

16 LANDSCAPE AND VISUAL IMPACT

16.1 INTRODUCTION

This chapter examines the potential landscape and visual impact (LVIA) on the area southeast of Cork City and its environs of the proposed M28 Road Project, during construction and operation stages. For all figures and photomontages referred to in this chapter, please see **Volume 5**. The overall approach is summarised as follows:-

a) Establish the baseline conditions:-

Record and analyse the existing character, quality and sensitivity of the landscape and visual resource. This should include elements of the landscape such as;

- Landform;
- Land cover including the vegetation, the slopes, drainage, etc.;
- Landscape character;
- Current landscape designations and planning policies; and
- Site visibility, comprising short, medium and long distance views.

b) Analyse baseline conditions:-

Comment on the scale, character, condition and the importance of the baseline landscape, its sensitivity to change and the enhancement potential where possible.

A visual analysis (illustrated by photographic material) describing characteristics which may be of relevance to the impact of the design and to the method of mitigation.

c) Describe the proposal;

d) Identify the impacts of the proposal on the Landscape and Visual Resources -

Identify the landscape and visual impacts of the proposed M28 Road Project at different stages of its life cycle, including:-

- Direct & indirect *landscape impacts* of the proposed road project on the landscape of the site and the surrounding area; and
- *Visual impacts* including: the extent of potential visibility; the view and viewers affected; the degree of visual intrusion; the distance of views; and resultant impacts upon the character and quality of views.

e) Assess the significance of the landscape and visual impacts in terms of the sensitivity of the landscape and visual resource, including the nature and magnitude of the impact.

f) Detail measures proposed to mitigate significant adverse landscape and visual impacts and assess their effectiveness.

g) Assess the ability of the landscape and visual resource to absorb the proposal with any mitigation proposed.

16.2 ASSESSMENT METHODOLOGY

16.2.1 General Approach

The methodology for the LVIA has been derived from *Guidelines for Landscape and Visual Impact Assessment*, Third Edition (The Landscape Institute and Institute of Environmental Management & Assessment, 2013) (GLVIA3). The landscape mitigation measures have given regard to the *NRA Guide to Landscape Treatments for National Road Schemes in Ireland*.

The landscape has been appraised to allow it to be described and classified into landscape character areas that in turn enable the classification of landscape quality. The capacity of the landscape to accept change of the type proposed is assessed by determining the sensitivity of each landscape character area. Overall key landscape components are normally landform, vegetation and historical and cultural components. Landform relates to topography, drainage characteristics and geology. Historical and cultural components include historic landscapes, listed buildings, conservation areas and historic designed landscapes. Vegetation plays an important role in how the landscape and visual resources of an area are viewed and is an integral component of a landscape character.

Assessment has been undertaken through analysis of:-

- Up to date digital copies of OS Discovery Series raster and OS vector maps;
- Aerial photography;
- Cork County Landscape Character Assessment and Draft Landscape Strategy 2007;
- Cork County Development Plan (CDP), 2014-2020;
- Draft Ballincollig-Carrigaline Municipal District Local Area Plan, 2016;
- Zone of Theoretical Visibility (ZTV) mapping **Figure 16.1**);
- Photomontages from selected viewpoints; and
- Detailed drawings of the proposed M28 Road Project including lighting proposals as described in **Chapter 3: Description of the Proposed Road Development** and the proposed location of noise barriers as described in **Chapter 14: Noise and Vibration**.

Site visits were undertaken to assess the existing environment, to establish the existing visual resource and to identify sensitive receptors, i.e., residential properties, scenic viewpoints. Site visits were also used to establish the perceived extent of landscape and visual impacts that may be associated with the proposed road project.

The proposed M28 Road Project is then applied to this landscape and visual baseline and potential impacts predicted.

16.2.2 Scenarios Assessed

The following scenarios have been assessed:-

- Do-Nothing; and
- Do-Something, the proposed M28 Road Project as described in **Chapter 3: Description of the Proposed Road Development**.

16.2.3 Identifying Effects

Assessing the significance of an effect is a key component of the LVIA and is an evidenced based process combining professional judgments on the nature of a landscape or visual receptor's sensitivity, their susceptibility to change and the value attached to the receptor. It is important to note that judgments in this LVIA are impartial and based on professional experience and opinion informed by best practise guidance.

The effects of the proposed M28 Road Project are of variable duration and are assessed as being either short-term or long-term, and permanent or reversible. Effects related to operations and infrastructure such as temporary construction compounds and stockpiling, apparent only during the construction period are considered to be short-term effects.

16.2.4 Assessment Criteria

The objective of the assessment process is to identify and evaluate the predicted significant effects arising from the proposal. Significance is a function of the:

- Sensitivity of the affected landscape and visual receptors; and
- Scale or magnitude of impact that they will experience.

These definitions recognise that landscapes vary in their capacity to accommodate different forms of development according to the nature of the receiving landscape and the type of change being proposed.

Significance is not graded in bands, and a degree of informed judgement is required. Even with the application of pre-defined criteria, interpretation may differ between individuals, but this allows the process of reaching these conclusions to be transparent.

16.2.5 Landscape Impact Assessment

The LVIA firstly assesses how the proposal would impact directly on any landscape features and resources. This category of effect relates to specific landscape elements and features (e.g. woods, trees, walls, hedgerows, watercourses) within the site that are components of the landscape that may be physically affected by the proposal. Physical effects are restricted to the area within the site boundary, and are the direct effects on the fabric of the site, such as the removal or addition of trees and alteration to ground cover and levels.

The LVIA then considers impacts on landscape character at two levels. Firstly, consideration is given to how the landscape character is affected by the removal or alteration of existing features and the introduction of new features. This is considered to be a direct impact on landscape character. Secondly, the indirect impacts of the proposal on the wider landscape are considered. The assessment of impacts on the wider landscape is discussed using the surrounding character areas identified in the relevant regional or county landscape character assessments and further refined by this LVIA. It is acknowledged there is an overlap between perception of change to landscape character and visual amenity, but it should be remembered that landscape character in its own right is generally derived from the combination and pattern of landscape elements within the view.

The significance of effects on landscape features and character is determined by cross referencing the sensitivity of the feature or landscape character with the magnitude of impact.

Consideration of the sensitivity of the landscape resource against the magnitude of impact caused by the proposal is fundamental to landscape and visual assessment and these two criteria are defined in more detail below.

16.2.6 Landscape Sensitivity

The determination of the sensitivity of the landscape resource is based upon an evaluation of each key element or characteristic of the landscape likely to be affected. The evaluation reflects such factors as its quality, value, contribution to landscape character and the degree to which the particular element or characteristic can be replaced or substituted.

For the purpose of this assessment, landscape quality is categorised as:-

- **Very High:** Areas of especially high quality acknowledged through designation as Areas of Outstanding Natural Beauty (AONB) or other landscape based sensitive areas. These are of landscape significance within the wider region or nationally;
- **High Quality:** Areas that have a very strong positive character with valued and consistent distinctive features that gives the landscape unity, richness and harmony. These are of landscape significance within the district;
- **Medium Quality:** Areas that exhibit positive character but which may have evidence of alteration/degradation or erosion of features resulting in a less distinctive landscape. These may be of some local landscape significance with some positive recognisable structure; and
- **Low Quality:** Areas that are generally negative in character, degraded and in poor condition. No distinctive positive characteristics and with little or no structure. Scope for positive enhancement.

As previously discussed, landscape sensitivity is influenced by a number of factors including value, condition and the type of change brought about by the proposal. In order to assist with bringing these factors together the following five point scale has been used as presented in **Table 16.1**. The table defines the criteria that have guided the judgement as to the Sensitivity of the Landscape Resource.

Table 16.1: Landscape Sensitivity

| Definition | | Sensitivity |
|---|---|-------------|
| Landscape Resource Sensitivity | Landscape Resource Value | |
| Exceptional landscape quality, no or limited potential for substitution. Key elements / features well known to the wider public. Little or no tolerance to change. | Nationally / internationally designated/ valued landscape, or key elements or features of national / internationally designated landscapes. Little or no tolerance to change | Very High |
| Strong / distinctive landscape character; absence of landscape detractors. Low tolerance to change. | Regionally / nationally designated / valued countryside and landscape features. Low tolerance to change. | High |
| Some distinctive landscape characteristics; few landscape detractors. Medium tolerance to change | Locally / regionally designated / valued countryside and landscape features. Medium tolerance to change | Medium |
| Absence of distinctive landscape characteristics; presence of landscape detractors. High tolerance to change | Undesignated countryside and landscape features. High tolerance to change | Low |
| Absence of positive landscape characteristics. Significant presence of landscape detractors. High tolerance to change | Undesignated countryside and landscape features. High tolerance to change | Negligible |

16.2.7 Magnitude of Landscape Impacts

Direct resource changes on the landscape character in the study area are brought about by the introduction of the proposal and its impact on the key landscape characteristics. The categories and criteria used are given in **Table 16.2** below:-

Table 16.2: Magnitude of Landscape Impact

| Definition | Magnitude |
|--|------------|
| Total loss or addition or/ very substantial loss or addition of key elements / features / patterns of the baseline, i.e., pre-development landscape and/ or introduction of dominant, uncharacteristic elements with the attributes of the receiving landscape. | Large |
| Partial loss or addition of or moderate alteration to one or more key elements / features / patterns of the baseline, i.e., pre-development landscape and / or introduction of elements that may be prominent, but may not necessarily be substantially uncharacteristic with the attributes of the receiving landscape. | Medium |
| Minor loss or addition of or alteration to one or more key elements / features / patterns of the baseline, i.e., pre-development landscape and or introduction of elements that may not be uncharacteristic with the surrounding landscape. | Small |
| Very minor loss or addition of or alteration to one or more key elements / features / patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating to a 'no-change' situation. | Negligible |
| No loss, alteration or addition to the receiving landscape resource. | No change |

16.2.8 Visual Impact Assessment

The assessment of effects on views is an assessment of how the introduction of the proposal will affect views throughout the study area. Assessment of visual effects therefore needs to consider:-

- Direct impacts of the proposal upon views of the landscape through intrusion or obstruction;
- The reaction of viewers who may be affected, e.g., residents, walkers, road users; and
- The overall impact on visual amenity.

Viewpoints have been selected to meet the following criteria, with locations illustrated on **Figure 16.2:-**

- A balance of viewpoints from where main direction of view is towards the proposed road project;
- A range of views of the proposed road project covering the extent of the study area ZTV. Selected viewpoints have all been located within the study area associated with the proposed road project;
- A proportion representing areas known to be available to the community where people may frequently congregate; and
- Locations of interest, e.g., settlements; amenity or recreation areas.

16.2.9 Photographs, Photomontages and Zone of Theoretical Visibility (ZTV)

As the site survey for the proposed road project was limited to the footprint and immediate surrounds of the site it was necessary to acquire additional elevation data from the OSI to include all viewpoint locations selected for photomontage. Enhanced digital terrain model (DTM) was chosen for this purpose. A digital terrain model was prepared for the entire visual study area with a simplified 3D model of the proposed M28 Road Project for use in the field. Viewpoint locations were selected by RPS landscape architects in consultation with the Cork County Council, the EIS co-ordinator and RPS design engineers. This included a detailed map with reference photography. In selecting the viewpoint locations, issues raised by the public during the consultation events were also taken into consideration.

