magnitude of change caused to sensitive receivers.

8.3.3.6 Residual Impacts Assessment Methodology

Residual impacts are those impacts remaining after the proposed mitigation measures have been implemented. This is often 10 to 15 years after commissioning, when the planting mitigation measures are deemed to have reached a level of maturity, which allow them to perform their original design objectives.

The level of impact is derived from the magnitude of change that the development will cause to the existing view or landscape character and its ability to tolerate change, i.e. the quality and sensitivity of the view or landscape character taking into account the beneficial effects of the proposed mitigation. The significance threshold is derived from the matrix shown above.

In accordance with Annex 10 of the EIAO TM, an overall assessment is also made of the residual landscape and visual impacts for the proposed development (Table 8.3).

Table 8.3: Residual impact assessment methodology

Beneficial	Acceptable	Acceptable with mitigation measures	Unacceptable	Undetermined
If 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.	If the assessment indicates that there will be no significant effects on the landscape, no significant visual effects caused by the appearance of the Project, or no interference with key views.	If there will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures.	If the adverse effects are considered too excessive and are unable to mitigate practically.	If 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.

8.4 Baseline Study Frameworks

8.4.1 Landscape Baseline Study Frameworks

8.4.1.1 Landscape Character Areas (LCAs) and Landscape Resources (LRs)

Lists of LCAs and LRs are proposed in **Tables 8.4 and 8.5** respectively, together with **Drawing Nos. 24315/14/002 to 24315/14/004**.

Table 8.4: LCAs within 500m from the Project

	Landscape Characters Areas (LCAs)	Quantity (Ha.)	Description	Sensitivity
LCA1	Disturbed land (Existing NENT Landfill Site)	90.2	<ul style="list-style-type: none"> Comprise mainly the existing NENT Landfill site under operation and its associated stockpile and borrow area (SBA) to its east. The landscape character is of typical degraded land made up of landfill site and SBA, together with their associated access haul roads, artificial cut and fill slopes, modified surface drainage system, waste reception area and leachate treatment system. It is ready to absorb significant change. The proposed extension is of the same nature and is considered compatible in terms of land use and landscape character. 	Low
LCA2A	Rural Settlement Landscape (Tong To Shan Tsuen & Ngong Tong)	66.5	<ul style="list-style-type: none"> Comprises lowland with abandoned rural settlement, abandoned agricultural field and associated hillside backdrop. Woodlands and natural stream course are found in this area. Historical and cultural landscape features of Tong To Shan Archaeological Site (TTSAS) and Ngong Tong are located. 	High
LCA2B	Rural Settlement Landscape (Ping Yuen)	15.9	<ul style="list-style-type: none"> Comprises lowland with rural settlement, agricultural field and associated hillside backdrop. The area within study area is only a small portion of the overall LCA with extent beyond study area. 	Medium

	Landscape Characters Areas (LCAs)	Quantity (Ha.)	Description	Sensitivity
			<ul style="list-style-type: none"> Its landscape value and quality is deteriorated by its proximity to the existing NENT Landfill site, its waste reception area and road network. 	
LCA3A	Upland Landscape (NW Facing slope of Robin's Nest)	32.4	<ul style="list-style-type: none"> Natural steep hillside slope covered by mainly grassland and some woodland. Located to the east of the SBA of the existing NENT Landfill site, its landscape quality and value considered medium. 	Medium
LCA3B	Upland Landscape (SE facing slope of Wo Keng Shan)	54.1	<ul style="list-style-type: none"> Natural steep hillside slope covered by mainly grassland and some woodland. Located on the other side of the hill ridge away from the SBA of the existing NENT Landfill site, its landscape quality and value considered high. 	High
LCA3C	Upland Landscape (NW facing slope of Wo Keng Shan)	40.1	<ul style="list-style-type: none"> Natural steep hillside slope covered by mainly grassland and shrubland. Half of the area is surrounding by the existing NENT Landfill site, the waste reception area and the SBA, its landscape quality is considered medium. 	Medium

Table 8.5: LRs within 500m from the Project

	Landscape Resources (LRs)	Quantity (Ha.)	Description	Sensitivity
LR1	Woodland	72.7	<ul style="list-style-type: none"> These woodlands are mainly found near the ravine valley of upland hillside and near the rural area of Tong To Shan. Due to having high density of individual trees and their distinct landscape pattern on the background of grassland, these woodlands are considered important in terms of landscape character and value. Refer to section 8.4.1.2 for preliminary tree assessment. 	High
LR2	Shrubland	26.1	<ul style="list-style-type: none"> Frequent hill fire has been recorded. Shrubs with grasses. Major shrub species found included <i>Baekkea frutescens</i> and <i>Rhodomyrtus tomentosa</i> Regarded as a transitional phase from grassland to woodland in natural succession if not prevented by frequent hill fire. 	Medium
LR3	Grassland	95.5	<ul style="list-style-type: none"> Frequent hill fire has been recorded. Major grass species found included <i>Dicranopteris pedata</i>, <i>Arundinella setosa</i>, <i>Ischaemum spp.</i>, <i>Cymbopogon spp.</i>, and <i>Panicum sp.</i> Landscape quality and value considered low. 	Medium
LR4	Agricultural Field	13.0	<ul style="list-style-type: none"> Mainly found in rural settlement areas near Ping Yuen (under cultivation) and near Tong To Shan (abandoned). These agricultural fields within the study area 	Medium

