

Chapter 11

The Landscape

11.1 Introduction

The landscape assessment of the proposed road development is a means of appraising the effect the proposed Foynes to Limerick Road (including Adare Bypass) would have on the receiving environment in terms of quality of landscape – both physically and visually.

As part of the assessment, the site and its environs were visited on several occasions between August 2014 and September 2019.

11.2 Methodology

11.2.1 Terminology

The terminology used in this chapter is based on the approach and criteria established in the Environmental Protection Agency (EPA) Guidelines (2002 and updated in 2015/2017 in the Draft Revised Guidelines) and with additional guidance from *Guidelines for Landscape and Visual Impact Assessment* (3rd Edition, by The Landscape Institute / Institute of Environmental Assessment published by Routledge, 2013).

Landscape impacts are defined as changes in the fabric, character and quality of the landscape as a result of the development. This includes direct impacts to landscape receptors and effects that can alter the wider distinctiveness of the landscape. Landscape receptors are the physical or natural resource that will experience an impact. Landscape impacts may also include impacts to the amenity values of a landscape. The sensitivity of a landscape receptor is the vulnerability to change. The extents of landscape impacts have been assessed by firstly establishing the baseline conditions by classifying baseline data according to its importance and sensitivity as per Table 11.1. Secondly, evaluation of the landscape impact on the baseline environment using the terminology defined in Table 11.1, Table 11.2, Table 11.5 and Table 11.6.

Table 11.1 Baseline Evaluation – Sensitivity of Landscape Receptors
(developed by the author for the proposed development with reference to TII Project Appraisal Guidelines (PE-PAG_02031 - Table 7.1.1))

Landscape typology / Receptor	Category
Designated Landscapes (SPA, cSAC, pNHA, etc.) National / Regional / District Parks / Public Amenity Areas Riparian landscapes Significant trees (Tree Preservation Order or Limerick County Development Plan designation) 'Champion' trees (Tree Council of Ireland designation) Areas of "Scenic Beauty" as described in Limerick County Development Plan Historic Designed Landscape associated with listed building (e.g. Demesne) with intact, mature landscape	IV Very High
Local Parks / Amenity facilities e.g. walking routes Townscape / Streetscape (good quality, e.g. Architectural Conservation Areas)	III High

Landscape typology / Receptor	Category
Landscape features with significant merit – walls, structures, entrances, mature tree-lined avenues, etc. Deciduous woodland Rural Landscape of high quality with distinctive features or field patterns, e.g. ladder farms or similar Traditional Stone Walls	
Rural Landscape (typical field patterns, hedgerows) Trees / Hedgerows (not designated) Coniferous woodland Townscape / Streetscape (intact urban townscapes and village cores)	II Medium
Infrastructural landscape Waste ground Townscape / Streetscape (degraded quality)	I Low

Table 11.2 The extent of Landscape Impact (based on ratings from the Draft EPA Guidelines, 2017)

Extent	Description
Level 1 Imperceptible Effects	An effect capable of measurement but without noticeable consequences. There are no noticeable changes to landscape context, character or features.
Level 2 Not significant	An effect which causes noticeable changes in the character of the landscape but without noticeable consequences. There are no appreciable changes to landscape context, character or features.
Level 3 Slight Effects	An effect which causes noticeable changes in the character of the landscape without affecting its sensitivities. There are minor changes over a small proportion of the area or moderate changes in a localised area or changes that are repairable over time.
Level 4 Moderate Effects	An effect that alters the character of the landscape in a manner that is consistent with existing and emerging trends. There are minor changes over some of the area (up to 30%) or moderate changes in a localised area.
Level 5 Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the landscape. There are notable changes in landscape characteristics over a substantial area (30-50%) or an intensive change over a more limited area
Level 6 Very Significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment. There are notable changes in landscape characteristics over a substantial area (50-70%) or a very intensive change over a more limited area

Extent	Description
Level 7 Profound Effects	An effect which obliterates sensitive characteristics. There are notable changes in landscape characteristics over an extensive area (70-100%) or a very intensive change over a more limited area

Visual impacts relate solely to changes in available views of the landscape and the effects of those changes on people. They include the direct impact of the development on views, the potential reaction of viewers, their location and number and the impact on visual amenity. The visual baseline evaluations are listed in Table 11.3 below. The intensity of the visual impacts on the baseline visual environment is assessed by using the terminology defined in Table 11.3, Table 11.4, Table 11.5 and Table 11.6.