The photographer was equipped with a professional level SLR camera (Canon 5D Mark II). Specifically to meet the requirements of best practice this houses a full frame sensor and is fitted with a 50mm lens. A specialised panoramic head was fitted to the camera tripod for those viewpoints adjacent to the site. This enables the capture of multiple photographs in a linear sequence for the preparation of a panoramic image. Such imagery is required to include sufficient landscape context to depict the entire proposed road project at close quarters. A mapping grade GPS (Trimble GeoXH) was used to record the precise coordinate position of the camera at each viewpoint (details below). This offers corrected accuracy typically in the range of +/- 30cm in the xy plane. In addition the photographer had all necessary information per viewpoint to capture the correct photographic detail – viewpoint map, photographic reference, Google Earth with a KMZ model of the proposed road project (laptop), interactive topographic model of the proposed road project and surrounding terrain (laptop). All photography was captured at a focal length of 50mm in RAW format for post-processing. The camera was consistently set up at 1.7m above ground level at each viewpoint location. The photography was captured in the clearest possible weather in the available time frame. This saw a mixture of broken cloud with sunny spells.

A completed 3D model of the proposed M28 Road Project was provided. A full specification of finishes, textures and colours was provided in addition to reference photography and previous high quality renders. The photomontage team utilised all of the above to prepare a finished textured 3D model of the final design in 3D Studio Max.

The information captured at each viewpoint location was used to simulate a replica camera view in the 3D environment: Easting (*from GPS*); Northing (*from GPS*); Elevation (*calculated from the Enhanced DTM data from OSI; GPS does not offer an accurate z-value reading*); Angle of View (*specific to focal length and camera sensor size*); Direction of View (*from GPS coordinate info*); Date (*from photography meta-data*); Time of Day (*from photography meta-data*); Weather Conditions (*from photography and recorded on site*).

Draft renders were output and integrated into the photography for review. This was an iterative process involving tweaks to textures and lighting. Upon sign-off a full set of final calibrated renders were prepared ready for integration into the photography. The final renders were integrated into the photography with masking aided by detailed street maps and Google Earth photography. The final set of renders were formatted at A3 (dimensions 36cm x 24cm) for a recommended viewing distance of 50cm.

The ZTV illustrates the extents from which a feature would theoretically be visible and defines the study area.

The ZTV maps do not take account of the orientation of a viewer, such as the direction of travel and there is no allowance for attenuation of visibility with distance, weather or light. A further assumption of the ZTVs is that climatic visibility is 100% (i.e. visibility is not impeded by moisture or pollution in the air). Climatic conditions inevitably reduce visibility with increasing distance from the proposed M28 Road Project.

These limitations mean that the ZTV maps tend to overestimate the extent of the influence on the landscape and visibility of the proposed development and they should be considered only as a tool to assist in assessing the theoretical visibility of developments and not a measure of the visual impact. Nevertheless ZTVs are a useful tool in representing the worst-case scenario when predicting the likely visibility of a development. They are particularly useful as a basis for selecting viewpoints where there may be significant impacts for which further assessment is required.

16.2.10 Visual Sensitivity

Visual sensitivity is defined with reference to the landscape sensitivity of the viewpoint location and the view. Other factors affecting visual sensitivity include:-

- The location and context of the viewpoint;
- The expectations and occupation or activity of the receptor; and
- The importance of the view.

Although the interpretation of viewers' experience can have preferential and subjective components, there is generally clear public agreement that the visual resources of certain landscapes have high visual quality.

Viewer sensitivity, as set out in **Table 16.3** below, is a combination of the sensitivity of the human receptor (for example resident, commuter, tourist, walker, recreationist or worker, and the numbers of viewers affected) and viewpoint type or location (for example house, workplace, leisure venue, local beauty spot, scenic viewpoint, commuter route, tourist route or walkers' route).

Table 16.3: Viewer Sensitivity

| Definition | | Sensitivity |
|---|--|-------------|
| Visual Resource Sensitivity | Visual Resource Value | |
| Views of remarkable scenic quality, of and within internationally designated landscapes or key features or elements of nationally designated landscapes that are well known to the wider public. Little or no tolerance to change. | Observers, drawn to a particular view, including those who have travelled from around Ireland and overseas to experience the views. Little or no tolerance to change. | Very High |
| Views from residential property. Public rights of way, National Trails, long distance walking routes and nationally designated countryside/ landscape features with public access. Low tolerance to change. | Observers enjoying the countryside from their homes or pursuing quiet outdoor recreation are more sensitive to visual change. Little tolerance to change. | High |
| Views from local roads and routes crossing designated countryside / landscape features and 'access land' as well as promoted paths. Medium Tolerance to change. | Observers enjoying the countryside from vehicles on quiet/promoted routes are moderately sensitive to visual change. Medium tolerance to change. | Medium |
| Views from work places, main roads and undesignated countryside / landscape features. High tolerance to change. | Observers in vehicles or people involved in frequent or infrequent repeated activities are less sensitive to visual change. High tolerance to change. | Low |
| Views from within and of undesignated landscapes with significant presence of landscape detractors. High tolerance to change. | Observers in vehicles or people involved in frequent or frequently repeated activities are less sensitive to visual change. High tolerance to change. | Negligible |

16.2.11 Magnitude of Visual Impacts

The magnitude of impact on the visual resource results from the scale of change in the view, with respect to the loss or addition of features in the view, and changes in the view composition. Important factors to be considered include: proportion of the view occupied by the proposal, distance and duration of the view. Other vertical features in the landscape and the backdrop to the proposal will all influence resource change. Magnitude of visual impact is defined in **Table 16.4**.

Table 16.4: Magnitude of Visual Impact

| Definition | Magnitude |
|---|------------|
| Complete or very substantial change in view dominant involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g., through removal of key elements | Large |
| Moderate change in view: which may involve partial obstruction of existing view or partial change in character and composition of baseline, i.e., pre-development view through the introduction of new elements or removal of existing elements. Change may be prominent, but would not substantially alter scale and character of the surroundings and the wider setting. Composition of the view would alter. View character may be partially changed through the introduction of features which, though uncharacteristic, may not necessarily be visually discordant | Medium |
| Minor change in baseline, i.e., pre-development view - change would be distinguishable from the surroundings whilst composition and character would be similar to the pre change circumstances. | Small |
| Very slight change in baseline, i.e., pre-development view - change barely distinguishable from the surroundings. Composition and character of view substantially unaltered. | Negligible |
| No alteration to the existing view | No change |

16.2.12 Significance of Effects

The purpose of this LVIA is to determine, in a transparent way, the likely significant landscape and visual effects of the proposal. It is accepted that, due to the nature and scale of proposed road project, the proposal could potentially give rise to some notable visual and landscape effects.

GLVIA3 identifies that *‘The Regulations require that a final judgment is made about whether or not each effect is likely to be significant. There are no hard and fast rules about what effects should be deemed ‘significant’ but LVIA’s should always distinguish clearly between what are considered to be significant and non-significant effects’.*

Significance can only be defined in relation to each particular development and its specific location. The relationship between receptors and effects is not typically a linear one. It is for each LVIA to determine how judgements about receptors and effects should be combined to derive significance and to explain how this conclusion has been arrived at.

As a general guide it is considered that the following are likely to be considered effects of the greatest significance:-

- Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes; or
- Irreversible negative effects on people who are particularly sensitive to changes in view, on recognised and important viewpoints or scenic routes, large-scale change which introduces non-characteristic, discordant or intrusive elements into the view.

The identification of significant effects would not necessarily mean that the effect is unacceptable in planning terms. What is important is that the likely effects on the landscape and visibility are transparently assessed and understood in order that the determining authority can bring a balanced, well-informed judgement to bear when making the planning decision.

The significance of effects on landscape, views and visual amenity are evaluated according to a six-point scale: Substantial, Major, Moderate, Minor, Negligible or None.

For those effects indicated as being Moderate to Major the assessor will exercise professional judgement in determining if the effect is considered significant.

For the purposes of this assessment those effects indicated as being of Substantial, Major to Substantial are considered significant as highlighted in **Table 16.5**, below. Effects of 'Moderate' and lesser significance have been identified in the assessment, but are not considered significant upon the character and quality of the landscape and on views although they remain worthy of consideration throughout the decision making process.

Table 16.5: Significance of Effects Matrix

| Magnitude of Impact | Sensitivity | | | | |
|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|
| | <i>Negligible</i> | <i>Low</i> | <i>Medium</i> | <i>High</i> | <i>Very High</i> |
| No Change | None | None | None | None | None |
| Negligible | Negligible | Negligible to Minor | Negligible to Minor | Minor | Minor |
| Small | Negligible to Minor | Negligible to Minor | Minor | Minor to Moderate | Moderate to Major |
| Medium | Negligible to Minor | Minor | Moderate | Moderate to Major | Major to Substantial |
| Large | Minor | Minor to Moderate | Moderate to Major | Major to Substantial | Substantial |

Change can be adverse or beneficial. A conclusion that an effect is 'significant' should not be taken to imply that the proposal is unacceptable. Significance of effect needs to be considered with regard to the scale over which it is experienced.

16.2.13 Landscape & Visual Assessment Definitions

The following provides a list of landscape and visual definitions for the terms used within this assessment:-

- **Landscape Capacity:** The capacity of a particular type of landscape to absorb change without unacceptable adverse effects on its character;
- **Landscape Character Area:** Distinct types of landscape which are generic in character in that they may occur in different parts of the country, but wherever they are they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern. Landscape character area (LCA) names are generic, for example 'upland hills', 'river valley' and 'urban landscape';

- **Landscape Fabric:** Is the physical pattern of elements and features such as vegetation, landform and land use that combine to create landscape character. The effects of a development on landscape fabric are those that alter the physical pattern of elements. These effects are restricted to the landscape within which the proposal is located as it is within this area that the physical pattern will alter, for instance through loss of vegetation, re-contouring or changes to land use;
- **Landscape Quality (or Condition):** Is based on judgements about the physical state of the landscape, and about its intactness, from visual, functional, and ecological perspectives. It also reflects the state of repair of individual features and elements which make up the character in any one place;
- **Landscape Resource:** The combination of elements that contribute to landscape context, character and value;
- **Landscape Value:** The importance attached to a landscape (often as a basis for designation or recognition) that expresses national or local consensus, because of its quality, cultural associations, scenic or aesthetic characteristics;
- **Sensitivity:** Vulnerability of a sensitive receptor to change;
- **Sensitive Receptor:** Physical or natural resource, special interest or viewer group or observer that will experience an impact;
- **Magnitude:** Size, extent and duration of an impact;
- **Visual Amenity:** The value of a particular area or view in terms of what is seen;
- **Visual Character:** When a viewer experiences the visual environment, it is not observed as one aspect at a time, but rather as an integrated whole. The viewer's visual understanding of an area is based on the visual character of visible features and aspects and the relationships between them. The visual character is descriptive and not evaluative;
- **Visual Effect:** Is a change to an existing view as a result of development or the loss of particular landscape elements or features already present in the view;
- **Visual Resources:** The visual resources of the landscape are the stimuli upon which actual visual experience is based. They are a combination of visual character and visual quality;
- **Visual Quality:** Although the interpretation of viewers' experience can have preferential and subjective components, there is generally clear public agreement that the visual resources of certain landscapes have high visual quality. The visual quality of a landscape will reflect the physical state of individual features or elements. Due to the subjective value of the evaluation there is no comprehensive official process for identifying visual quality. The visual quality of this evaluation has been carried out by one Chartered Landscape Architect and verified by another; and
- **Zone of Theoretical Visibility (ZTV):** This represents the area over which a development could theoretically be seen. The ZTV usually presents a 'bare ground' scenario – i.e. a landscape without screening structures or vegetation.

16.3 RECEIVING ENVIRONMENT

16.3.1 Scale and Character

The proposed M28 Road Project extends from the Douglas area southeast of Cork City to immediately east of the village of Ringaskiddy and follows the corridor of the existing N28.

To the east lies Ringaskiddy that is a designated Strategic Employment Area under the Cork CDP, 2014-2020 which is reflected by the quantity and frequency of industrial plants in the landscape around the village. The Port of Cork terminal is also located in Ringaskiddy which operates as a cargo and ferry port linking Ireland to the UK and France. The character of Ringaskiddy is strongly influenced by the industrial uses including a number of tall wind turbines. The scale of this landscape is broad as the harbour is wide and opens up the landscape between adjacent hills.