	Landscape Resources (LRs)	Quantity (Ha.)	Description	Sensitivity
			<p>account only for a small portion of the overall agricultural field beyond the study area.</p> <ul style="list-style-type: none"> Landscape value and quality considered medium. 	
LR5	Natural Stream course	505m length	<ul style="list-style-type: none"> The downstream of Lin Ma Hang Stream which is ecological rich. The landscape value and quality is considered high and susceptible to incompatible development. 	High
LR6	Existing NENT Landfill Site and associated Stockpile and Borrow Area (SBA)	90.2	<ul style="list-style-type: none"> Comprise mainly the existing NENT Landfill site under operation and its associated stockpile and borrow area (SBA) to its east. The landscape elements include mainly landfill site and SBA, together with their associated access haul roads, artificial cut and fill slopes, modified surface drainage system, waste reception area and leachate treatment system. Bare soil surface are covered mainly with grass by hydro-seeding. Its landscape value and quality is considered low. It is ready to absorb significant change. 	Low

8.4.1.2 Preliminary Tree Assessment

A tree survey was conducted in 2005 as shown on **Drawing No. 24315/14/005**. There was a total of **29** species. The majority of the trees surveyed were young at age and small in size. Out of the 2178 nos. of surveyed trees, 1851 nos. (85%) had a diameter at breast height (DBH) equals to or below 0.3m and the remaining 327 nos. (15%) had a DBH in the range of 0.4m to 0.8m inclusive. Most were common native tree species.

According to ETWB TC(W) No. 29/2004 Para. 7, only trees on unleased Government land within built-up areas or tourist attraction spots in village areas are eligible for inclusion in the Register of Old and Valuable Trees. Upon checking against Appendix A (Location of Built-up Areas) of the technical circular, it has been verified that the Project area does not fall into the designated built-up areas. Nevertheless, the surveyed trees, which were under the list of rare and precious trees were highlighted. Based on the result of tree survey, it was confirmed that there were no trees with a DBH exceeding 1000m, a height exceeding 25m or a spread exceeding 25m.

Out of the **2178** numbers of trees surveyed, about **825** were within the Project site. These affected trees were mainly located in woodlands in the southwest part of the Project site. It is stressed that the woodlands to the north and east of the site are largely avoided. The affected trees will be affected by phases due to progressive change in topography of the site during the construction and operation phases of the landfill extension development. Due to the fact that they are located on slopes inaccessible to vehicles and machineries, the majority of them may not be able to be preserved by transplanting.

The technically feasibility of transplantation are based on the following criteria:

- Variety of species** : rare and precious species to be considered for transplanting;
- Condition of tree** : trees with balanced form, in good health and high amenity value are considered for transplanting;

- **Size and maturity** : small and younger trees have a better chance of surviving transplanting while larger, mature trees are difficult to transplant both logistically and in terms of survival rate;
- **Species** : different tree species have better chances of survival or are better suited to transplanting than others;
- **Accessibility** : large machinery is required to lift the trees, steep slopes and rocky terrain therefore make it difficult to access trees.

No trees should be felled or transplanted unless they are inevitably affected by the Project. Affected trees should be transplanted under circumstances where technically feasible. The requirement of having a detailed tree survey report and tree felling application will be specified in the NENT Landfill Extension Contract. A detailed tree survey report and a tree felling application (by the DBO Contractor) will be submitted to government for approval before site formation works commence. The numbers, locations, species and sizes of the trees to be transplanted or felled should be clearly addressed.

To compensate for the loss of existing trees, 26.83 ha (about 43% of the Project site) will be planted with woodland mix progressively in phases. Assuming tree seedlings/whips planting at 1.5m spacing in staggered pattern, there will be 148,100 nos. of tree seedlings/whips planted. In addition, shrubland mix planting and grassland planting areas will also be created.

8.4.2 Visual Baseline Study Frameworks

8.4.2.1 VSRs

The Project site is situated over 6 km north-east of Fanling, in the very northern part of the New Territories and is bordered by the Frontier Closed Area Boundary to the north. It is located in a valley enclosed by ridges, screened off from surrounding villages in low land across the ridgelines. There are no large areas of population within the primary visual envelope of the Project site. Views toward the Project site are significantly blocked by natural geological landforms around the site. The maximum final capping level of the adjoining existing NENT Landfill is +245mPD. Similar maximum final capping level is proposed for the landfill extension at the southeast end and gradually steps down north-westwards to less than 100 mPD.

The Project site is located in a valley to the southeast of the existing NENT Landfill site. The valley is encircled by three ridgelines and exits to the southwest through a small gorge, at approximately +40mPD. The Project site currently accommodates the Landfill Stockpile and Borrow Area (SBA) for the existing NENT Landfill site and its associated haul roads.

On its southerly side, the Project site is enclosed by a major ridgeline, which runs from Wo Keng Shan (+297mPD) to Robin's Nest (+492mPD). A smaller ridge intersects this main ridgeline along the northern boundary of the Project site and merges into Wong Mau Hang Shan (+243mPD) to the east of the existing NENT Landfill site. A saddle, with a minimum elevation of approximately +140mPD, is located approximately half way along this smaller ridge and overlooks To Tong Shan Settlement District and Lin Ma Hang Village.

Table 8.7 shows the identified visual envelope and VSRs. Samples of typical views are presented on **Drawing Nos. 24315/14/007 and 24315/14/008**. It should be noted that the assessment is based on the final capping landform of the landfill extension. It is stressed that during the majority period of the construction and operation phase, the Project site is much less visible to its VSRs than towards the end of operation phase. This is because during the majority period, the Project site is much lower than its surrounding ridgelines and the new landform which will be higher than some of the surrounding ridgelines has not been formed and made visible to the VSRs. It is also noted that the Project site is likely to be

visible to high-rise development viewers across the border, but great viewing distance significant reduces the visual impact.