Table 11.3 Baseline Evaluations – Visual Impact (developed by the author for the proposed development with reference to TII Project Appraisal Guidelines (PE-PAG_02031 - Table 7.1.1))

Receptor	Category
Listed Views in County Development Plans Local properties (residential, nursing homes, residential care units, schools, cemeteries, tourist accommodation) with direct views of the development, within 50m of the land-take line, or outside 50m with existing high-quality views from elevated / open viewpoints.	IV
Local properties with direct or oblique views of the development, within 200m of the land-take line or >200m with existing high-quality views from elevated / open viewpoints; or within 50m, where the existing view includes an existing major road (N21, N69, railway or other major roadway) or in urban / suburban setting. Users of parks / recreational areas, tourist attractions. Publicly accessible viewpoints identified in the study with high quality views or within a high quality visual environment.	III
Local properties with direct or oblique views of the development, within 500m of the land-take line or >500m with existing high-quality views from elevated / open viewpoints; or within 200m of the route where the existing view includes an existing major road (N21, N69, railway or other major roadway) or in urban / suburban setting.	II
People working in the area, travelling through.	I

Table 11.4 The extent of Visual Impact (based on ratings from the Draft EPA Guidelines, 2017)

Extent	Description
Level 1 Imperceptible Effects	There are no noticeable changes to views in the visual landscape.
Level 2 Not significant	An effect which causes noticeable changes in the character of the visual environment but without noticeable consequences. The proposal is adequately screened due to the existing landform, vegetation or constructed features.

Extent	Description
Level 3 Slight Effects	An effect which causes noticeable changes in the character of the visual environment without affecting its sensitivities. The affected view forms only a small element in the overall visual composition, or changes the view in a marginal manner.
Level 4 Moderate Effects	An effect that alters the character of the visual environment in a manner that is consistent with existing and emerging trends. The proposal affects an appreciable segment of the overall visual composition, or there is an intrusion in the foreground of a view.
Level 5 Significant Effects	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the visual environment. The proposal affects a large proportion of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Level 6 Very Significant Effects	An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the visual environment. The proposal affects the majority of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Level 7 Profound Effects	An effect which obliterates sensitive characteristics. The view is entirely altered, obscured or affected.

Table 11.5 The Quality of the Landscape & Visual Impact (EPA Draft Guidelines, 2017)

Quality	Description
Neutral Impact	Neither detracts from nor enhances the landscape of the receiving environment or view.
Positive Impact	Improves or enhances the landscape of the receiving environment or a particular view.
Negative Impact	Detracts from the quality of the landscape or view.

Table 11.6 The Duration of the Landscape & Visual Impact (EPA Draft Guidelines, 2017)

Duration	Description
Temporary	Impacts lasting one year or less
Short-term	Impacts lasting one to seven years
Medium-term	Impacts lasting seven to fifteen years
Long-term	Impacts lasting fifteen to sixty years
Permanent	Impacts lasting over sixty years

Please note: "Momentary" and "Brief" Effects as defined in the Draft EPA Guidelines (September 2015) are not considered relevant to landscape & visual assessment as effects of such short duration are extremely unlikely to generate appreciable effects.

The landscape and visual assessment methodology will be carried out in conjunction with a professional evaluation of the proposed development to determine the degree of impact.

The term 'study area' as used in this Chapter refers to the site itself and its wider landscape context in the study of the physical landscape and landscape character. This may extend for approximately 1km in all directions from the site in order to achieve an understanding of the overall landscape. In terms of the visual assessment, the study of visual amenity is generally constrained to 500m from the centreline but may extend outside the study area, from areas where views of the site are available. This applies in particular to elevated viewpoints or viewpoints of particular sensitivity that may be identified in the course of the assessment.

11.2.2 Methodology

The methodology employed in the landscape and visual impact assessment is as follows:

- (a) Desktop survey of detailed maps, aerial photography and other information relevant to the study area, notably the Limerick County Development Plan 2010-2016 (as extended).
- (b) Site survey and photographic survey to determine landscape character of the general and specific landscape.
- (c) Assessment of the potential significant impacts of the proposed road utilising the plan and elevation drawings of the scheme to determine the main impacting features and the degree to which these elements would be visible in relation to observations made during the field survey. In determining visibility, the views to and from the proposed road development are considered and the heights of the proposed structures. This was carried out using Zone of Theoretical Visibility (ZTV) mapping noting that any houses outside 500m where low, or no, visibility was determined has not been included. The ZTV mapping was combined with field survey findings to determine levels of visibility for potential visual receptors.
- (d) The proposal of a scheme of mitigation measures. These will be defined as measures which will be generally implemented and specific landscape measures which would be site-specific and address particular landscape or visual issues identified.
- (e) An evaluation of the impacts of the scheme with and without mitigation. For the purposes of assessment the predicted visual effects of the scheme are assumed at 15 years following the completion of the proposed development.

The study methodology reflects the guidance in the EPA Guidelines (2002) and related Advice Notes (2003) and the Guidelines for Landscape and Visual Impact Assessment 3rd Edition, The Landscape Institute / Institute of Environmental Assessment (Routledge, 2013). The 2017 Draft Revised *Guidelines on The Information To Be Contained In Environmental Impact Statements* and 2015 Draft *Advice Notes For Preparing Environmental Impact Statements and TII Project Appraisal Guidelines* (Ref. PE-PAG_02031) have also been considered.