To the west lies Cork City with the urban areas of Douglas, Rochestown and Donnybrook on the south side of the River Lee. These urban areas are predominantly residential in character with the majority of houses being two storey. The scale of this landscape is enclosed due to the proximity of built form and trees and vegetation.

The majority of the proposed M28 Road Project crosses a landscape that comprises undulating agricultural land which is predominantly open grasslands with frequent rounded and small hills. The undulating nature of this landscape results in lower parts of the landscape being enclosed but with wider views available from taller hilltops.

The existing N28 is a busy road for commuters travelling to and from Cork City as well as for port and industrial traffic travelling to and from the Ringaskiddy area. The existing road broadly follows the contours of the landscape as it meanders from the City to Ringaskiddy. The existing road is not prominent in views from the wider landscape as it appears to quickly merge with either adjacent urban development or with trees, hedgerows and hillsides in the undulating agricultural landscape.

Given the context of the scale and character of the landscapes within the study area of this proposal it is anticipated that there will be potential views available from a range of locations within the ZTV including:-

- Douglas and Rochestown areas;
- Cobh to the northeast;
- Monkstown to the north;
- Haulbowline to the northeast;
- Carrigaline from properties on its northern most parts adjacent to the R611;
- Shannonpark and Shanbally areas;
- Scattered dwellings along the adjacent road network; and
- Ringaskiddy village from southern and eastern parts.

A series of viewpoint locations have been chosen to represent the potential views listed above as illustrated in **Figure 16.2** in **Volume 5**.

16.3.2 Landscape Character

The proposed M28 Road project extends from the Douglas area of Cork City to immediately east of the village of Ringaskiddy and follows the corridor of the existing N28. With reference to the Cork CDP 2014-2020 - Appendix E: Landscape Character Assessment of County Cork, the proposed road project is located directly within the City Harbour and Estuary Landscape Character Type. As this LCT is based on a general categorisation of Cork County landscapes as part of the landscape and visual impact assessment of the proposed M28 Cork to Ringaskiddy Motorway Project a landscape character assessment has been completed to further refine the broad City Harbour and Estuary LCT and the the landscape character of the study area can be described by use of the following distinctive landscape character areas (which are illustrated in **Figure 16.3** in **Volume 5**).

Estuarine Harbour-Based Industrial and Maritime Landscape

This landscape character area is concentrated mainly on low-lying parts of the landscape at the edge of Cork Harbour, but also expands to the adjacent hillsides. Many of the industrial sites are located historically at the water's edge for operational purposes but many modern industrial sites have been constructed around the village of Ringaskiddy. The industrial sites are located at Ringaskiddy are mainly pharmaceutical plants. Haulbowline Island has its naval activities and former Irish Steel East Tip site (under remediation). The Rushbrooke (Cork Dockyard) with its tall cranes at the entrance to Passage West are prominent feature of the harbour. Aghada and Whitegate (electricity generating station, and oil refinery are located further to the east in the harbour. Spike Island with its star fort is located just east of Ringaskiddy and is promoted as a tourist destination.

The value of this landscape is mainly economic, due to its industrial nature. This is a generally robust changing landscape. The industrial landscapes around the existing Cork Harbour and reclaimed lands are generally of low visual quality with frequent industrial type buildings and equipment and vacant lands. Recently the erection of wind turbines has altered the landscape character of the Cork Harbour at Ringaskiddy and the wind turbines are visible over a wide area and are the tallest features in the landscape.

Haulbowline Island is located to the north and the topography of the island site is generally flat in the centre with undulations to the western and eastern most edges. The naval base buildings offer screening in views to the west but the east side of the island is open to views to the northeast and south. The eastern side of the island is known as East Tip and consists of the brownfield site of the former Irish Steel plant. Views from the island are available towards Ringaskiddy and to the proposed M28 Road Project.

Spike Island is located to the east and consists of a rounded hill topography dominated by the former star fort. The buildings offer screening in views to the east but the west side of the island is open to views to the west towards Ringaskiddy and the proposed M28 Road Project.

Overall this landscape character area has a low sensitivity to change.

Harbour Edge Town Centre and Undulating Residential Townscape

Town centres such as Ringaskiddy, Monkstown, Cobh and Passage West are all located at the waterside of Cork Harbour. The residential areas of these towns have spread outwards along the harbour. Monkstown, Cobh and Passage West have also extensively spread onto the surrounding hillsides, with Cobh continuing to expand on to the higher parts of the hill on which it is located. The towns have a scenic value due to their location on the harbour. This value is expressed by the designations of scenic landscapes and scenic routes. These towns also have recreational value in the form of town parks or walking trails.

Cobh is located to the north of the proposed site and is a significantly larger settlement than Ringaskiddy and has an important tourist industry and acts as a satellite town for Cork City. Cobh has a number of structures recorded for protection. These structures give Cobh a high scenic value. Due to Cobh's history it attracts many visitors and has a high recreational value. Large cruise liners regularly berth at Cobh from where tourists can explore Cobh and the wider Cork City area. The topography at Cobh rises steeply from the shoreline with stepped terraces of houses that broadly follow the contours with direct views across the harbour. Cobh harbour provides ferries to Spike Island. There are potential views southwest from Cobh towards the proposed M28 Road Project.

Monkstown is located to the northwest of Ringaskiddy and like Cobh has grown up the steep hillsides that surround Cork Harbour with distinctive terraces and occasional church spire breaking the skyline. Due to the terraced nature of the settlement there are potential views across to Monkstown Creek and the harbour towards the proposed M28 Road Project.

Shanbally is a smaller settlement immediately west of Ringaskiddy and south of Monkstown Creek and located at a cross road on the existing N28. The village consists of mostly rendered two storey dwellings but also has a school and church that face onto the existing N28 road. The settlement is enclosed by adjacent topography and trees with few views out to the surrounding landscape.

Rochestown lies east of the existing N28 and is defined to the north by the R610 coast road that follows the shore line of the River Lee. Built urban form extends south on rising topography that affords properties views across the river to the north. In recent times more extensive housing estates have been developed further south and along the existing N28 road corridor. Houses are predominantly two storey in height and of mixed construction types and architectural design.

Douglas lies west of the existing N28 and like Rochestown also follows the R610 road on lower lying topography but rises to the south with longer range view to the north available from properties towards the River Lee. Houses are predominantly two storey in height and of mixed construction types and architectural design.

Carrigaline lies south of the existing N28 and extends to the shoreline of Cork Harbour. The town acts as a commuter town for Cork but has a thriving commercial centre and extensive housing estates particularly on the north side of the town. Housing is predominantly two storey in height and modern in style.

Ringaskiddy Village sits on the existing N28 and is now positioned in a landscape that has become industrialised through the growth of the port and surrounding pharmaceutical industries. The village essentially consists of housing with limited commercial premises. The housing spreads across steep slopes that offer views towards the harbour.

This landscape character area has a medium sensitivity to change.

Undulating Agricultural Patchwork Landscape

The undulating agricultural landscape is a landscape found over a wide area south and southeast of Cork City and comprises agricultural fields, and meadows, hedgerows as field boundaries, rural houses, farm complexes etc. It also comprises protected structures scattered across the landscape. This landscape extends inland from the River Lee and Harbour's edge and is strongly undulating in nature. This landscape is frequently heavily influenced by adjacent urban and industrial land uses in proximity to the settlements but also along the existing N28 corridor that crosses the landscape largely located in hollows between the hills as it meanders from Cork to Ringaskiddy. A large hard rock quarry, golf course and a dismantled railway line are all located within this landscape between Shannonpark and Shanbally. Tall electricity towers cross this landscape west of Shanbally and towards Monkstown. At Barnahely south of Ringaskiddy and east of the R613 lies the site of a castle in ruins known as Castle Warren (full details are provided in Cultural Heritage **Chapter 15** of the EIS).

This landscape character area has a medium sensitivity to change.

16.3.3 Planning Designations

County Cork Development Plan (CDP) 2014- 2020

A review took place of the landscape policies and objectives of the Cork CDP 2014-2020. The Cork CDP 2014-2020 states the following objectives regarding landscape, scenic amenity views and prospects:

County Development Plan Objective GI 6-1: Landscape

- a) Protect the visual and scenic amenities of County Cork's built and natural environment;
- b) Landscape issues will be an important factor in all land use proposals, ensuring that a proactive view of development is undertaken while maintaining respect for the environment and heritage generally in line with the principle of sustainability;
- c) Ensure that new development meets high standards of siting and design;
- d) Protect skylines and ridgelines from development; and
- e) Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.

County Development Plan Objective GI 7-1: General Views and Prospects: preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountains, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty as recognized in the Draft Landscape Strategy.

County Development Plan Objective GI 7-2: Scenic Routes: Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this plan. The scenic routes identified in this plan are shown on the scenic amenity maps listed in Volume 2 Chapter 5 Scenic Routes of the plan.

County Development Plan Objective GI 7-3: Development on Scenic Routes

- a) Require those seeking to carry out development in the environs of a scenic route and/or an area with important views and prospects, to demonstrate that there will be no adverse obstruction or degradation of the views towards and from vulnerable landscape features. In such areas, the appropriateness of the design, site layout, and landscaping of the proposed development must be demonstrated along with mitigation measures to prevent significant alterations to the appearance or character of the area.
- b) Encourage appropriate landscaping and screen planting of developments along scenic routes.

County Development Plan Objective GI 7-4: Development on the Approaches to Towns and Villages: Ensure that the approach roads to towns and villages are protected from inappropriate development, which would detract from the setting and historic character of these settlements.

County Development Plan Objective GI 8-1: Prominent and Strategic Metropolitan Greenbelt Areas Requiring Special Protection: Protect those prominent open hilltops, valley sides and ridges that define the character of the Metropolitan Cork Greenbelt and those areas which form strategic, largely undeveloped gaps between the main Greenbelt settlements. These areas are labelled MGB1 in the Metropolitan Greenbelt map and it is an objective to preserve them from development.

Table 16.6: Designated Scenic Landscapes and Scenic Routes in Study Area

| Designation | Location |
|--|--|
| High Value Landscape | Monkstown |
| High Value Landscape | Great Island |
| High Value Landscape | Spike Island |
| High Value Landscape | Haulbowline Island |
| High Value Landscape | Barnahely |
| Scenic Route S53 | R624 Regional Road, between Cobh and Belvelly - Views of the Upper Harbour and coastal environment. |
| Scenic Route S54 | R610 Regional Road, Local Road & N28 National Primary Route between Passage West and Ringaskiddy - Views of the Harbour. |
| Scenic Route S59 | R612 Regional Road & Local Roads between Crosshaven and Myrtleville, Church Bay, Camden, Weavers Point and Fountainstown - Views of the sea & coastal landscape. |
| City Harbour and Estuary Landscape Character Type- Very High Value & Sensitivity | Entire Cork City, Harbour and Estuary. |

Other Designations

Other designations include proposed NHAs, SPAs, and SACs. Potential impacts of the proposed road project on these designated sites in the Study Area are discussed in **Chapter 12: Terrestrial Ecology** of this **EIS** and not in this Landscape and Visual Chapter. Potential impacts of the proposed road project on designations for cultural heritage features are discussed in **Chapter 15: Cultural Heritage**.

Trees

The CDP 2014-2020, Objective HE 2-5: Trees and Woodlands seeks to protect trees and groups of trees. It is an objective to preserve and enhance the general level of tree cover in both town and country, to ensure that development proposals do not compromise important trees and include an appropriate level of new tree planting and where appropriate to make use of tree preservation orders to protect important trees or groups of trees which may be at risk or any tree(s) that warrants an order given its important amenity or historic value. See also Objective GI 6-1: Landscape (e) above - Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.