8.4.2.2 Descriptions of the Typical Views of the Areas Affected by the Project

The existing views of the Project site affected mainly comprise the following visual elements (Table 8.6):

- View of the existing NENT Landfill site and its Stockpile and Borrow Area
- Typical upland landscape view (Shek Tsai Ha, NW facing slope of Wo Keng Shan)
- Typical Rural Settlement view (Ngong Tong)

Table 8.6: Visual Elements

Visual Elements	Description
View of the existing NENT Landfill site and its Stockpile and Borrow Area (SBA)	<ul style="list-style-type: none"> • Comprise mainly the existing NENT Landfill site under operation and its associated SBA to its east. • The view to it is of typical degraded land made up of landfill site and SBA, together with their associated access haul roads, artificial cut and fill slopes, modified surface drainage system, waste reception area and leachate treatment system. • The visual quality and value is not high
Typical upland landscape view (Shek Tsai Ha, NW facing slope of Wo Keng Shan)	<ul style="list-style-type: none"> • Natural steep hillside slope covered by mainly grassland and shrubland. • The affected area is Shek Tsai Ha, which form part of the Wo Keng Shan. • Half of the affected area is surrounded by the existing NENT Landfill site, the waste reception area and the SBA, its visual value and quality is medium.
Typical Rural Settlement view (Ngong Tong)	<ul style="list-style-type: none"> • Typical view of abandoned rural settlement area with extensive grassland and some graves. • The visual quality and value is medium.

Table 8.7: VSRs identified within the visual envelope

	VSR	Type of VSRs	Population of VSRs	Min. Viewing Distance (km)	Sensitivity	Remarks
VSR1	Tong To Shan Tsuen	Village Residents	None (Abandoned)	0.7	Low	<ul style="list-style-type: none"> • It is an abandoned village with no residents. • Relative viewing distance.
VSR2	Lin Ma Hang	Village Residents	Very Few	1.4	High	<ul style="list-style-type: none"> • A glimpse to the Project site through a saddle (+140mPD) located along a ridgeline to the north of the site. • The Project site will be seen between the natural ridge lines of Wong Mau Hang Shan and Hung Fa Leng.
VSR3	Wo Keng Shan Tsuen	Village Residents	Very Few	0.9	High	<ul style="list-style-type: none"> • Open view to the Project site through a gorge (+40mPD) located at the south-western boundary. • The Project site will be seen with the Wo Keng Shan as foreground on the right. • Very few village residents.
VSR4	Ping Yeung	Village Residents	Medium	1.6	High	<ul style="list-style-type: none"> • Similar to the view from VSR2- Wo Keng Shan Tsuen but with a longer viewing distance.
VSR5	Ping Che, Ping Che New Village, Pak Hok Shan,	Village Residents	Medium	1.9	Medium	<ul style="list-style-type: none"> • Partial view of the Project Site. • The Project site is seen entirely behind the Wo Keng Shan,

	VSR	Type of VSRs	Population of VSRs	Min. Viewing Distance (km)	Sensitivity	Remarks
	Kai Fong Garden					<p>which acts as the prominent foreground.</p> <ul style="list-style-type: none"> Cheung Shan also act as foreground to the right. Long viewing distance. The Project site is less visually prominent.
VSR6	Sing Ping Village, Tai Po Tin and government farm	Village Residents	Few	2.4	Medium	<ul style="list-style-type: none"> Similar to the view from VSR2-Wo Keng Shan Tsuen but with a much longer viewing distance. The Project site is less visual dominant.
VSR7	Kaw Liu Village, Kan Tau Wai, Ta Kwu Ling Village, Fung Wong Wu, Tong Fong and Chow Tin Tsuen	Village Residents	Medium	2.8	Medium	<ul style="list-style-type: none"> Partial view of the Project site as backdrop behind other visually prominent topological features such as Tung Lo Hang, Tung Fung Au and future restored NENT Landfill site. Long viewing distance.
VSR8	Sheung Shan Kai Wat and Ha Shan Kai Wat	Village Residents	Few	3.2	Low	<ul style="list-style-type: none"> Similar to the views from VSR5 but longer viewing distance. The Project site is even less visually prominent.
VSR9	Hikers at the top of Robin's Nest	Hikers	Very few	1.3	High	<ul style="list-style-type: none"> Open close view to the Project site but likely to be screened by local immediate vegetation. Not a popular and easily accessible hiking trail.
VSR10	Ha Heung Yuen and Heung Yuen Wai	Village Residents	Medium	1.8	Medium	<ul style="list-style-type: none"> The Project site is behind the ridgelines of the Kong Yiu, Wong Mau Hang Shan and future restored NENT Landfill site, which form the foreground and middle ground. The Project site is less visually prominent.
VSR11	Chuk Yuen	Village Residents	Few	2.8	Medium	<ul style="list-style-type: none"> Partial view of the Project site as backdrop behind other visually prominent topological features such as Tung Lo Hang, Tung Fung Au and future restored NENT Landfill site. Long viewing distance.
VSR12	Potential future users at the existing NENT Landfill site during its aftercare period	Visitors	Few	0.7	Medium	<ul style="list-style-type: none"> Close viewing distance. View to landfill extension can be easily visually screened off locally. The number of visitors is anticipated to be small.

8.5 Planning and Development Control Review

A review of the relevant planning and development control framework is carried out to ascertain the current and future committed development and associated sensitive receiver groups within the study area.

8.5.1 Reference for Planning and Development Control Frameworks

Reference to the statutory plans covering the study area and its surrounding are listed in Table 8.8.

Table 8.8: Reference for planning

Title of Plans	Reference	Remark
Draft Wo Keng Shan OZP	S/NE-WKS/7 (extracted from PlanD website in May 2006)	The proposed extension site consists of two types of land use zones, namely, "Other Specified Uses (Landfill)" and "Green Belt"

8.5.2 Possible Amendments required to Statutory Plans

The possible amendments to statutory plans arising from the Project will be highlighted according to Para. 3.5 (f) and (g) of EIAO Guidance Note No. 8/2002.