The assessment has operated in a stepwise refinement method with the identification of impacts forming the basis for design of the proposed road development. Therefore, the methodology has informed and assisted in the design of the proposed development as opposed to being an assessment of a predetermined development. For the purposes of impact assessment, however, the landscape planting will be described under the mitigation measures section and impacts with and without this mitigation will be considered as part of the study.

11.3 Description of Receiving Environment

11.3.1 General Characteristics

In this section the baseline landscape is described and classified. The various components of the landscape are considered and described, including settlement, existing vegetation, topography, agricultural fields, field patterns, the scenic quality of the study area, amenity areas and cultural landscape elements, such as demesne landscapes.

The objective of this part of the assessment is to define a baseline of landscape and scenic quality against which the effects of the route can be measured, and to identify sensitive receptors within the landscape. The existing landscape is described from the context of the Limerick County Development Plan 2010 – 2016 (as extended) and also in a more specific manner based on site surveys of the proposed road development.

11.3.2 Landscape and Planning Context

The landscape planning context for the study area is set down in the Limerick County Development Plan 2010-16 (as extended) (CDP).

The CDP makes a number of specific references to landscape elements within the study area. The most relevant section is Section 7.3 – Landscape and Visual Amenity. This sets out the CDP objectives as they relate to the landscape and visual amenity of the county, including Landscape Character Assessment. As part of the Core Strategy for the county, Policy CP 10 proposes:

To identify, conserve, protect and enhance the unique and diverse natural and built heritage of Limerick County and to implement the provisions of the National Biodiversity Plan to secure the conservation, including where possible the enhancement, and sustainable use of biological diversity in Limerick.

Objective EH O5: Enhancing Tree Cover sets out the Council's intention that trees should be preserved:

It is the objective of the Council to preserve and enhance the general level of tree cover within the County, both in the countryside at large and also in the County's towns. The Council strongly encourages the establishment of native species, in particular broadleaf species.

Sections 7.3.3 *Landscape Assessment and Landscape Character Areas* and 7.3.4 *Landscape Character Areas* set out the more specific landscape objectives as they relate to different landscape typologies throughout the county. The study area includes two of the ten identified Landscape Character Areas, as follows: Area 1 - Agricultural Lowlands; and Area 6 - Shannon Integrated Coastal Management Zone (See Map 7.4 within the Plan).

Area 1 Agricultural Lowlands is described as follows:

This is the largest of the Landscape Character Areas in the County and comprises almost the entire central plain. This landscape is a farming landscape and is defined by a series of regular field boundaries, often allowed to grow to maturity. This well developed hedgerow system is one of its main characteristics. In terms of topography the landscape is generally rather flat with some locally prominent hills and ridges. The pastoral nature of the landscape is reinforced by the presence of farmyards.



Figure 11.1 View typical of Agricultural Lowlands Landscape Character Area, taken at Ardshanbally townland, Co. Limerick.

Objective EH O7 sets out the specific objectives with regard to the Agricultural Lowlands Landscape Character Area, the most relevant of which are as follows:

- (b) Encourage retention of existing landscape features such as hedgerows and trees and their incorporation into landscaping for new developments.*
- (c) Discourage development of locally prominent sites.*

Area 6 Shannon Integrated Coastal Management Zone is described as follows:

This zone comprises a large area of northern County Limerick and is bounded on one side by the Shannon Estuary while its southern boundary is defined by the gradually rising ground, which leads onto the agricultural zone and the western hills to the south west. The presence of the estuary is the defining characteristic of the region. The landscape itself is generally that of an enclosed farm type, essentially that of a hedgerow dominant landscape. This differs from the other agricultural landscapes of the County in that the field patterns, particularly close to the estuary, tend to be less regular than those elsewhere in the County.



Figure 11.2 View typical of Shannon Integrated Coastal Management Zone Landscape Character Area within study area, taken at Robertstown townland, Co. Limerick.

Objective EH O12 sets out the specific objectives with regard to the Shannon Integrated Coastal Management Zone Landscape Character Area, the most relevant of which are as follows:

(b) To protect the views and prospects along the N69 (see Map 7.6), as a priority for the Planning Authority...

With reference to Map 7.6, it is apparent that the protected views are within the town of Foynes and to the west of Foynes, and therefore not within the study area. Section 7.3.6, which sets out the importance of the listed views and prospects with respect to tourism, specifically references “the medieval town of Askeaton” which is to the east of Foynes, but Askeaton town is not within the landscape and visual study area either, due to the screening effects of the existing vegetation and the modern built elements on the outskirts of the town. Thus, it is concluded that there are no listed views relevant to the study of visual impact.