Landscape Character

A landscape character assessment of County Cork was undertaken in 2003 using a methodology that followed the Landscape Assessment Guidelines issued by the Department of the Environment and Local Government. The process involved the identification and integration of physical units and visual units, utilising photography, GIS, contour mapping, etc. The Landscape Character Areas were identified and refined to 16 Landscape character types (LCT), where the primary elements of landform and land cover were similar. Mapping, panoramic photography and an outline description of the 16 landscape character types were provided within the assessment. Key diagrams from the document are illustrated on the following pages: Landscape Character Assessment Strategy; Landscape Character Areas for County Cork; and Landscape Character Types for County Cork. The CDP states that the 16 LCT's provide a general categorisation of Cork County landscape character.

The Landscape Character Area (LCA) identified for Cork City environs was Cork City and Harbour LCA. This LCA was refined as City Harbour & Estuary landscape character type. It is bounded to the south by indented Estuarine Coast of Crosshaven and Roberts Head; to the south-west by Rolling Patchwork Farmland of Belgooly. To the west lies Broad Fertile Lowland Valleys of Enniskeane, Bandon, Ballinhassig and the River Bride. Fissured Fertile Middleground lies to the north, comprising of Donoughmore and Watergrass Hill. Broad Fertile Lowland Valleys of Castlemartyr and Cloyne lie to the east of the City Harbour and Estuary. The south-eastern edge is identified as Broad Bay Coast. The key characteristics of the City Harbour and Estuary Character Type are:-

- Mouth of the River Lee;
- Extensive natural harbour
- Urban, industrial and commercial developments;
- Large islands; and
- Estuarine River.

The overall City Harbour & Estuary landscape is described as a balance of intensive urban form, rural character and seascape. It has been stated as having a high landscape value and as having a very high landscape sensitivity. The CDP states that large scale development must be carefully located to avoid being highly obtrusive.

16.4 POTENTIAL IMPACTS

16.4.1 Construction Phase

During the construction phase potential impacts include:-

- Site preparation/enabling works and operations including temporary stockpiles;
- Compound location;
- Removal of existing trees and woodlands;
- Site infrastructure and access for construction traffic;
- Haul route traffic;
- Vehicular and plant movements including earthworks;
- Use of crushing and screening plant at the existing quarry site. Any quarrying of material will be done in accordance with the existing planning permission; and
- Dust emissions.

Chapter 3: Description of Proposed Road Development of the EIS describes the construction methods proposed in detail. The works are anticipated to be 30 – 36 months in duration. Works will be potentially visible from within the ZTV during this phase to a varied extent that will be related to the individual construction activity at any given time. It is anticipated that the majority of the material deficit will be obtained from Raffeen Quarry. The route of the proposed road passes through the southern part of the quarry. The quarry has planning permission to resume material extraction, obtained on 16th July 2008 under Reg. Ref. 06/10037 and PL. 04.225610. This planning permission is valid for a 30 year period. This quarry is well screened from surrounding properties and existing roads and no significant landscape or visual impacts are predicted for its use during the construction stage.

Elsewhere ground level views of the site activities will be restricted by extensive built form at Douglas and Rochestown and intervening strong topography and vegetation in rural areas that will limit the extent of potential impacts to localised areas in close proximity. However due to the existing topographical characteristics of the undulating agricultural landscape the proposed construction site will have potential to be more visible to the wider surrounding landscape from elevated properties and roads.

As described in **Chapter 3: Description of the Proposed Road Development** of this EIS a site for the construction stage compound have been identified has been identified at the proposed Shanbally Interchange within the footprint of the proposed road development.

During the construction stage, the main visual receptors to be impacted will be the residents located directly adjacent to the construction works from Ch. 0 - 1,600 West Side; Ch. 250 - 2,000 East Side; residents in properties either side of Shannonpark roundabout from Ch. 6,000 - 6,500 both sides; residents in properties on the southern side of Shanbally between Ch. 9,000 - 10,000; residents in properties on the southern and eastern side of Ringaskiddy village. Associated activities include the increase in construction traffic (mainly HGV) on local roads and loss of screening vegetation. Properties at close proximity to the proposed road development will have Moderate to Major visual impact when construction activities are in close proximity and short term in duration.

Other identified wider sensitive visual receptors will be less impacted, due to a combination of the large distance between proposed construction works and receptors and/or the intervening built form and topography of the landscape.

Within the wider landscape impacts during the construction phase will be Minor to Moderate negative due to limited influence the construction works will have on the landscape, its phased/sequenced construction and the duration of the works at any given location.

The construction stage of the proposed Service Area will be located within an existing harbour industrial area that is in a constant state of flux with large HGVs coming and going from the harbour. The proposed site is set back from the existing N28 road in a flat landscape and these factors will prevent significant landscape or visual impacts in the Ringaskiddy area. The predicted visual effect for elevated properties in Ringaskiddy with a view north towards the construction site will be Minor to Moderate. No significant landscape effects are predicted for the proposed Service Area during the construction stage.

16.4.2 Operational Phase

The proposed M28 Road Project will result in new built elements in the local landscape albeit partly directly along an existing road corridor. The principal sources of impact of such a development include:-

- i. Disturbance from traffic during operation.
- ii. Imposition of new features in the landscape.

The following features have been taken into account during the prediction of impacts; the level of new roads, side roads; junctions or structures; road signs; lighting; traffic on road including headlight glare, loss of trees and relocation of pylons at Shanbally.

Landscape Character Area Impacts

With reference to the Cork CDP 2014-2020 - Appendix E: Landscape Character Assessment of County Cork, the proposed road project is located directly within the City Harbour and Estuary Landscape Character Type. As this LCT is based on a general categorisation of Cork County landscapes as part of the landscape and visual impact assessment of the proposed M28 Cork to Ringaskiddy Motorway Project a landscape character assessment has been completed to further refine the broad City Harbour and Estuary LCT and the following landscape/townscapes have been identified and are located directly within the proposed road project; Undulating Agricultural Patchwork Landscape; the Harbour Edge Town Centre & Undulating Residential Townscape; and Estuarine Harbour Based Industrial & Maritime Landscape.

Undulating Agricultural Patchwork Landscape

This landscape character area extends inland from the harbour's edge and is of an undulating nature. The proposed road project is directly located within this landscape character and there will be direct impacts as result. The proposals will result in a new road with embankments, cuttings and structures that will alter this landscape permanently. While the proposed road project does follow a similar corridor to the existing N28 it will result in a new feature in this landscape. The existing N28 is noticeable but not a prominent feature in the wider context of this landscape, but locally it is

prominent. It is predicted that the proposed M28 Road Project will not be prominent widely across this landscape as this landscape, due to its undulating nature, has potential to quickly absorb changes with distance. The proposed M28 Road Project follows the local contours of the topography through large parts of this landscape. Locally however, the proposed road project will be prominent in the landscape where the profile of the new road is raised above local topography to form embankments for overbridges for example at Shannonpark; Shanbally; Warrens Cross Roads; and Old Post Office Road. A steep sided cutting across the local topography is also required between Ringaskiddy and the Martello Tower to the rear of properties at Martello Park. At Barnahely south of Ringaskiddy and east of the R613 lies the site of a castle in ruins known as Castle Warren. There is no public access to the castle and therefore no potential for visitor amenity impacts. The adjacent graveyard will not be directly affected and remaining walls and vegetation provides a buffer from the proposed road project. The former demesne at this location is now broken up and doesn't form a distinctive landscape feature. Effects on this protected structure are assessed in the Cultural Heritage **Chapter 15** of this EIS.

This landscape character area has a medium sensitivity to change.

The predicted change in landscape resource is large in proximity to the proposed route within 1km. Beyond this distance the landscape resource change will be Negligible.

When landscape impacts are assessed during the operational stage they will be Moderate to Major in proximity to the proposed M28 Road Project and Negligible to Minor adverse beyond 1km.

Harbour Edge Town Centre & Undulating Residential Townscape

This landscape character area is located around the edges of the Harbour and River Lee and its estuaries. The proposed road project is directly located within this landscape character at Douglas, Rochestown; Shanbally; and Ringaskiddy and there will be direct impacts as result. The existing N28 is a feature of the townscape at Douglas and Rochestown already and the proposed road project closely follows the alignment of the existing road. The proposed road project therefore modifies the appearance of an existing feature of the townscape in Douglas and Rochestown rather than introduces a completely new feature. Trees and woodland will however be lost along the boundaries of the existing N28 between Douglas and Rochestown with a large area of woodland lost at the area known locally as Mulcon Valley that will result in significant landscape effect at a local level. The proposed road project will introduce new roads to the Shanbally and Ringaskiddy townscapes on larger scale than adjacent local roads (with exception of the existing R613 and N28 crossed at Ringaskiddy). Roads are a feature in this wider townscape and the proposed road project is therefore in part consistent with this townscape area and this offsets the degree of landscape resource change. Local diversions to overhead electricity lines are required at Shanbally that will result in existing separate overhead lines on steel pylons and wooden poles being relocated. These features exist already in the landscape and as a result there will be no change in landscape resource. Both Monkstown and Cobh townscapes are not directly impacted and are both well separated from the proposed road project with no significant effects predicted. Carrigaline is similarly not directly impacted by the proposed road project and although the proposals will be visible from the northern edge of the settlement there will be alteration of the townscape character of the settlement and no significant effects are predicted.

This landscape character area has a medium sensitivity to change.

The predicted change in landscape resource is medium.

When landscape impacts are assessed during the operational stage will be Moderate adverse.

Estuarine Harbour Based Industrial & Maritime Landscape

This landscape character area is located at Ringaskiddy and the proposal is directly located within this landscape character. This landscape is robust and in a continual state of flux and change. This landscape has frequent large buildings and traffic coming and going from the port related industries and pharmaceutical factories in the Ringaskiddy area. The proposed road project crosses the existing N28. The existing N28 is a feature of this landscape. The proposed Service Area is located directly within this landscape. The proposed Service Area will be a new feature in this landscape but similar in scale and appearance to adjacent buildings. Traffic accessing the proposed Service Area will be similar to the traffic currently accessing the port area. Low levels of landscape resource change will therefore occur.

This landscape character area has a low sensitivity to change.

The predicted change in landscape resource is small.

When landscape impacts are assessed during the operational stage will be Negligible to Minor adverse.

Table 16.7: Summary of Landscape Character Impact Assessment

| Landscape Character Area | Impact Assessment |
|---|--|
| Undulating Agricultural Patchwork Landscape | Moderate/Major to Moderate adverse (within 1km of proposed road project) |
| Harbour Edge Town Centre & Undulating Residential Townscape | Moderate adverse |
| Estuarine Harbour Based Industrial & Maritime Landscape | Negligible to Minor adverse |

16.4.3 Planning Policy Designation Impacts

Cork County Development Plan (CDP) 2014-2020

Impacts on relevant designations contained within the Cork CDP2014-2020 are assessed below.

Scenic Route S53: The majority of this route (on the R624) is located on the west side of Great Island and therefore visually separated from proposed road project. On approaching Cobh the road does offer glimpse and direct views across the harbour to the proposed M28 Road Project at Ringaskiddy. The views from the R624 are from low lying positions. The proposals will be difficult to discern at this distance and with Haulbowline Island the main focal point in the foreground of views. The predicted significance of visual impact is no change.

Scenic Route S54: People driving the scenic route (on the R610) in the direction from Passage West to Monkstown will be looking in the direction of the proposed M28 Road Project but no views will be available due to intervening topography and built form at Shanbally, Ballintaggart and Ringaskiddy. The prominent tall electricity pylons and cranes at Rushbrooke and the existing port facilities and wind turbines will remain notable in the view from the R610 at these locations.