The majority of the Project site (about 43 ha) is covered by the Stockpile and Borrow Area currently zoned "Other Specified Uses (Landfill)". The remaining part of the Project site (about 20 ha) extends into the surrounding "Green Belt" zone. Approval from Town Planning Board on rezoning of the affected "Green Belt" zone to "Other Specified Uses (Landfill)" zone would be required. The current OZP would also need to be amended accordingly. It is stressed that the affected "Green Belt" zone is a small portion of a much larger entity of the same zoning which is outside the Project site and extends beyond the study area.

To summarize, the areas to be rezoned is adjoining the existing zone of "Other Specified Uses (Landfill)" and the affected "Green Belt" zone accounts only a small portion of the total area of "Green Belt" zone in the Wo Keng Shan OZP. In addition, the essential planning and conservation intentions of the remaining "Green Belt" zone are unaffected because the zone is neither fragmented, discontinued nor substantially reduced in area. Therefore, it is concluded that the proposed Project has no significant and unacceptable impact on the planning and development control frameworks covering the study area.

8.5.3 Interfacing with nearby Robin's Nest area

The potential interfacing area of Robin's Nest area close to the NENT extension site is mainly grassland of low ecological value and impact to this area is therefore considered minimal.

8.6 Source of Impacts and Impact Assessment

8.6.1 Source of Impacts and Impact Assessment

In normal situation, waste filling and site formation works will be carried out at the same time, as infilling operations are carried out in previously prepared areas. It is therefore noted that the construction and operation phases of the landfill extension overlap with each other. As a reference, the existing NENT Landfill was constructed in August 1994 and operated in June 1995. The ongoing construction and operation phase is estimated to be 20 years, depending on waste generation trends. To avoid discontinuous waste reception, it is expected that the landfill extension will be ready for use when the capacity of existing NENT Landfill is about to be reached.

The main sources of landscape and visual impact of the Project come from the construction and operation phase of the landfill extension. The construction and operation primarily

involve large-scale excavation of soil, change in topography, construction of vehicular road access, operation of large vehicles and machinery, and erection of any associated waste management ancillary facilities over a long period of time.

The daily operation of a landfill site is to spread and compact the waste after unloading from vehicles by waste moving equipment. The waste is normally covered by another layer of waste or by a temporary cover soil of about 0.15m thick and compacted by compactors to maximize the landfill capacity.

A significant element of a landfill operation is the formation of a spoil mound where the excess arising from the excavation of the main landfill bowl is stored. This area is referred to as the Stockpile/ Borrow Area (SBA), and contains the spoil that will ultimately be returned to the landfill as daily cover, formation of haul roads and intermediate/ final capping. The stockpile is normally constructed abutting against the natural hillside. The SBA is normally constructed in a number of phases to match the programme of landfill earthworks. Normally, slopes of stockpiles are formed at approximately 22 degree (1: 2.5) with face lifts of 7 m. Berms are of a minimum of 1.5 width, with every fourth berm being 4m wide, and graded to a minimum gradient of 1 in 50.

After the capacity of a landfill is reached, the site will enter the restoration and afteruse phase. Relatively, the restoration phase (less than a year) is much shorter than the afteruse phase (20-30 years). Restoration works include final cap construction, landscaping and treatment works within the site to restore the site to suit its designated afteruse. The impact in these two phases will be assessed together.

The preliminary potential sources of landscape and visual impacts are listed in **Table 8.9 and Drawing No. 24315/14/001**. These identified sources of impact will cause either change or loss of the LCAs and LRs, together with change in views. Landscape impact without mitigation is illustrated in **Table 8.10 and Drawing No. 24315/14/002** for LCAs. Landscape impact without mitigation is illustrated in **Table 8.11 and Drawing No. 24315/14/004** for LRs. Visual impact without mitigation is illustrated in **Table 8.12 and Drawing No. 24315/14/006** for VSRs. Photomontages from selected views without mitigation measures are shown on **Drawing No. 24315/14/010 to 012**.

Table 8.9: Potential Sources of Landscape and Visual Impacts

Construction and Operation Phase (Overlapping)	
1	Large-scale excavation of soil which results in change in topography
2	Construction of vehicular road access and associated operation of large vehicles and machineries
3	Possible erection of any associated waste management ancillary facilities
4	The SBA where excess excavated material from the main landfill bowl is temporarily stored as spoil mound. The SBA is normally constructed in a number of phases to match the programme of landfill earthworks.
Restoration and Aftercare Phase	
5	Final cap construction
6	Grading to achieve final landfill contour

Table 8.10: Landscape Impact Assessment (without mitigation) - LCAs

LCAs	Description	Qty. Loss / Total Qty within study area	Sensitivity	Magnitude of Change		Significance threshold without mitigation	
				During Construction and operation	During restoration and aftercare	During Construction and operation	During restoration and aftercare
LCA1	Disturbed land (Existing NENT Landfill Site)	35.2/90.2	Low	Negligible	Negligible	Negligible	Negligible
LCA2A	Rural Settlement Landscape (Tong To Shan Tsuen & Ngong Tong)	14.2/66.5	High	Large	Intermediate	Significant	Moderate to Significant
LCA2B	Rural Settlement Landscape (Ping Yuen)	0.0/15.9	Medium	Negligible	Negligible	Negligible	Negligible
LCA3A	Upland Landscape (NW Facing slope of Robin's Nest)	0.78/32.4	Medium	Negligible	Negligible	Negligible	Negligible
LCA3B	Upland Landscape (SE facing slope of Wo Keng Shan)	0.1/54.1	High	Negligible	Negligible	Negligible	Negligible
LCA3C	Upland Landscape (NW facing slope of Wo Keng Shan)	13.1/40.1	Medium	Intermediate	Small	Moderate	Slight to Moderate