Section 7.3.8 *Historical Landscapes* draws attention to the wealth of historic landscapes in Co. Limerick: “*Historical landscapes can be defined as the archaeological and historical elements that survive in the current landscape. Limerick is rich in such areas.*” Features of these landscapes include field boundaries and old demesnes. Areas around Adare are specifically mentioned as being important from an archaeological and historical perspective. Objective EH O18: *Historical Landscape Characterisation* states that “*It is the objective of the Council during the lifetime of the plan to develop an historical landscape appraisal process, which will identify key historical landscapes within County Limerick.*” Therefore, these areas should be considered and assessed as part of the landscape assessment.

Whilst the foregoing are the most directly relevant, there are several related policies on green infrastructure, ecology, biodiversity and natural and cultural heritage, which add to the requirements for protection of landscapes. Such policies provide for the protection and enhancement of the landscape, especially in the context of new developments.

11.3.3 Public Amenity Areas / Walking Route

The most significant public amenity area within the study area is the Great Southern Trail Greenway. It is located in the south-western part of the study area and follows an abandoned railway line from Rathkeale for over 40km to the west and south, through Limerick and Kerry. A further stretch of the route, described as “undeveloped greenway” follows the abandoned railway line from Rathkeale to Ballingarrane, 2.5km north of Rathkeale. This part of the greenway is entirely within the study area. As this facility is aimed at recreational walkers and tourists and its landscape setting is a considerable part of the attraction, the greenway users are considered as sensitive visual receptors.

11.3.4 Landscape Context & Character

With reference to the Landscape Assessment and Landscape Character Areas in the CDP, the landscape context of the proposed road development is predominantly rural and pastoral, dominated by fields divided by hedgerows. Most of the hedgerows in the study area are mature and contain considerable numbers of mature parkland trees. There are also pockets of scrub vegetation and woodland throughout the study area.

The landscape within the proposed land-take is generally low-lying and is crossed by several watercourses, the largest of which is the River Maigue in the east of the study area. The hydrology of the wider area also includes several lakes and seasonal lakes or turloughs, which are indicative of limestone landscapes.

Topography is generally undulating locally within a narrow elevational band from +1m OD to +53m within the land-take line. The lowest points are at the rivers (Maigue, Greanagh and Ahacronane), although the landscape around the river Deel is c.20m OD inside the land-take line. There is a series of small hills throughout the study area, rising to c.+50m OD maximum, but usually between +20m and +40m OD. The highest point appears to be +53m OD at Mulderricksfield townland in the north of the study area, east of Foynes. In the wider landscape, the highest point is around Knockpatrick at 172m OD and the landscape meets sea level along the coast.

There are a large number of demesne landscapes in the wider landscape area and the proposed road development has been designed to avoid these where possible. Peripheral areas of five demesnes are within or immediately adjacent to the land-take line, but none are fundamentally affected either directly or in views. The field pattern is irregular throughout the study area and field sizes are generally small to medium, resulting in an intricate pattern. Pasture fields appear most often, with some areas of tillage. Other land-uses include quarries and industrial facilities.

A very striking feature of this landscape is the large number of mature trees. Most of the trees are part of field boundary divisions and hedgerows, but there are also some significant individual parkland specimens and pockets of woodland throughout the study area. The species include natives such as Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*) with small numbers of Pine (*Pinus sylvestris*) and Yew (*Taxus baccata*) but these are outnumbered by the non-native species including Beech (*Fagus sylvatica*), Horse Chestnut (*Aesculus hippocastanum*), Sycamore (*Acer pseudoplatanus*), Lime (*Tilia* spp.), Lombardy Poplar (*Populus nigra italica*) and others. The large number of non-native trees indicates that many of the trees were deliberately planted, rather than self-seeded, and there are several tree-lined roads and avenues that form significant features in the wider landscape although not within the land-take line. It is likely that much of the tree cover was planted in the 19th and early 20th centuries and is a legacy of the private estates and demesnes, as well as trees planted by landowners for windbreaks and aesthetics. It should be noted that there are no

Tree Preservation Orders on trees within the study area and there are no trees listed on the Tree Council of Ireland's Heritage Tree register.

Hedgerows are primarily Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*) and Willow (*Salix* spp.) with emergent trees including Elder (*Sambucus nigra*), Ash, Sycamore, Rowan (*Sorbus* spp.), Birch (*Betula pendula*), Aspen (*Populus tremula*) and parkland trees as listed above. Many ditches, river/stream-banks and scrub areas contain Willow (*Salix* spp.), Alder (*Alnus glutinosa*) and other riparian species.

More recent planting includes evergreen shelterbelts (Monterey Cypress [*Cupressus macrocarpa*] and Leyland Cypress [*X Cupressocyparis var leylandii*] are most frequent) and garden trees. Along the N21 and M20 roads are plantations of Norway Maple (*Acer platanoides*), Field Maple (*Acer campestre*), Poplar (*Populus alba*), Birch and Ash, among others.