Drivers on the scenic route beyond Monkstown and at Monkstown Creek views will be completely screened.

From Monkstown Creek to Ringaskiddy the existing port facilities and adjacent industrial development is prominent in views and the scenic views are directed towards the harbour and Cobh and away from the proposed road project that is well screened by topography/vegetation apart from the short section to the rear of Martello Park. The proposed Service Area will be well screened in views. The predicted visual impact for the Scenic Route 54 is Negligible to Minor.

Scenic Route S59: People driving the scenic route from the R612 will not have views of the proposed road project due to intervening topography and the distance of view. The predicted visual impact for the Scenic Route 59 is no change.

Designated Scenic Landscapes: a series of scenic landscapes have been identified for protection by the Cork CDP 2014-2020 as listed in **Table 16.6** above. The proposed route does not directly or indirectly affect any of the designated scenic landscapes due to the separation distance of the proposed route from the scenic landscapes.

16.4.4 Visual Impacts on Residential Properties and Other Visual Receptors

An assessment has occurred within the ZTV to determine the magnitude of visual impact of the proposed road project during the operational stage on potential views from sensitive visual receptors including residential properties.

Ringaskiddy Residential Properties: A detailed visual impact assessment has been completed for properties at Ringaskiddy in proximity to the proposed M28 Road Project (see **Figures 16.4a to 16.4p**). Due to the location of the proposed road project on higher ground and south of Ringaskiddy the majority of the village will not have a potential view of the new road. The Service Area is located on lower lying ground between the village and the harbour and will be potentially visible from elevated properties in Ringaskiddy with views towards the harbour. In such views the Service Area will be noticeable but not prominent as it is well separated from the village and located within an area with similar built form and features that will offset its potential prominence. There will be some beneficial effects from the reduction in port traffic using the proposed M28 instead of the existing N28 through the village. Overall the predicted significance of visual impact is predicted as Minor to Moderate for the residential properties at Ringaskiddy (not covered by the detailed visual impact assessment in **Figure 16.4a to 16.4p**) with a view in the direction of the proposed road project.

Monkstown Residential Properties: The site of the proposed road project will not be visible from Monkstown. The new Service Area will be located in the view direction of elevated properties at Monkstown but the new facilities will be difficult to discern from existing visual clutter and buildings in the port area. Overall the predicted significance of visual impact is predicted as Minor for the residential properties at Monkstown with a view in the direction of the proposed M28 Road Project.

Cobh Residential Properties: The majority of the site of the proposed M28 road will not be visible from Cobh. Only the short section to the rear of Martello Park at Ringaskiddy will potentially be visible but at such long distances (>2km) the proposed cutting at this location will be very difficult to discern. The new Service Area will be located in the view direction of elevated properties at Cobh and from Whitepoint and Blackpoint at lower levels but the new facility will be difficult to discern from existing visual clutter and buildings in the port area. Overall the predicted significance of visual impact is predicted as Minor for the residential properties at Cobh with a view in the direction of the proposed M28 Road Project.

Douglas Residential Properties: A detailed visual impact assessment has been completed for properties at Douglas in proximity to the proposed M28 Road Project (see **Figures 16.4a to 16.4p**). Due to the location of the proposed M28 road within the urban built up form of Douglas the majority of the settlement will not have a potential view of the new road as views will be obstructed by neighbouring properties. To the south of Douglas the topography rises and some houses have glimpse views across rooftops towards the existing N28. In such views the proposed road project will be visible but there will be no significant change in visual resource for middle to long distance glimpse views. Full details of the visual impact assessment for Douglas is provided in **Figure 16.4a to 16.4p**) for those properties with a view in the direction of the proposed road project.

Rochestown Residential Properties: A detailed visual impact assessment has been completed for properties at Rochestown in proximity to the proposed road project (see **Figures 16.4a to 16.4p**). Due to the location of the proposed road project within the urban built up form of Rochestown the majority of the settlement will not have a potential view of the proposed M28 as views will be obstructed by neighbouring properties. As with Douglas to the south of Rochestown the topography rises and some houses have glimpse views across rooftops towards the existing N28. In such views the proposed M28 will be visible but there will be no significant change in visual resource for middle to long distance glimpse views. Full details of the visual impact assessment for Douglas is provided in **Figure 16.4a to 16.4p**) for those properties with a view in the direction of the proposed M28 Road Project.

Passage West Residential Properties: Properties at Passage West will have no direct views of the proposed road project due to the separation distance and topography and harbour side development located between the settlement and the proposed road project.

Shannonpark Residential Properties: Full details of the visual impact assessment for Shannonpark is provided in **Figure 16.4a to 16.4p**) for those properties with a view in the direction of the proposed road project.

Shanbally Residential Properties: Full details of the visual impact assessment for Shanbally is provided in **Figure 16.4a to 16.4p**) for those properties with a view in the direction of the proposed road project.

The location of all individual residential properties affected in close proximity to the proposed road project is illustrated in **Figure 16.4a to 16.4p** and details on impacts on individual properties in the absence of mitigation are summarised in **Table 16.8**. Specific Landscape Mitigation (SLM) has been identified in **Section 16.5** to address the significant impacts established.

Table 16.8: Visual Impact (Without Mitigation)

| Degree of Visual Impact | Number of Properties Before Mitigation |
|---|--|
| Major to Substantial Negative Visual Impact | 67 |
| Moderate to Major Negative Visual Impact | 193 |
| Minor to Moderate Negative Visual Impact | 364 |
| Minor | 294 |
| None | 100 |

Recreation and Amenity: there are two golf courses in close proximity to the proposed road project namely; Douglas Golf Club and Fernhill Golf Club and Country Club. Douglas Golf Club is located immediately west of the existing N28 and will have views towards the proposed road project opened through disturbance of existing roadside vegetation for a very small part of the extensive golfing facility. The predicted visual effect is moderate and not significant for users.

Fernhill Golf Club currently has no direct views of the existing N28 and will be located immediately south of the proposed road project where it crosses the existing quarry at Raffeen. The proposed road project will be a new but not overly prominent feature in the landscape immediately north of the golf course and the predicted visual effect is moderate and not significant for users.

There are two sport pitch facilities in proximity to the proposed road project namely; Shamrocks GAA Club, Shanbally and football pitches at Coolmore Close Shanbally. The GAA club pitches will be located north of the proposed road project with strong hedgerow and tree cover and separation distance in the land in between. The focus of users is on the pitch facility. The predicted visual effect is Minor and not significant.

The football pitches at Coolmore Close Shanbally are directly impacted by the proposed road project with one of two pitches to be acquired for the construction of the road. Alternative access will be provided to the retained pitch, car park and club house. The predicted visual effect is Moderate to Major and not significant as the main focus of users is on the pitch facility.

The Martello Tower at Ringaskiddy has accessed by a short footpath and overs elevated views over Cork Harbour and Estuary. Although the proposed road project is located immediately north of the Martello Tower and footpath it is located with a cutting and views to Cork Harbour and Estuary will remain uninterrupted with only road lighting and distant glimpse view of the Service Area available. The predicted visual effect is Minor to Moderate and not significant.

There is a graveyard immediately adjacent to the R613 at Ringaskiddy that will be located north of the proposed road project. The graveyard will not be directly affected and existing walls, fences and vegetation will provide a buffer from the proposed road project where it is closest to the graveyard and offset medium distance visibility to the east. The predicted visual effect is Minor to Moderate and not significant.

Rochestown Park Hotel is located immediately south of the existing N28 and the proposed road project. While alterations to the existing road will be visible from some locations within the hotel and grounds there is limited change in visual resource and the predicted visual effect is Minor to Moderate and not significant.

16.4.5 Viewpoint Assessment

A series of representative viewpoints have been selected from locations throughout the study area and photomontages prepared of the proposals and subjected to specific assessment below. The location of all viewpoints can be found on **Figure 16.2 (Volume 5)** and Photomontages are also included in **Volume 5**. A summary of the viewpoint assessment in the absence of mitigation is presented in **Table 16.9** below.

Viewpoint 1: View South-west from Rocky Island, Cork Harbour.

Viewpoint Description and Sensitivity

This viewpoint is located on the gravelled access pathway on the south-western corner of Rocky Island accessed from the L252. The viewpoint is located approximately 800m northeast of the route at its proposed junction with the L2545. The view is considered to be representative of views experienced by visitors to Rocky Island and oblique views from the adjacent L252 when travelling south.

The viewer sensitivity is considered to be high.

Existing View

The existing panoramic view available from this location is heavily influenced by large scale buildings and development associated with Cork Harbour. The majority of the visible built form is viewed below the well vegetated elevated land to the rear which forms a middle distance horizon. The National Maritime College of Ireland (NMCI) and Beaufort Research Buildings are visible to the left of the view, whilst cranes and industrial buildings associated with Cork Harbour are visible to the right of the view. The jetty and lifeboat training facility associated with the NMCI forms a point of interest within the foreground centre of the view. Martello Tower, visible to the centre left, buildings associated with Janssen Biological and the Beaufort Research Building punctuate the middle distance horizon, whilst pylons carrying high voltage cables and large scale lighting columns associated with the Port of Cork facility add further verticality within the view.

Predicted View

It is predicted that the route of the proposed road project will not be visible within the view due to screening effects provided by intervening built form and vegetation cover. The proposed Service Area will be partially visible at lower elevation beyond the jetty, though it will be read as part of the overall existing shoreline development. Proposed embankment cutting will be visible within a small portion of the view due to loss of existing vegetation and will be perceived as an alteration to the existing vegetated slopes forming the mid distance horizon.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be small, as the majority of the overall view available from this location will remain unaltered.

Significance of Visual Impact

The significance of visual impact is considered to be Minor to Moderate and not significant.

Viewpoint 2: View East from L2545 at Junction with N28.

Viewpoint Description and Sensitivity

This viewpoint is located on the footpath adjacent to the L2545 in proximity to its junction with the existing N28 and the access to Cork Ferry facility. The viewpoint is located approximately 500m west of the route at its proposed junction with the L2545. The view is considered to be representative of views currently experienced by road users on the L2545 and oblique views available to residential properties in the vicinity.

The viewer sensitivity is considered to be high for both road users and residential receptors.

Existing View

The existing, focused view is partially restricted by existing vegetation adjacent to the L2545. The existing tree line to the right of the view partially screens residential properties beyond, with canopies forming an elevated horizon line. Vegetation to the left of the view screens the adjacent port side development lands, whilst street lighting and lighting columns within adjacent port land add further verticality to the view. Existing industrial buildings are partially screened by vegetation at distance within the central portion of the view.

Predicted View

It is predicted that the proposed road project will be partially visible at distance only within the central portion of the view as a consequence of vegetation removal. Existing industrial buildings adjacent to the proposed route junction will become more visible within the view as a result of site clearance. It is considered that traffic utilising the proposed road project will be perceived within a minor portion of the view and will only be visible for a short duration.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be Negligible as the majority of the view will remain unaltered.

Significance of Visual Impact

The significance of visual impact is considered to be Minor and not significant for both road users and residential receptors.

Viewpoint 2a: View South from Old Post Office Road, Ringaskiddy.

Viewpoint Description and Sensitivity

This viewpoint is located adjacent to the access for the residential property 'Martello', which lies on the southern extent of Ringaskiddy. The viewpoint is located approximately 80m north of the proposed M28. The view is considered to be representative of views experienced by road users on the Old Post Office Road and residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high for both road users and residential receptors.

Existing View

The existing view is enclosed by existing vegetation adjacent to the Old Post Office Road, field boundary hedgerows associated with adjacent arable land and woodland screen planting. Existing vegetation cover provides an elevated horizon, perceived at middle distance. Rendered garden boundary walls associated with residential properties form visual contrast with the generally rural landscape beyond. Timber poles and pylons carrying overhead cables are prominent within and add verticality to the view.