Table 8.11: Landscape Impact Assessment (without mitigation) - LRs

LRs	Description	Qty. Loss / Total Qty within study area	Sensitivity	Magnitude of Change		Significance threshold without mitigation	
				During Construction and operation	During restoration and aftercare	During Construction and operation	During restoration and aftercare
LR1	Woodland	1.5/ 72.7 Refer section 8.4.1.2 for preliminary tree assessment	High	Small	Small	Moderate	Moderate
LR2	Shrubland	5.8/26.1	Medium	Intermediate	Intermediate	Moderate	Moderate
LR3	Grassland	21.2/95.5	Medium	Intermediate	Intermediate	Moderate	Moderate
LR4	Agricultural Field	0.0/13.0	Medium	Negligible	Negligible	Negligible	Negligible
LR5	Natural Stream course	0m/505m length	High	Negligible	Negligible	Negligible	Negligible
LR6	Existing NENT Landfill Site and associated Stockpile and Borrow Area (SBA)	35.2/90.2	Low	Negligible	Negligible	Negligible	Negligible

Table 8.12: Visual Impact Assessment (without mitigation)

VSRs	Description	Sensitivity	Magnitude of Change		Significance threshold without mitigation	
			During Construction and operation	During restoration and aftercare	During Construction and operation	During restoration and aftercare
VSR1	Tong To Shan Tsuen	Low	Large	Large	Moderate	Moderate
VSR2	Lin Ma Hang	High	Intermediate	Intermediate	Moderate to Significant	Moderate to Significant
VSR3	Wo Keng Shan Tsuen	High	Small	Small	Moderate	Moderate
VSR4	Ping Yeung	High	Small	Small	Moderate	Moderate
VSR5	Ping Che, Ping Che New Village, Pak Hok Shan, Kai Fong Garden	Medium	Small	Small	Slight to Moderate	Slight to Moderate
VSR6	Sing Ping Village, Tai Po Tin and government farm	Medium	Small	Small	Slight to Moderate	Slight to Moderate
VSR7	Kaw Liu Village, Kan Tau Wai, Ta Kwu Ling Village, Fung Wong Wu, Tong Fong and Chow Tin Tsuen	Medium	Small	Small	Slight to Moderate	Slight to Moderate
VSR8	Sheung Shan Kai Wat and Ha Shan Kai Wat	Low	Small	Small	Slight	Slight
VSR9	Hikers at the top of Robin's Nest	High	Large	Large	Significant	Significant
VSR10	Ha Heung Yuen and Heung Yuen Wai	Medium	Small	Small	Slight to Moderate	Slight to Moderate
VSR11	Chuk Yuen	Medium	Small	Small	Slight to Moderate	Slight to Moderate
VSR12	Potential future users at the existing NENT Landfill site during its aftercare period	Medium	Large	Large	Moderate to Significant	Moderate to Significant

8.6.2 Cumulative Impacts Assessment Frameworks

The potential concurrent projects that may have cumulative landscape and visual impact on the Project is the existing NENT Landfill Site.

The Project site of the Landfill Extension is mainly made up largely by the Stockpile and Borrow Area and haul roads of the existing NENT Landfill Site. Furthermore, the existing NENT Landfill Site is located immediately adjoining to the northwest of the proposed extension. The existing NENT Landfill site is essentially of the same nature as the Project. They are therefore considered compatible in terms of both land use and landscape character.

It is predicted that shortly after the commencement of the construction and operation of the landfill extension, the existing landfill site will be close to its full capacity and will approach its restoration and aftercare phase.

Therefore, no insurmountable landscape and visual impact from cumulative impact of concurrent project is anticipated for the Project.

8.6.3 Mitigation Measure and Residual Impact

8.6.3.1 General Mitigation Measures

The restoration and afteruse phases are a form of the mitigation measures of the proposed development. As most of the mitigation measures proposed during the construction and operation phases are temporary and limited, the permanent and effective mitigation measures for the proposed development are implemented in the restoration and afteruse phases. The aftercare phase mainly involves on going monitoring of the environmental indicators, and undertaking of all necessary actions to prevent pollution of the environment and harm to human health.

It is envisaged that the proposed landfill extension will be restored to blend in with the restored NENT Landfill, and both will blend in with the surrounding natural landscape. The restored landfill will be used for low intensity recreational purpose. Therefore, the landscape and visual impact during restoration and afteruse phases are considered minimal.

Mitigation Measures to be applied during construction, operation, restoration and aftercare phases are listed in **Table 8.13a and b and Drawing No. 24315/14/009**.

Table 8.13a: Mitigation measures in construction and operation phases

Strategies	Mitigation Measures in Construction and Operation Phases
MM1	<p>Advanced screening tree planting</p> <ul style="list-style-type: none"> • Early planting using fast growing trees and tall shrubs at strategic locations within site to block major view corridors to the site from the VSRs, and to locally screen haul roads, excavation works and site preparation works. • Roadside planter and shrub planting design in front of Cheung Shan Monastery.
MM2	<p>Boundary Green Belt planting</p> <ul style="list-style-type: none"> • Considerable planting belts proposed around the site perimeter and the construction of temporary soil bunds would screen the landfill operations to a certain degree. Fast growing and fire resistant plant species will be used.
MM3	<p>Temporary landscape treatment as green surface cover</p> <ul style="list-style-type: none"> • For certain areas where landfilling operations would have to be suspended temporarily for a certain period of time, simple temporary landscape treatment such as temporary green colour slope cover should be considered. The period of temporary suspended operation should be sufficiently explicit in order to undertake appropriate temporary landscape treatment. During construction and operation phases, synthetic covering material of green colour should also be used as a temporary slope cover where applicable. Given the extensive area of the proposed extension, development of the site should be divided into phases to minimize the visual impact.
MM4	<p>Existing tree preservation</p> <ul style="list-style-type: none"> • No trees should be felled or transplanted unless they are inevitably affected by the Project. Affected trees should be transplanted under circumstances where technically feasible. A tree survey report should be prepared and a tree felling application should be submitted to government during the detail design stage for approval before site formation works commence. The numbers, locations, species and sizes of the trees to be transplanted or felled should be clearly addressed.