11.3.5 Visual Amenity

In general, the scenic quality of the study area is considered to be high, with lower values around settlements where ribbon development reduces the quality of the landscape. The Architectural Conservation Areas of Foynes, Askeaton, Rathkeale and Adare have medium to high visual value.

Where distant views occur from viewpoints within the site, the hills and Mullaghareirk Mountains form the visual horizon in views from elevated areas to the south and west of the study area. To the north and west, the horizon is potentially much longer, and from elevated or coastal positions, the Shannon Estuary is a key feature. However, due to the low-lying and undulating topography and the presence of mature hedgerows and trees, there is variability in the quality and availability of views throughout the landscape. Such features often block, restrict or frame views within the landscape and distant views are rare within the majority of the study area. Only one viewpoint with views of the coast within the study area has been identified, at Knockpatrick Cemetery. Views along existing roads tend to be short due to their curving alignments. Along the coastal zone, most of which is outside the study area, views are extensive across the estuary and to the north, but views inland are often restricted by the rising topography and mature vegetation. As a result, the landscape could be said to have high visual absorption capacity in general, with local areas of sensitivity. The landscape may be considered to have a capacity to accommodate the proposed road development due to the restrictions on long distant views. Where the landscape is more open and distant views occur, such accommodation may not be possible. The sensitivity of the landscape thus varies along the route depending on the openness and inter-visibility.

The most sensitive views within the study area are potentially from individual dwellings, public amenity areas, monuments and cemeteries. Those views from elevated ground or with a view of the coast or a focal element (e.g. church spire, castle, tower-house) are also considered sensitive. Other views of local significance from local roads, of upstanding cultural heritage features, water bodies, farmland, trees and woodlands, etc. also occur throughout the study area.

In this study, the majority of sensitive receptors are individual dwellings, but there are also specific views from public areas which are particularly relevant to the landscape and visual study are as follows:

- Knockpatrick Cemetery: Elevated position (highest point in study area, 172m OD) – panoramic views across the proposed road development to the east and across the Shannon Estuary to Co. Clare;

- Approaches to Adare on N21: Parkland setting and mature trees, key buildings;
- Approaches to Rathkeale on R518: Parkland setting and mature trees, occasional views of church steeple from surrounding areas.

11.3.6 Significance of the Local Landscape and Visual Amenities

The local landscape elements are primarily of regional and local importance. As the proposed road development does not impact directly on any designated landscapes (SAC, pNHA, etc.), there are no Category IV landscape receptors (refer to Table 11.1) impacted upon. The majority of effects are likely to arise due to effects on a small number of Category III receptors, notably Walking/Cycling Route (Great Southern Trail Greenway), and Deciduous Woodland, as there are small pockets of woodland in the study area. The study area forms part of a landscape with good amenity value, so there are a large number of Category II receptors including Rural Landscape and Trees / Hedgerows.

In terms of visual receptors, there are no protected views (from the Limerick County Development Plan or other sources) impacted upon, so the most sensitive receptors are the views from public areas listed in section 11.3.5 above, which fall into Category III in Table 11.3. These are considered to have regional significance and are important to tourism and amenity values.

Visual impacts to dwellings are considered to be important to residents and their own private amenity only. There is a small number of dwellings which are within 50m of the proposed road development but all of these have existing factors which reduce visual sensitivity, such as existing trees or topography which limit views. These dwellings would be considered Category III receptors along with a small number of dwellings within 200m and with open views of the proposed road development. The majority of individual dwellings would be Category II receptors.

11.4 Description of Predicted Impacts

The proposed road development is 35km in length and is divided into four subsections:

A	Foynes to Ballyclogh	Ch. 1+000 to Ch. 7+320	6.3km
B	Ballyclogh to Askeaton	Ch. 10+000 to Ch. 11+940	1.9km
C	Ballyclogh to Rathkeale	Ch. 20+000 to Ch. 29+250	9.3km
D	Rathkeale to Attyflin	Ch. 50+000 to Ch. 67+500	17.5km

The descriptions of the proposed development and impacts are subdivided to follow these subsections. It is important to note the visual characteristics of the proposed road development in the first instance as this sets out the extent of change likely in the landscape and the level of visibility resulting from the proposed road. Subsequently, the predicted impacts are evaluated relative to this.

11.4.1 Landscape & Visual Characteristics of the Proposed Road Development

This section will describe in detail the context and character of the landscape through which the proposed road passes, and the visual characteristics of the road in this landscape. Consideration will also be given to evaluating the visibility of the proposed road development and the identification of areas where the route will have significant visibility.