Predicted View

It is predicted that embankments, noise barriers and overbridge will be visible at close distance within the view, located within the foreground arable field. Embankments associated with the route will form a visual barrier to woodland and vegetation beyond, whilst the rear of the proposed 3m high noise barrier will be visible across the top of the embankment. Bridge parapets associated with the crossing over the Old Post Office Road will be partially screened within the view by intervening roadside vegetation. New public lighting will draw attention to the proposed road project at night time.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant for both road users and residential receptors.

Viewpoint 3: View South from St. Carthage Place, Ringaskiddy

Viewpoint Description and Sensitivity

This viewpoint is located on the communal parking area at the western end of St. Carthage Place, which lies on the southern extent of Ringaskiddy. The viewpoint is located approximately 90m north of the proposed road project. The view is considered to be representative of views experienced by residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high.

Existing View

The existing view is generally open in nature, though partially restricted by trees and hedgerows forming boundaries to arable fields within the immediate foreground. More elevated arable land set within a strong framework of woodland and hedgerows forms the distant backdrop. Distant horizons within the central portion of the view are elevated by existing tree lines and woodland, whilst distant views to the left are screened by intervening woodland. The ridgeline of Ringaskiddy Lower Harbour National School is partially screened by intervening vegetation within the centre of the view. Timber poles and pylon carrying overhead cables are visible within the foreground and together with the wind turbine add verticality to the view.

Predicted View

It is predicted that embankments and noise barriers will be visible at close distance within the view. Embankments associated with the route re-alignment will form a visual barrier to lower elevated land within the central portion of the view, whilst more elevated arable land forming the distant horizon will remain visible. The rear of the proposed 3m high noise barrier will be visible across the top of the embankment.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be medium, as whilst the view is partially obstructed by new embankments they do not substantially alter the scale or character of the wider setting.

Significance of Visual Impact

The significance of visual impact is considered to be Moderate to Major, assessed as significant.

Viewpoint 4: View South from Marian Terrace, Shanbally

Viewpoint Description and Sensitivity

This viewpoint is located on the footpath adjacent to Marian Terrace, within a gated access driveway to an incomplete residential property. The viewpoint is located approximately 90m north of the proposed route and is considered to be representative of views experienced by road users travelling south on Marian Terrace and residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high.

Existing View

The representative view is restricted by the existing rendered wall associated with the driveway access to the incomplete residential property adjacent. Views south, along Marian Terrace, are available from this location, though are focused in nature by roadside vegetation and boundaries associated with residential properties to the south of this location. Arable land is visible above the gated access to the left of the view, though soon gives way to scrub vegetation on more elevated land which screens the Barnahely Electrical Substation beyond. Existing pylons and wooden poles carrying overhead cables are prominent within the view and together with the telecommunications mast add strong verticality to the view. New public lighting will draw attention to the proposed road project at night time.

Predicted View

It is predicted that embankments, noise barriers and bridge crossing will be visible at close distance within the view, located within the foreground arable field. Embankments associated with the route re-alignment will form a visual barrier to land beyond and will partially obscure wooden poles, pylons and telecommunication mast beyond. Local diversions to overhead lines on steel pylons and wooden poles will be required at this location but there will be little noticeable difference in the partial views available from this direction. The rear of the proposed 2m high noise barrier will be visible across the top of the embankment. Bridge parapets associated with the crossing over Marian Terrace will be partially screened within the view by intervening roadside vegetation.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant.

Viewpoint 4b: View South-east from Marian Terrace, Shanbally

Viewpoint Description and Sensitivity

This viewpoint is located adjacent to the screen gate, visible to the left of the previous view from adjacent to Marian Terrace. The viewpoint located approximately 90m north of the proposed route, has been orientated southeast and is considered to be representative of views experienced by residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high.

Existing View

The existing, whilst partially restricted by boundary access arrangements within the immediate foreground is comprised pastoral arable fields set at a slightly lower elevation within a strong framework of hedgerows, trees and scrub vegetation. Pastoral fields are visible at middle distance whilst the immediate foreground is comprised unmaintained private land associated with the incomplete residential property. Shanbally Health Centre is partially screened by existing intervening vegetation, whilst the rear of the Shanbally Grotto structure is visible above existing pastoral fields within the centre of the view. Existing pylons and timber poles carrying overhead cables are prominent within the view and together with the telecommunications mast add strong verticality to the view.

Predicted View

It is predicted that embankments and noise barriers will be visible at close distance within the view, located within the foreground arable field. Embankments associated with the proposed road project will form a visual barrier to land beyond and will partially obscure timber poles, pylons and telecommunication mast beyond. The rear of the proposed 2m high noise barrier will be visible across the top of the embankment. New public lighting will draw attention to the proposed road project at night time. The existing 110kv lines on wooden poles and steel pylons will be relocated at this location with the overhead line on wooden poles slightly closer to the viewer and the overhead line on steel pylons relocated further away from the viewer. Overall however the visibility of the overhead lines and supporting structures will be well screened by the proposed road embankments at this location with little noticeable difference in visibility of electricity infrastructure (see **Appendix 16A in Volume 5; Figure 1.5b**).

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant.

Viewpoint 5: View West from the existing N28

Viewpoint Description and Sensitivity

This viewpoint is located adjacent to the existing N28 corridor, east of the Shannonpark Roundabout junction with the R611 (Cork Road). The viewpoint is located approximately 90m east of the Shannonpark Roundabout and 120m north of the proposed M28 Road Project. The view is considered to be representative of views experienced by road users on the N28 and residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high for the close residential receptor and medium for road users due to influences exerted by the existing N28 corridor.

Existing View

The existing, generally panoramic view is partially restricted by mature planting within the immediate foreground, which screens land beyond. Land to the left of the view, beyond the residential property is generally open, rising pastoral land which screens views of arable land beyond.

The existing N28 road corridor dominates and focuses the view in the direction of travel (west). Visible land beyond the Shannonpark Roundabout is well vegetated, with mature trees extending the perceived horizon line. Glimpses of arable land set within a strong enclosing framework of hedgerows and woodland are available to the right of the view. Scattered residential properties are glimpsed within a small portion of the view amongst the mature planting to the left of the Shannonpark Roundabout. Lighting columns and road signage add verticality to the overall view, though are limited to the existing road corridor, whilst timber poles and pylons carrying overhead lines are largely absent from the view.

Predicted View

It is predicted that embankments and noise barriers will be visible at a variety of distances within the view. Embankments associated with the proposed road project will form a visual barrier to land beyond. Proposed 2.5m high noise barrier will be visible at higher elevation within the same portion of view, increasing screening of land beyond.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be high, as whilst the proposals are prominent they do not substantially alter the scale or character of the surroundings.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant for residential receptors and considered to be Moderate to Major and not significant for road users on the current N28 route.

Viewpoint 6: View South-west from existing N28 at junction with L6469

Viewpoint Description and Sensitivity

This viewpoint is located on the grassed verge adjacent to the existing N28 corridor at its junction with the L6469, north of the Shannonpark Roundabout. The viewpoint is located approximately 200m north of the Shannonpark Roundabout and 220m northeast of the proposed road project. The view is considered to be representative of views experienced by road users on the existing N28 and residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high for residential receptors within the immediate vicinity and medium for road users due to influences exerted by the existing N28 corridor.

Existing View

The existing view is generally panoramic in nature, though is partially restricted by mature tree planting throughout. The left portion of the view is dominated by the existing N28 corridor and associated signage. Pastoral land is visible within the central portion of the view though is partially screened by existing hedgerows and roadside vegetation. A line of mature poplars, within the central portion of the view, marks the northern edge of the R611 and forms a strong visual draw within the view. The woodland copse and well maintained garden boundary hedgerows to the right of the view screens existing large scale residential properties.

Residential properties associated with the northern extent of Carrigaline, to the south are partially visible above and within intervening vegetation cover, whilst more elevated mixed arable and pastoral land beyond forms the distant horizon. Street lighting columns associated with the existing N28 and R611 corridors are perceived above the distant horizon line, adding verticality and scale to the view. Timber poles carrying overhead cables are visible within the view, though are partially screened by existing vegetation cover.

Predicted View

Existing vegetation associated with field boundaries within the central portion of the view along with the line of existing poplars along the R611 will be removed as part of the proposed road project. New embankments, noise barriers and bridge parapets will be visible across the central portion of the view at a variety of distances.

The 2m high noise barrier associated with the Shannonpark off slip will be visible at a lower elevation than the proposed road level, whilst 2m and 2.5m high noise barriers to the east and west of the new bridge over the R611 will be visible above the embankments. Embankments and associated noise barriers will obscure visibility of lower lying land beyond, whilst residential properties on the northern edge of Carrigaline will remain partially screened within the centre left of the view. The large residential properties, to the right of the view will become fully obscured by the proposed road project works. New public lighting will draw attention to the proposed development at night time

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant for residential receptors in the vicinity and Moderate to Major, assessed as significant for road users on the current N28 route.

Viewpoint 7: View South-east from R609

Viewpoint Description and Sensitivity

This viewpoint is located on the R609 adjacent to the cluster of residential dwellings to the northwest of the proposed road project. The viewpoint is located approximately 160m northwest of the route at its bridged overpass with the R609. The view is considered to be representative of views experienced by users on the R609 and oblique views available to residential receptors in the vicinity.

The viewer sensitivity is considered to be high for the close residential receptor and medium for road users on the R609.

Existing View

The existing view is constrained by garden boundary vegetation, to the left of the view and tall field boundary vegetation to the right of the view, such that views are directed east along the R609. The existing bridge, carrying the existing N28 over the R609 is partially visible to the centre of the view, screened by existing garden boundary and field boundary vegetation. Timber poles carrying overhead lines are present within the view, though screened by vegetation to the left of the view. Rising agricultural land forms the back drop and horizon to the view, whilst existing embankment planting forms a well vegetated backdrop to the existing N28 route. Existing road network connections and associated directional signage is visible from this location.

Predicted View

It is predicted that the upgraded bridge carrying the M28 will be fully visible within the view, together with new road linkages and roundabouts associated with the junction improvements. The proposals includes for re-alignment of the R609 which will result in the removal of the field boundary vegetation to the right of the view. Such improvements will be visible from the cluster of residential properties adjacent to the viewpoint location. Proposed embankments beyond the N28 will be visible in forward views when travelling east due to removal of existing vegetation, with rising agricultural lands modified as part of the works. Upper portions of the existing agricultural land will remain intact, together with the open horizon-line. The proposed 3m high noise barrier will be partially screened by retained field boundary vegetation in eastern views. New public lighting will draw attention to the proposed road project at night time.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial, assessed as significant for residential receptors and Moderate to Major, assessed as not significant for road users.

Viewpoint 8: View from Route of Existing N28.

Viewpoint Description and Sensitivity

This viewpoint has been located on the existing N28, within close proximity to the existing off slip to the R609. The viewpoint is located approximately 10m east of the proposed road project. This view is considered to be representative of views experienced by road users travelling north on the existing N28 route.

The viewer sensitivity is considered to be medium due to travel speeds.

Existing View

The existing view is constrained and restricted by the combination of embankments and existing vegetation cover, such that views are directed along the direction of travel. Peripheral and forward views are restricted by existing field boundary and embankment vegetation which restricts views of the wider landscape and the distant horizon. Arable land is glimpsed beyond the foreground, which is comprised of the N28 and associated signage. Timber poles carrying overhead lines are fully visible either side of the carriageway, though are not generally perceived as duration of view is short lived due to speed of travel.