Table 8.13b: Mitigation measures in restoration and aftercare phases

Strategies	Mitigation Measures in Restoration and Afteruse Phases
MM5	<p>Sensible final contour grading</p> <ul style="list-style-type: none"> The final landfill will provide a structurally stable and visually interesting landform, which is visually compatible with surrounding landscape and contoured to simulate adjacent undeveloped area. Introduction and continuation of natural features such as spurs, ridges and valleys will be considered where appropriate.
MM6	<p>Sufficient cover soil of landfill final capping</p> <ul style="list-style-type: none"> Sufficient cover soil of landfill final capping will be placed above the low-permeable layer and drainage layer, so as to sustain the proposed planting. The cover soil layer should be a minimum of 500mm in thickness for grassland, a minimum of 700mm for shrubland and 1000mm for woodland. Immediately after the completion of localized earthworks for the cover soil layer, the soil surface should be stabilized and greened by grass hydroseeding prior to subsequent landscape planting.
MM7	<p>Landscape planting and maintenance</p> <ul style="list-style-type: none"> Planting and maintenance to allow vegetation establishment to match the natural vegetation of the surroundings. Planting layout to establish a coherent pattern of woodland, shrubland and grassland vegetation. To compensate for the loss of existing trees, 26.83 ha (43% of the Project site) will be planted with woodland mix progressively in phases. Assuming tree seedlings/whips planting at 1.5m spacing in staggered pattern, there will be about 148,100 nos. of tree seedlings/ whipsplanted. In addition, 19 ha of shrubland mix planting and 17.55 ha of grassland are proposed.

A landfill site is closed upon completion of the operation phase when its filling capacity is reached. When a landfill site is closed, it is capped with a low-permeable material. Normally, capping involves an impermeable HDPE liner and then follows by a thick layer of inert soil, usually about 1 to 1.5m thick, and compacted by machinery up to 1.2 tonnes per cubic meter. To further prohibit gas migration and infiltration of rainwater into the landfill, a synthetic impermeable layer will be laid underneath this layer of compacted soil cover. Restoration of a closed landfill site involves placing of cover soil, revegetation and on-going maintenance works.

Landfill cover soil is normally nutrient deficient, especially in nitrogen. Application of fertilizer is therefore necessary. Planting of N-fixing plants can also increase the nutrient level of cover soil. Another feature of landfill cover soil is its high degree of compaction. The level of CO₂ in cover soil is also relatively high.

Due to the presence of the impermeable cap, the moisture retained inside the landfill cannot reach to the cover soil by capillary action. Therefore, water supply for plants is generally inadequate, especially in dry season. Plants should therefore be drought resistant.

Tree planting has not been recommended in closed landfill sites previously as trees were suspected to damage the landfill top liner. However, evidence indicated that tree roots would not penetrate deep into the top cover soil which had a high degree of compaction and a high level of CO₂. A study on the root growth patterns of *Acacia confusa* and *Casuarina equisetifolia* in two local completed landfill sites revealed that their roots were mostly confined to the upper 15 cm of topsoil and did not penetrate further down. (G Y S Chan

1997). The proposed 1 m thick landfill cap is unlikely to be damaged by the growth of tree roots.

With high quality of composite cap, leachate contamination and landfill gas migration to cover soil is unlikely. Though the physical and chemical characteristics of cover soil as discussed above are unfavourable to most plants, field observation and experiments have confirmed that there are some tree species suitable for growing in landfill. Most of these trees are legumes which are N-fixing, tolerant to landfill gas and/or leachate, and drought resistant.

Reference is made to many local researches carried out on revegetation of landfill sites, which are listed below:

- G Y S Chan and M H Wong, 2002. Revegetation of Landfill Sites. In: Encyclopaedia of Soil Science, p. 1161 -1166
- G Y S Chan, 1997. Root Growth Patterns of Two Nitrogen-fixing Trees Under Landfill Conditions. In: Land Contamination and Reclamation 5:55-62.
- G Y S Chan, M H Wong and B.A. Whitton, 1996. Effects of Landfill Factors on Tree Cover – A Field Survey at 13 Landfill Sites in Hong Kong. In: Land Contamination and Reclamation 4: 115-128.

The superior performance of *Acacia confusa*, *A. magium* and *A. auriculiformis* on landfill sites was mainly due to their high drought tolerance and the N-fixing property. Due to their high drought tolerance, *Tristania conferta*, *Eucalyptus citriodora* and *E. torelliana* are some of the non-legumes which also showed superior performance in landfill.

However, most native trees had extremely high mortalities on the local test site in the first few years after the capping of landfill. After several years, the pioneer species provide shelter for the native species and the survival rate and growth of native species will improve. Natural ecological succession also takes place as the pioneer species establishes. Therefore, planting of tree seedlings is preferable to be carried out in two phases. The first phase involves planting of landfill pioneers tree species. The second phase, 3 – 5 years after the completion of first phase, involves the planting of seedlings of native tree species of higher ecological values.

To compensate for the loss of existing trees, 26.83 ha of the site (43% of the Project site) will be planted with woodland mix progressively in phases. Assuming tree seedlings/whips planting at 1.5m spacing in staggered pattern, there will be about 148,100 nos. of tree seedlings/ whips planted. In addition, shrubland mix planting and grassland planting areas will also be created.