In general terms, the proposed road development consists of three types:

- Foynes to Rathkeale (Sections A & C over 15.6km): Type 2 dual carriageway 16.5m wide plus verges and earthworks slopes.
- Ballyclogh to Askeaton (Section B): single carriageway 1.9km
- Rathkeale to Attyflin (Section D over 17.5km length): dual carriageway motorway 7.0m wide with 2.5m hard shoulders and 2.6m central reserve giving a width of 21.6m of blacktop surfacing plus verges and earthworks slopes.

The road will also have 2m to 3m verges on each side and usually an embankment/cut sloping down/up from the road, which will vary in width depending on the terrain. The edge of the land-take is in general defined by a timber post and tension mesh fence and a hedgerow. Within the proposed road development, there will also be a series of structures, including bridges, underpasses and culverts. There will be standard signage and road furniture. Landscape and visual effects are particularly acute where there are structures or junctions within the viewshed of a sensitive receptor.

A further visual element of the proposed road is the traffic, which often generates significant effects as it creates movement in the view and can be up to 4m in height above carriageway level.

Drainage attenuation ponds or basins are also included along the proposed road development, which will be designed as passively-safe so that visually intrusive secure fencing is not necessary. Noise barriers will also be visible elements and may vary typically between 2m and 3.5m in height.

The undulating topography of the study area and level of hedgerow and tree cover result in a landscape with a high visual absorption capacity. This means that the likelihood of substantial visual impacts is reduced because the topography and mature vegetation can block or restrict long distance views from certain receptors and allow the proposed road development to integrate into the landscape

For the purposes of assessing the predicted impacts, it should be assumed that the soft areas of the road corridor – verges, embankments and other spaces within the land-take – are considered as grassed only. Any planting measures are considered mitigation for the purposes of this assessment, to reduce or ameliorate landscape and visual impacts (see Section 11.5). Such measures will be taken into account in assessing the residual impacts (see Section 11.6).

The following Sections should be read in conjunction with Figures 11.0 to 11.23 in Volume 3 of this EIAR.

Section A: Foynes to Ballyclogh [Ch. 1+000 to Ch. 7+320, 6.3km in length]

This section of the route as illustrated in Figures 11.1 to 11.4 of Volume 3 is a Type 2 Dual Carriageway road. The road commences at a new roundabout on the south-eastern fringes of Foynes and runs south-east for the first 1.7km to Robertstown townland and then continues eastwards to Ballyclogh. This section lies within the Shannon Integrated Coastal Management Zone, and is generally of good scenic quality. Parts of the area surrounding the Port of Foynes and Aughinish Alumina (RUSAL) is of poor quality in visual terms due to the nature of their associated infrastructure.

The first roundabout at Ch1+000 connects the proposed road to the existing N69 National Road and the Foynes Port access road. The existing Port access road will be realigned to meet the roundabout, resulting in a widening of the verge area locally. There are two housing estates and a number of individual houses with views of the

roundabout within 50-200m of the works. The landscape is generally agricultural in this area, with some development on the fringe of the town and infrastructure associated with the port. There are existing trees and hedgerows in the sightlines from these houses towards the proposed road, so the new road will be screened for the most part. Two mature Ash trees and approximately 70m of hedgerow with trees will be removed from a hedgerow/treeline in the area to the east of the existing N69 which will be slightly realigned north of the roundabout. The Port access road realignment will result in c.500m of immature and mature roadside hedgerow (including c.5 early mature Ash trees) being removed, along with approximately 150m of low stone wall. This wall currently bounds the adjacent field and defines the boundary with the roadway. There is a house (A01-001) approximately 80m south of the roundabout with largely open boundaries to the north, so it will have views of the roundabout (which will be at a similar level to the existing N69) from the entrance gate, side garden and gable end of the house.

Also located within this area, accessed from the Foynes Port access road, is a service area for drivers of Heavy Goods Vehicles (HGV). It is located c.350m north-east of the first roundabout at the Foynes end of the proposed road. The HGV Service Area includes the following elements: 10 Car Park Spaces; 36 HGV parking Spaces; Small single-storey Facilities Building with toilets and showers; Controlled Access; CCTV Coverage; Lighting; and Security Fencing. The building is c.4m in height and c.40m x 23m in plan. The parking and building site area is raised c.4m above the existing ground level to be above flood level in this low-lying coastal location. The field within which it is set is bounded by streams / wet ditches to the south, east and west and contains one substantial mature tree group. The northern boundary of the site is formed by the railway and is also planted with trees and hedgerows, much of which is also mature. It is expected that this vegetation can be retained.

The proposed road development runs southeast from the roundabout across very low-lying and undulating ground to Ch.1+350. Ordnance Survey mapping indicates that there was a quarry here in the past. Parts of the existing landscape are as low as 2m above mean sea level (Ordnance Datum) with ground undulating to 14m OD. There are areas of scrub vegetation, which includes some small trees, and hedgerows throughout this area which will be removed. The fill varies from 2m to 8m in this area, before the road enters a section of cut to Ch1+750. The existing ground rises sharply up to +23m OD in the surrounding landscape but remains undulating in this section. The level of cut is up to approximately 8m and is likely to result in exposed rock faces on the slopes of the road cuttings. Some of the dwellings closest to these sections to the west of the proposed road will have views of the road through gaps in hedges and trees along the eastern boundary of their properties.