Predicted View

It is predicted that the view available from this location will become more open in nature due to the removal of roadside vegetation associated with new embankment works related to the re-alignment of the N28 and the R609 junction. Vegetation cover on lower portions of the existing embankment to the right of the view will be reduced as part of the proposed road project, with land beyond becoming more visible in the view. Arable land visible within the centre of the view will become part of the proposed road project with associated embankments and 3m high noise barrier. New public lighting will draw attention to the proposed road project at night time.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Moderate to Major, assessed as significant.

Viewpoint 9: View South-west from Ard Keale, Mount Oval Village

Viewpoint Description and Sensitivity

This viewpoint is located on the footpath adjacent to local access within the Rowan Hill residential Estate to the east of the N28. The viewpoint is located approximately 260m east of the existing N28 and the view is considered to be representative of views experienced by residential receptors in the vicinity.

The viewer sensitivity is considered to be high for both road users and residential receptors.

Existing View

The existing view is partially restricted by maturing vegetation along the main access route into the residential development. The elevated location of the viewpoint offers panoramic views west over Cork, with town centre buildings forming minor visual draws on the distant horizon. Roof lines of residential properties that lie to the west of the N28 are visible amongst the existing vegetation cover, though are viewed below and amongst existing tree canopies. The existing N28 route is not visible within the view to screening by intervening vegetation.

Predicted View

It is predicted that the route of the proposed road will not be visible within the view due to screening effects provided by intervening vegetation cover.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be no change as the proposed road project is screened in the view.

Significance of Visual Impact

The significance of visual impact is considered to be None.

Viewpoint 10: View West from R610 (Rochestown Road)

Viewpoint Description and Sensitivity

This viewpoint is located on the footpath adjacent to the R610 (Rochestown Road) in proximity to its junction with the residential development The Ovals. The viewpoint is located approximately 140m east of the existing N28 overpass. The view is considered to be representative of views experienced by road users travelling west and residential receptors within the immediate vicinity.

The viewer sensitivity is considered to be high for both road users and residential receptors.

Existing View

The existing view is generally urban in character; comprised of residential housing, formal garden boundary treatments, road corridors, footpaths and mixed vegetation types. The existing N28 overpass forms a distinct horizontal visual draw above the R610 corridor in the central portion of the view. The existing N28 overpass and associated barriers are set against a strongly vegetated back drop and are perceived below the elevated horizon formed by elevated tree canopies beyond. Street lighting columns are visible throughout the central portion of the view, adding verticality and scale to the view.

Predicted View

It is predicted that the proposed road to the overbridge will be fully visible within the view, whilst works associated with the route alignment to the north and south will be screened by intervening vegetation and built form. Vegetation clearance proposed as part of the north-bound carriageway alignment works will be perceived above the new bridge works.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be medium.

Significance of Visual Impact

The significance of visual impact is considered to be Moderate to Major, assessed as significant for both road users and residential receptors.

Viewpoint 11: View East from Newlyn Vale

Viewpoint Description and Sensitivity

This viewpoint is located on the local access road at Newlyn Vale to the west of the existing N28 corridor. The viewpoint is located approximately 100m west of the proposed northbound route and is considered to be representative of oblique views experienced by residential receptors and views experienced from the R610 (Rochestown Road).

The viewer sensitivity is considered to be high.

Existing View

The existing view is restricted in nature by adjacent residential properties and street trees along the edge of Rochestown Road. Garden boundary walls and mixed shrub planting provides variety and interest to the left of the view, whilst close street trees screen views to the right. The existing overpass structure associated with the existing N28 is partially screened by intervening tree canopies within the central portion of the view, though forms a minor element of the view. Existing street lighting is visible within the left portion of the view, adding verticality and scale within the view though are generally perceived at a lower elevation than the horizon lines formed by tree canopies and ridge lines.

Predicted View

It is predicted that the proposed alterations to the overpass will be visible within the left hand portion of the view. The 3m high noise barrier and parapet for the bridge will be visible above the overbridge to the left of the view though will become screened to the right by existing street trees. Visibility of the proposed overpass structure and associated barriers will increase during winter months only as tree canopies become devoid of leaves.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be medium.

Significance of Visual Impact

The significance of visual impact is considered to be Moderate to Major, assessed as significant.

Viewpoint 11a: View East from Rochestown Rise

Viewpoint Description and Sensitivity

This viewpoint is located on the local access road, Rochestown Rise, approximately 100m to the west of the proposed road project. The viewpoint is considered to be representative of views experienced by residential receptors.

The viewer sensitivity is considered to be high.

Existing View

The existing view is restricted by garden boundary walls and mixed species boundary screen planting. The existing N28 corridor is not visible within the view due to screening provided by intervening vegetation. Street lighting column, whilst visible within the view is not perceived against the existing vegetated boundary.

Predicted View

It is predicted that new embankment works, noise barrier and security fencing associated with the proposed development will be visible within the view. Existing vegetation clearance will result in the view becoming more open, though the proposed embankment and 3m high noise barrier will screen views of the M28.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be medium, as adjacent residential properties are predicted to experience a greater magnitude.

Significance of Visual Impact

The significance of visual impact is considered to be Moderate to Major, assessed as significant to residential receptors in the absence of mitigation.

Viewpoint 12: View North from Delford Drive, Cork

Viewpoint Description and Sensitivity

This viewpoint is located on the edge of unmanaged open space to the north of Delford Drive. The viewpoint located approximately 150m west of the existing N28 corridor north and is considered to be representative of views experienced by residential properties in the immediate vicinity.

The viewer sensitivity is considered to be high.

Existing View

The existing view is restricted in nature by mature tree and shrub planting within the foreground and at middle distance where such woodland planting is associated with the southern boundary of the existing N28 corridor. The immediate foreground is comprised of unmanaged tall grassland with scattered shrub and tree species, edged by footpath and maintained grassed verge. Perceived horizon lines are elevated by existing tree canopies.

Predicted View

It is predicted that proposed road project north of this viewpoint will be fully screened in views. Proposed vegetation removal required as part of the proposed alignment will be difficult to distinguish and will be viewed as a minor alteration to the elevated horizon.

Magnitude of Impact

The magnitude of impact on the visual resource is considered to be no change as impacts resulting from vegetation clearance will be difficult to distinguish within the view.

Significance of Visual Impact

The significance of visual impact is considered to be None.

Viewpoint 12a: View West from St Patrick's Church, Rochestown

Viewpoint Description and Sensitivity

This viewpoint is located in the car park of St. Patrick's Church, Rochestown. The viewpoint is located approximately 80m east of the existing N28 and is considered to be representative of views experienced by residential receptors in the vicinity and visitors to the church.

The viewer sensitivity is considered to be high.

Existing View

The existing view from this location is restricted and heavily influenced by mature tree planting associated with the N28 and within the streetscape within the immediate foreground. The mixed species conifer and broadleaved planting to the rear of the block walling and hedge within the centre of the view screens the existing N28 from receptors at this location. Upper canopy levels are perceived as an elevated horizon. Existing lighting columns associated with the N28 are visible above the canopies of trees.

Predicted View

Vegetation clearance associated with the proposed road project will alter the available view from this location. It is predicted that the 3m high noise barrier, associated with the off slip will be visible at a lower elevation in the view and will screen the off slip route within the view. The proposed road project will become visible above this, forming a strong horizontal feature within the view, further extended by street lighting columns.

Magnitude of Impact

The magnitude of Impact on the visual resource is considered to be large.

Significance of Visual Impact

The significance of visual impact is considered to be Major to Substantial assessed as significant to residential receptors.

Table 16.9: Summary of Viewpoint Assessment

| Viewpoint No. | Viewpoint Name | Predicted Effect (Without Mitigation) |
|---------------|--|--|
| 1 | View South-west from Rocky Island, Cork Harbour. | Minor to Moderate and not significant |
| 2 | View East from L2545 at Junction with N28 | Minor and not significant |
| 2a | View south from Old Post Office Road | Major to Substantial, assessed as significant. |
| 3 | View South from St. Carthage Place, Ringaskiddy | Moderate to Major, assessed as significant. |
| 4 | View South from Marian Terrace, Shanbally | Major to Substantial, assessed as significant. |
| 4b | View South-east from Marian Terrace, Shanbally | Major to Substantial, assessed as significant. |
| 5 | View West from N28 | Major to Substantial, assessed as significant for residential receptors and Moderate, assessed as not significant for road users. |
| 6 | View South-west from N28 at junction with L6469 | Major to Substantial, assessed as significant for residential receptors and Moderate to major, assessed as significant for road users. |
| 7 | View South-east from R609 | Major to Substantial, assessed as significant. |
| 8 | View from Route of Existing N28. | Moderate to Major, assessed as not significant. |
| 9 | View South-west from Ard Keale. | None |
| 10 | View West from R610 (Rochestown Road) | Moderate to Major, assessed as significant |
| 11 | View East from Newlyn Vale | Moderate to Major, assessed as significant. |
| 11a | View East from Rochestown Rise | Moderate to Major, assessed as significant. |
| 12 | View North from Delford Drive, | None |
| 12a | View West from St Patrick's Church, Rochestown | Major to Substantial, assessed as significant. |

16.5 MITIGATION MEASURES

16.5.1 Landscape Mitigations Measures

Project Level Objectives

The relevant project level objectives as set out in **Chapter 1: Introduction and Need for the Proposed Road Development** to this LVIA Chapter are *to minimise the impact of any improvement works on nearby environmentally sensitive sites.*

Aims of Landscape Mitigation

To provide mitigation measures to help avoid, reduce or remedy any significant landscape and visual impacts arising from any elements within the proposed M28 Road Project.

To ensure the physical and visual integration of the proposed road project and associated features into surrounding landscape.

To provide screening to avoid, reduce or remedy visual intrusion at residential properties to address any negative aspects regarding the visual impact of the proposed road project.

To provide replacement planting for visually significant woodland and hedgerows lost due to widening.

General Objectives of Landscape Mitigation

Mitigation shall be in keeping with the existing landscape character. Therefore, small copses of woodland using plant species present in the local landscape will be acceptable and beneficial to the landscape. In instances where small corners of fields are disrupted it is proposed to plant them with hedgerows and provide small wooded clumps to break up the visible mass of the road where appropriate. Plant mixes of native trees and shrubs and wild meadow grass mix will be planted where appropriate.

In line with the NRA *Guide to Landscape Treatments of National Road Schemes in Ireland* it is a core objective of the landscape mitigation to use native plants and seed from indigenous sources. The implementation of the landscape mitigation measures must be in accordance with the NRA *Guide to Landscape Treatments*.

Specific Landscape Measures (SLM)

The location and details of where SLM will be implemented are set out in **Table 16.10** and illustrated on **Figure 16.5**. Where cuttings and embankments are not present the SLM will require a minimum width of 5m planting as illustrated on **Figure 16.5**.