Table 8.14 shows the trees suggested for initial woodland establishment in subtropical landfill site by G Y S Chan (2002).

Table 8.14: Tree species for woodland mix planting on restored landfill site

Landfill pioneer tree species for woodland mix planting (1st phase planting – immediately after final capping of landfill)		
<i>Acacia auriculiformis</i> *	<i>Cassia siamea</i> *	<i>Machilus</i> spp. <i>Schima superba</i>
<i>Acacia confusa</i> *	<i>Casuarina equisetifolia</i> *	<i>Castanopsis fissa</i>
<i>Acacia mangium</i> *	<i>Cassia spectabilis</i> *	<i>Peltophorum pterocarpum</i> *
<i>Albizia lebbek</i> *	<i>Eucalyptus citriodora</i>	<i>Tristania conferta</i>
<i>Aleurites moluccana</i>	<i>Eucalyptus torelliana</i>	
Native tree species with high ecological value for woodland mix planting (2nd phase – 3 to 5 years after the completion of first phase planting)		
Note: Trimming or thinning of pioneer trees in the established 1 st phase planting is required immediately before the 2 nd phase planting and after 5 to 10 years from completion of 2 nd phase planting		
<i>Aquilaria sinensis</i> #	<i>Garcinia oblongifolia</i> #	<i>Myrica rubra</i> #
<i>Antidesma microphyllum</i> #	<i>Gordonia axillaries</i> #	<i>Reevesia thyroidea</i> #
<i>Ardisia quinqueгона</i> #	<i>Ilex</i> spp. #	<i>Sapium discolor</i> #
<i>Bridelia tomentosa</i> #	<i>Lithocarpus</i> spp. #	<i>Schefflera octophylla</i> #
<i>Castanopsis</i> spp. #	<i>Litsea glutinosa</i> #	<i>Schima superba</i> #
<i>Choerospondias axillaries</i> #	<i>Liquidamber formosana</i> #	<i>Sterculia lanceolata</i> #
<i>Cinnamomum</i> spp. #	<i>Machilus breviflora</i> #	<i>Syzygium hancei</i> #
<i>Cyclobalanopsis edithiae</i> #	<i>Microcos paniculata</i> #	<i>Tutcheria championii</i> #
<i>Cyclobalanopsis neglecta</i> #		
<i>Ficus</i> spp. #		

Remark: "*" marks N-fixing species. "#" marks native species.

Based on the shrub community found within and near the existing NENT Landfill site, the following shrubs are proposed for shrubland mix planting.

- *Baeckea frutescens* #
- *Rhodomyrtus tomentosa* #

8.6.3.2 Implementation Programming/Sequencing

An implementation programme is prepared as required by the TM of the EIAO. Reference is made to the *ETWB TC(W) No. 2/2004 on Maintenance of Vegetation and Hard Landscape Features (to be read in conjunction with WBTC(W) No. 14/2002)* which defines the management and maintenance responsibilities for natural vegetation and landscape works, including both softworks and hardworks, and the authorities for tree preservation and felling. The funding, implementation, management and maintenance arrangement is listed in Table 8.15.

Table 8.15: Preliminary funding, implementation, management and maintenance proposal

	Mitigation items	Funding & Implementation unit	Management and maintenance unit
Mitigation Measures in Construction and Operation Phases			
MM1	Advanced screening tree planting	DBO Contractor	DBO Contractor
MM2	Boundary Green Belt planting	DBO Contractor	DBO Contractor
MM3	Temporary landscape treatment as green surface cover	DBO Contractor	DBO Contractor
MM4	Existing tree preservation	DBO Contractor	DBO Contractor
Mitigation Measures in Restoration and Aftercare Phases			
MM5	Sensible final contour grading	DBO Contractor	DBO Contractor
MM6	Sufficient cover soil of landfill final capping	DBO Contractor	DBO Contractor
MM7	Landscape planting and maintenance	DBO Contractor	DBO Contractor

Note: Details of the mitigation measures are given in Tables 8.13a and 8.13b. The mitigation measures shall be stipulated in the Employer's Requirements and Environmental Permits when tendering the Design-Build-Operating Contract to ensure that the mitigation measures will be implemented by the DBO Contractor.

8.6.3.3 Residual Landscape Impact Assessment Frameworks (with Mitigation)

The residual landscape impacts (with mitigation) on LCAs are presented in Table 8.16. The residual landscape impacts (with mitigation) on LRs are presented in Table 8.17.

Table 8.16: Summary of residual landscape impacts (with mitigation) on LCAs

LCAs	Significance threshold without mitigation		Residual impact after implementation of mitigation measures	
	Construction and Operation	Restoration and Aftercare	Construction and Operation	Restoration and Aftercare
LCA1 Disturbed land (Existing NENT Landfill Site)	Negligible	Negligible	Negligible	Negligible (Beneficial with mitigation measures)
LCA2A Rural Settlement Landscape (Tong To Shan Tsuen & Ngong Tong)	Significant	Moderate to Significant	Significant	Moderate (Acceptable with mitigation measure)
LCA2B Rural Settlement Landscape (Ping Yuen)	Negligible	Negligible	Negligible	Negligible
LCA3A Upland Landscape (NW Facing slope of Robin's Nest)	Negligible	Negligible	Negligible	Negligible
LCA3B Upland Landscape (SE facing slope of Wo Keng Shan)	Negligible	Negligible	Negligible	Negligible
LCA3C Upland Landscape (NW facing slope of Wo Keng Shan)	Moderate	Slight to Moderate	Moderate	Slight (Acceptable with mitigation measure)

Table 8.17: Summary of residual landscape impacts (with mitigation) on LRs

LRs	Significance threshold without mitigation		Residual impact after implementation of mitigation measures	
	Construction and Operation	Restoration and Aftercare	Construction and Operation	Restoration and Aftercare
LR1 Woodland	Moderate	Moderate	Moderate	Slight to Moderate (Acceptable with mitigation measure)
LR2 Shrubland	Moderate	Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
LR3 Grassland	Moderate	Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
LR4 Agricultural Field	Negligible	Negligible	Negligible	Negligible
LR5 Natural Stream course	Negligible	Negligible	Negligible	Negligible
LR6 Existing NENT Landfill Site and associated Stockpile and Borrow Area (SBA)	Negligible	Negligible	Negligible	Negligible (Beneficial with mitigation measure)

8.6.3.4 Residual Visual Impact Assessment Frameworks (with Mitigation)

The residual visual impacts (with mitigation) on VSRs are presented in Table 8.18.