The proposed road continues southeast on a section of fill from Ch.1+750 to 2+400. The level of fill in this area is up to 5m in places and is reasonably consistent as the topography is less undulating, with the landscape composed of pasture and tillage fields with hedgerow boundaries. The hedgerows have substantial numbers of mature trees. Approximately 220m of tree-lined hedgerow will be removed. Houses are generally enclosed within hedgerows and set well back from the proposed road, so visual effects are limited. One exception to this is at Ch.2+200 where 2 dwellings (A02-005 and A02-006) 170m east of the road have open views and will be affected.

Elevated views from Knockpatrick Cemetery at an elevation of 172m OD and 2km west of the proposed road development would include the proposed road and structures as part of the panorama available from this vantage point. The existing view includes the industrial developments at Foynes and Aughinish as well as the scenic countryside and landscape of the Shannon Estuary.



Figure 11.3 View from Knockpatrick Cemetery east across the study area, with the fringes of Foynes visible in the middle left of the photo and Aughinish Alumina (RUSAL) (with distinctive red colouration of landscape)

From Ch.2+400 to Ch.3+400, the route is on fill. From Ch.2+400 to Ch.2+800 the route is elevated to cross the N69 at Robertstown and two local streams flowing north to the Shannon Estuary. The embankments and bridge structure will be at approximately 10m above the level of the existing N69 and the maximum level of fill is approximately 13m in height. The main stream will continue to flow in its current course, but the smaller tributary to the west will be diverted around the embankment and under the bridge at Ch.2+575. Two small trees from the banks of the stream and some existing roadside hedgerow and scrub will be removed. There are several houses and a church along the N69 and close by that will experience visual effects due to the visibility of the proposed road and over-bridge.

After Ch.2+800, the road turns to an easterly trajectory and continues through pasture and tillage fields, on generally low levels of fill. Approximately 140m of field boundary hedgerow with trees is removed at Ch.2+850 and a further 60m of low hedgerow is removed at Ch.2+980. A single parkland tree will be removed at Ch.3+150. At Ch.3+325 the route crosses over a small water body and an area of locally undulating topography which appears to be a former quarry or gravel pit. There is some scrub vegetation associated with the water body and further hedgerows and a parkland tree to be removed between Ch.3+325 and Ch.3+460. Part of the water body at Ch.3+325 is retained, with the remainder infilled.

The road is principally in cut from Ch.3+400 to Ch.4+325. At Ch.3+600, the route traverses a local road and runs through an area of deciduous scrub approximately 6.5 hectares in area. The proposed route will result in the removal of almost 2 hectares of scrub and 180m of mature roadside Hawthorn hedge. Dwellings in this area are generally at some distance (170m or more) from the road and are often screened by existing vegetation.

The road is in cut from Ch.3+950 to Ch.4+325 and then returns to a fill section as it crosses another quarry area and locally undulating ground. Throughout this area there are pockets of hedgerow, deciduous scrub and woodland vegetation which will be removed. There are very few dwellings in this area, and they are separated from the road by approximately 200m and are at least partially screened by existing vegetation.

From Ch.4+300 to Ch. 5+125 the landscape continues to undulate, and the road is on variable levels of fill up to a maximum of 9.5m. At Ch.4+430, the road crosses the Ahacronane River which flows northwest to the Shannon Estuary, some 800m away. The river is joined by a smaller tributary from the southwest at this point and the landscape is locally complex. A band of scrub vegetation follows the course of the main river along the eastern bank, part of which will be removed or trimmed back in the course of the construction.

The road continues on fill until Ch.5+125, where it enters a deep cut, to negotiate a hill which rises to the south. This area, at Mulderricksfield townland, is the area of highest elevation above sea level within the proposed road development, the highest point being c.53m OD. The cut is c.19m deep at the deepest point. Side slopes of the road are likely to be exposed rock. There is an over-bridge at Ch.5+740 replacing a section of the local road link, "Cooper's Lane" and maintaining connectivity. Dwellings in this area will not have views of the proposed road development due to the depth of the cut and vegetated boundaries. A substantial network of hedgerows with trees, some with wet ditches, will be removed as a result of the width of the proposed road at this location.

The road comes back to existing ground levels at Ch.6+400 and enters another section of fill to the proposed roundabout at Ballyclogh townland at Ch.7+300. The landscape is locally undulating at this location and the fill is up to 7m in places. Approximately 200m of hedgerow and a pocket of deciduous riparian scrub will be removed from this section. There is one house with potential views of this section at more than 240m distance.