Table 16.10: Specific Landscape Measures (SLM)

| Location | Description of SLM |
|---|---|
| SLM 01:- minus 300 -Ch. 0.00 west | Screening Woodland Mix planting |
| SLM 02:- Ch. 100 - 550 both sides | Screening Woodland Mix planting (Individual trees Ch.400-550 east) |
| SLM 03:- Ch. 550 - 800 both sides | Screening Woodland Mix planting (Individual trees Ch. 550 – 800 west) |
| SLM 04:- Ch. 800 - 1,300 both sides | New trees to replace roadside trees lost due to construction in are known locally as Mulcon Valley (Individual trees Ch. 1050 – 1300 west and Ch. 1000 – 1200 east) |
| SLM 05:- Ch. 1,300 - 1,550 east | Screening Woodland Mix planting (Individual trees Ch. 1300 – 1550 east) |
| SLM 06:- Ch. 1,400 - 1,650 west | Screening Woodland Mix planting (Individual trees Ch. 1400 – 1650 west) |
| SLM 07:- Ch. 2,200 Carrigaline Road West on and off slip roads | Screening Woodland Mix planting (Individual trees) |
| SLM 08:- Ch. 3,350 - 4,000 east | Screening Woodland Mix planting |
| SLM 09:- Ch. 3,900 - 4,450 west | Screening Woodland Mix planting |
| SLM 10:- Ch. 5,300 - 6,250 both sides | Screening Woodland Mix planting (Individual trees Ch. 5450 – 6100 east and Ch. 6000 – 6250 west) |
| SLM 11:- Ch. 6,250 -6,600 both sides | Screening Woodland Mix planting (Individual trees Ch. 6250 – |

| Location | Description of SLM |
|---|--|
| | 6500 east) |
| SLM 12:- Ch. 6,750 - 7,300 both sides | Screening Woodland Mix planting (Individual trees Ch. 6850 – 7100 east and Ch. 6850 – 7200 west) |
| SLM 13:- Ch. 8,100 - 8,800 east | Screening Woodland Mix planting |
| SLM 14:- Ch. 9,000 - 9,500 both sides and slip roads | Screening Woodland Mix planting (Individual trees both sides) |
| SLM 15:- Ch. 11,000 - 11,950 both sides | Screening Woodland Mix planting (Individual trees Ch. 11400 – 11800 and 11850 – 11950 east and Ch. 11550 – 11750 west) |
| SLM 16:- Ch. 1200 - 12,300 both sides | Screening Woodland Mix planting to cutting (Individual trees Ch. 12000 –12150 east to top of cutting) |

Chapter 12: Terrestrial Ecology proposes ecological mitigation measures (See **Figure 12.6**) on the proposed road project where it crosses Raffeen Quarry that have been considered as part of the landscape and visual impact assessment and are consistent with the proposed landscape mitigation measure set out in this chapter.

16.5.2 Mitigation Specifications

Tree, Hedge and Shrub Planting

All trees, shrubs, transplants/whips, hedging material and ground cover planting shall conform fully to the specification, prepared by the landscape consultant, in respect of species, size and quality. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. The plants shall be available for inspection prior to planting works. Any plant material that does not conform to the specification will be automatically rejected and must be removed from site. All trees, shrubs and other plant material shall comply with the standards set out in National Plant Specification (NPS) prepared by the Committee on Plant Supply and Establishment and published with the backing of the Joint Council of Landscape Industries (JCLI, 1989).

Defective Plant Material

All trees, shrubs, transplants, hedging material and ground cover planting shall be maintained and guaranteed for a period against death, deformation, die-back, or disease other than that caused by malicious damage.

Plant Mixes

Essentially road verge or bank planting will consist of ‘bare root transplants’, ‘whips’ and ‘feathered trees’ which, due to their smaller stock size at time of planting, will adapt more easily to the disturbed ground and exposed site conditions. All plants are to be positioned in the locations and in the required numbers and centres indicated on the agreed planting plan.

Screening Woodland Mix

Landscape mitigation planting of road verges and slopes and as compensation for loss of existing screening and loss of woodland, individual trees and hedgerows along the proposed M28 Road Project will exclusively use Irish native species that reflect the existing vegetation of the area. Core species will include; Hybrid Oak, Scots Pine, Hawthorn, Hazel, Holly, Blackthorn, Goat Willow, Alder, Rowan and Birch. Additional species at certain locations will include; Blackthorn, Broom, Elder, and Grey Willow.

Woodland Mix areas will be planted as whips and feathered transplants at a standard size of 60-90cm or 90-120cm augmented by semi-mature individual trees. Species shall be randomly planted in groups. The majority of species used will be quickly maturing species and will have formed dense woodland within ten years. The canopy will reach at least 7 to 10m, in places where groups of trees are planted. In addition to whip and feathered transplants individual semi-mature trees shall be used to provide screening at SLM locations where limited roadside space is available or where early effect is required as set out in **Table 16.10**.

Individual Tree Planting

Individual semi-mature tree planting using the core native species (Hybrid Oak and Scots Pine) shall include standard (2.5-3.0 m) and heavy standard (3.5-4.25 m) trees located in locations to provide specific screening and early effect as per **Table 16.10**.

Native Shrub Planting

Shrub planting shall consist of native species from the core and additional species listed above to provide woodland understorey, woodland edge and scrub areas. Shrub planting mixes shall complement areas of woodland and be used at locations consistent with the ecological assessment mitigation measures (see **Figure 12.6**). Hedgerows shall be reinstated at interrupted field boundaries or where new boundaries with fields are created using native hawthorn, blackthorn and holly that shall be the predominant species used. Shrub planting shall also be planted to soften the appearance of noise barriers.

Grass and Wildflower Mixes

The road verges will be seeded with a general (Grade II) grass seed mix. Areas away from designated sight lines where mowing regimes are not required to be of a regular nature will be seeded with wild grasses and meadow flowers. Grass and wildflower mixes using seed from Irish native sources shall be employed to provide quality areas of low maintenance, rapid establishment, and visual appearance.

The construction Contractor will adhere to the NRA's *Draft Guidelines on the Implementation of Landscape Treatment on National Road Schemes in Ireland*, 2011. Storage areas will be located so to avoid impacting on existing residential properties, trees, hedgerows, drainage patterns etc. and such areas will be fully re-instated prior to or at the end of the construction contract.

Lighting

Mitigation measures have the potential to reduce construction and operational night time impacts, which will mitigate potential visual impacts by night. These include:-

- Use of directional down light style cut-off luminaries to prevent up lighting and reduce glare and sky glow;
- Use of baffles where street lights are located in close proximity to properties to reduce light spill on to properties and to reduce glare and sky glow; and
- Use of lighting control systems to reduce amount of light spill, sky glow, and visual appearance during the construction phase where works take place in proximity to properties.

16.6 RESIDUAL IMPACTS

16.6.1 Residual Impacts

This section of the chapter assesses the residual impact on the landscape character and visual receptors (previously identified in **Section 16.4**), after the mitigation (described above in **Section 16.5**) has attained 10 years of growth. After 10 years of growth the proposed planting will help to integrate the proposal into the existing landscape. The proposed mitigation planting will limit the extent of the influence of the proposed road project on the adjacent Landscape Character Areas with a resultant reduction in landscape impact. The planting at the Service Area will assist in blending the new development within its industrial landscape setting.

As the vegetation re-establishes at area known locally as Mulcon Valley and above Martello Park in Ringaskiddy (on high side slopes) the significant landscape impacts predicted at the construction stage will decrease and the proposed road project will become an integrated component of this urban landscape.

With regards to visual impact on sensitive receptors in general the visual impacts are slightly reduced by the establishment of replacement or new screening woodland that will offset views towards the proposed M28 and its infrastructure and traffic on the road. The predicted residual visual impacts for all properties are provided in detail in **Figure 16.4a-16.4p** and summarised below in **Table 16.11**.

Table 16.11: Residual Visual Impacts (After Mitigation)

| Degree of Visual Impact | Number of Properties Before Mitigation | Number of Properties After Mitigation |
|---|--|---------------------------------------|
| Major to Substantial Negative Visual Impact | 67 | 0 |
| Moderate to Major Negative Visual Impact | 193 | 67 |
| Minor to Moderate Negative Visual Impact | 364 | 192 |
| Minor | 294 | 365 |
| None | 100 | 394 |

Table 16.12: Residual Viewpoint Impacts (After Mitigation)

| Viewpoint No. | Viewpoint Name | Predicted Effect (Without Mitigation) | Predicted Effect (With Mitigation) |
|---------------|--|--|--|
| 1 | View South-west from Rocky Island, Cork Harbour. | Minor to Moderate and not significant | Minor and not significant |
| 2 | View East from L2545 at Junction with N28 | Minor and not significant | Negligible to Minor and not significant |
| 2a | View south from Old Post Office Road | Major to Substantial, assessed as significant. | Moderate to Major, assessed as not significant (See Appendix 16A for photomontage with mitigation in place). |
| 3 | View South from St. Carthage Place, Ringaskiddy | Moderate to Major, assessed as significant. | Minor to Moderate, assessed as not significant. |
| 4 | View South from Marian Terrace, Shanbally | Major to Substantial, assessed as significant. | Moderate to Major, assessed as significant. |
| 4b | View South-east from Marian Terrace, Shanbally | Major to Substantial, assessed as significant. | Moderate to Major, assessed as significant. |
| 5 | View West from N28 | Major to Substantial, assessed as significant for residential receptors and Moderate, assessed as not significant for road users. | Moderate to Major for residential receptors assessed as significant and Minor to Moderate, assessed as not significant for road users (See Appendix 16A for photomontage with mitigation in place) |
| 6 | View South-west from N28 at junction with L6469 | Major to Substantial, assessed as significant for residential receptors and Moderate to major, assessed as significant for road users. | Moderate to Major for residential receptors assessed as not significant and Moderate, assessed as not significant for road users |
| 7 | View South-east from R609 | Major to Substantial, assessed as significant. | Moderate to Major, assessed as significant. |
| 8 | View from Route of Existing N28. | Moderate to Major, assessed as not significant. | Minor to Moderate, assessed as not significant. |
| 9 | View South-west from Ard Keale. | None | None |
| 10 | View West from R610 (Rochestown Road) | Moderate to Major, assessed as significant | Minor to Moderate, assessed as not significant |
| 11 | View East from Newlyn Vale | Moderate to Major, assessed as significant. | Minor to Moderate, assessed as not significant (See Appendix 16A for photomontage with mitigation in place). |
| 11a | View East from Rochestown Rise | Moderate to Major, assessed as significant. | Minor to Moderate, assessed as not significant. |
| 12 | View North from Delford Drive | None | None |
| 12a | View West from St Patrick's Church, Rochestown | Major to Substantial, assessed as significant. | Moderate to Major, assessed as not significant. |

The proposed M28 Road Project is located within a number of landscape character areas identified as Undulating Agricultural Patchwork Landscape; the Harbour Edge Town Centre & Undulating Residential Townscape; and Estuarine Harbour Based Industrial & Maritime Landscape. The proposed road project has been predicted to have the following landscape effects; Undulating Agricultural Patchwork Landscape Moderate to Major and significant within 1km and Negligible to Minor and not significant beyond 1km; the Harbour Edge Town Centre & Undulating Residential Townscape Moderate and not significant; and Estuarine Harbour Based Industrial & Maritime Landscape Negligible to Minor and not significant. During construction of the proposed M28 Road Project, the predicted magnitude of landscape resource change will be low and the significance of landscape impact will be Minor to Moderate adverse. On completion of the proposed SLM measures the predicted landscape effects will be reduced during the operation stage.

The ZTV has been established for the proposed M28 Road Project to allow any potential areas of significant visual impact to be identified. Actual visual impacts from within the ZTV have been predicted by site survey and assessment.

A total of 16 viewpoints have been assessed and 11 viewpoints have been predicted to have significant visual impacts largely due to the proximity of the viewpoints to the proposals. Following implementation of the SLM measures the predicted visual effects on viewpoints will be reduced for all views but remain significant for 4 viewpoints due to the proximity of views.

An assessment of Cork County Development Plan has predicted that there will be no significant landscape or visual effects for any relevant landscape policy and designations in the Plan.

A detailed visual impact assessment for residential properties in proximity to the proposed M28 Road Project has been completed. Before mitigation a total of 67 properties are predicted to have Major to Substantial impact; 193 properties are predicted to have a Moderate to Major impact; 364 properties are predicted to have a Minor to Moderate impact; 294 properties are predicted to have a Minor impact; and 100 properties are predicted to have No impact. Following completion of the proposed SLM measures the visual impacts are reduced as follows; 0 properties are predicted to have a Major to Substantial impact; 67 properties are predicted to have a Moderate to Major impact; 192 properties are predicted to have a Minor to Moderate impact; 365 properties are predicted to have a Minor impact; and 394 properties are predicted to have no impact. Significant visual impacts will remain for some properties that are located in close proximity.