Table 8.18: Summary of residual Visual Impacts (with Mitigation) on VSRs

VSRs	Significance threshold without mitigation		Residual impact after implementation of mitigation measures	
	Construction and Operation	Restoration and Aftercare	Construction and Operation	Restoration and Aftercare
VSR1 Tong To Shan Tsuen	Moderate	Moderate	Moderate	Slight to Moderate (Acceptable with mitigation measure)
VSR2 Lin Ma Hang	Moderate to Significant	Moderate to Significant	Moderate to Significant	Moderate (Acceptable with mitigation measure)
VSR3 Wo Keng Shan Tsuen	Moderate	Moderate	Moderate	Slight to Moderate (Acceptable with mitigation measure)
VSR4 Ping Yeung	Moderate	Moderate	Moderate	Slight to Moderate (Acceptable with

VSRs	Significance threshold without mitigation		Residual impact after implementation of mitigation measures	
	Construction and Operation	Restoration and Aftercare	Construction and Operation	Restoration and Aftercare
				mitigation measure)
VSR5 Ping Che, Ping Che New Village, Pak Hok Shan, Kai Fong Garden	Slight to Moderate	Slight to Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
VSR6 Sing Ping Village, Tai Po Tin and government farm	Slight to Moderate	Slight to Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
VSR7 Kaw Liu Village, Kan Tau Wai, Ta Kwu Ling Village, Fung Wong Wu, Tong Fong and Chow Tin Tsuen	Slight to Moderate	Slight to Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
VSR8 Sheung Shan Kai Wat and Ha Shan Kai Wat	Slight	Slight	Slight	Slight (Acceptable with mitigation measure)
VSR9 Hikers at the top of Robin's Nest	Significant	Significant	Significant	Moderate to Significant (Acceptable with mitigation measure)
VSR10 Ha Heung Yuen and Heung Yuen Wai	Slight to Moderate	Slight to Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
VSR11 Chuk Yuen	Slight to Moderate	Slight to Moderate	Slight to Moderate	Slight (Acceptable with mitigation measure)
VSR12 Potential future users at the existing NENT Landfill site during its aftercare period	Moderate to Significant	Moderate to Significant	Moderate to Significant	Moderate (Acceptable with mitigation measure)

8.6.3.5 Photomontage Illustration from Selected Views

According to EIAO Guidance Note No. 8/2002, photomontages at selected representative viewpoints are prepared on **Drawing Nos. 24315/14/010 to 012** to illustrate the effectiveness of the proposed impact mitigation proposal and residual impacts of the development in both short and long term for:

- Existing baseline condition (Day 1 of Construction and Operation phases)
- Development without mitigation (Day 1 of Afteruse Phase)
- Development with mitigation (Day 1 of Afteruse Phase)
- Development with mitigation (10 years of Afteruse Phase)

A total of 3 representative viewpoints are selected. They are:

- View of VSR2 at Lin Ma Hang

- View of VSR7 at Ta Kwu Ling Village
- View of VSR11 at Chuk Yuen

8.7 Conclusion

The NENT Landfill Extension consists mainly the Stockpile and Borrow Area and haul roads of the existing NENT Landfill Site. Furthermore, the existing NENT Landfill Site is located immediately adjoining to the northwest of the proposed extension. The existing landscape resources and characters of the extension site are therefore largely deteriorated by both the existing NENT Landfill and its Stockpile and Borrow Area.

In terms of residual landscape impact, it is concluded that with implementation of mitigation measures, the NENT Landfill Extension will have slight impact to the upland landscape at the northwest facing slope of Wo Keng Shan (LCA3C) and moderate impact to rural settlement Landscape of Tong To Shan Tsuen & Ngong Tong (LCA2A). Furthermore, it is assessed that there will be slight to moderate residual impact to the woodland (LR1) and slight residual impact to shrubland (LR2) and grassland (LR3) within the Project site. The lost of 1.5 ha of existing woodland and 5.8 ha of shrubland will be compensated by 26.83 ha of woodland mix progressively planted in phases with about 148,100 nos. of tree seedlings / whips. In addition, 19 ha of shrubland mix planting and 17.55 ha of grassland will be created in the restoration phase of the NENT Landfill Extension.

The existing NENT Landfill site, its Stockpile and Borrow Area and the proposed NENT Landfill Extension will affect the same sets of visual sensitive receivers in view of their proximity to each other. It is noted that the landscape character of the NENT Landfill Extension will be similar to that of the existing landfill site and its associated Stockpile and Borrow Area. In terms of residual visual impact, the extension site will have slight impact to the majority of the identified visual sensitive receivers. Moderate to significant impact is expected to hikers at the top of Robin's Nest (VSR 9), whereas moderate impact is expected to visual sensitive receivers at Lin Ma Hang (VSR 2) and to potential future users at the existing NENT Landfill site during its aftercare period. (VSR12).

The proposed landfill extension will be restored and vegetated to match with its surrounding landform and vegetation patterns in the restoration and aftercare stages. In summary, the overall landscape and visual impact of the Project is acceptable with mitigation measures implemented.