No demesne landscapes are affected by Section A, although the proposed road development will traverse agricultural lands associated with Ballyclogh House to the north of the demesne boundary.

In total, over Section A, an area of 3.579 hectares of scrub vegetation with some mature trees and 6.58km of hedgerows, most of which have a proportion of mature trees, along with eleven individual mature parkland trees, will be removed.

Section B: Ballyclogh to Askeaton [Ch. 10+000 to Ch. 11+940; 1.9km in length]

This relatively short section of single carriageway road progresses through quite homogenous rural landscape consisting primarily of pasture fields bounded with hedgerows and trees. This section lies within the Shannon Integrated Coastal Management Zone, and is generally of good scenic quality but quite flat and fields are relatively large, resulting in an open rural character, with no distinctive features. The road is on fill throughout this section, generally 2-3m, occasionally rising to depths of up to 7m, particularly around Ch.11+300 where the proposed road crosses the disused rail line. The proposed road will result in the removal of c.3.3km of hedgerow/treelines in this section. It also crosses several small watercourses – streams or ditches.

Immediately east of the proposed roundabout at Ch.10+000, the local road (L-1220) is realigned to pass over the proposed road. The local road to the north (L-6062) is also raised to maintain the existing tie in with the L-1220. This results in elevated local roads on fill embankments, up to 10m above the ground level of the existing road.

There are very few houses within 500m of the proposed road in this section and none with unobstructed views of the road. House numbers B10-003 and C20-001 are within 400m, but are partially enclosed with existing hedges and trees around the houses and

access roads, and there are also large outbuildings on both properties in some sightlines to the proposed road.

At the proposed Askeaton Roundabout, Ch.11+950, local roads are realigned to meet the roundabout. The N69 is diverted north through a field for c.300m before joining the roundabout. This results in the removal of several mature trees and c.200m of hedgerow. There are several houses on the fringes of Askeaton which would have views of the proposed road development and the realigned existing roads, including house numbers B11-006 and B11-008 which would have views from gardens and gable ends towards the proposed road and roundabout, some 50-60m away.

No demesne landscapes are affected by Section B.

Section C: Ballyclogh to Rathkeale [Ch. 20+000 to Ch. 29+240; 9.2km]

This section is a Type 2 dual carriageway, starting at Ballyclogh Roundabout and progressing south for c.500m before turning east for c.1500m and then running more or less southeastwards to Rathkeale. This section is partially within the Shannon Integrated Coastal Management Zone CDP landscape classification up to Ch.25+800 and the remainder is within the Agricultural Lowlands classification and is generally of good scenic quality. Settlement is relatively sparse in the northern part of this section and increases in density in the southern portion, although there are relatively few houses in the areas surrounding Rathkeale, north of the existing N21 road for c.1.5km. Linear housing along the R-518 and L-6132 roads increases notably approximately 1.5km north of Rathkeale for c.1km, resulting in a substantial number of visual receptors in this area around Ballingarrane.

Despite the different classifications, the landscape is relatively homogenous. The landscape is similar to the previous sections in that it is primarily pasture fields bounded with hedgerows and trees. There are several watercourses and drainage channels within this area, with the River Deel the largest of these. At Ch.20+975-21+125, the proposed road crosses the northern edge of a field with several drainage channels, arranged in an usual criss-cross pattern, the origin of which is not clear and some of which appear to have been filled in or silted up.

The proposed road development crosses the River Deel on a bridge at Ch.24+000. The River Deel is a substantial river, almost 20m wide. The bridge supports are positioned to allow for accommodation tracks on both sides. There are no visual receptors within range of the bridge to be affected.

The proposed road will result in the removal of large quantities of hedgerows and trees from field and road boundaries. This is estimated at c.8.93km of hedgerow and 2.832 hectares of trees, woodland or naturalised scrub that will be removed, including the following:

- Ch.20+100 to 20+400: Hedgerow / tree belt within field – c.300m
- Ch.20+550: Tree belt along private driveway – c.105m
- Ch.22+800 to 22+850: Copse of trees – c.990sq.m
- Ch.22+950 to 23+050: Woodland / scrub area – c.6450sq.m
- Ch.24+300 to 24+700: Woodland / scrub area – c.16000sq.m
- Ch.24+730 to 24+825: Hedgerow / tree belts – c.145m
- Ch.26+825 to 27+050: Woodland Belt – c.4300sq.m
- Ch.29+100 to 29+225: Hedgerows / tree belts within field – c.400m

- 26no. isolated mature trees in field areas throughout

Two demesne landscapes are intersected by the proposed road in Section C: Ballyclogh House and Stoneville Demesne are both peripherally impacted by the route. Ballyclogh House is recorded within the National Inventory of Architectural Heritage *Survey of Gardens and Designed Landscapes for Limerick* as “*Virtually no recognisable features. Principal building in ruins.*” The road severs a relatively small part of Ballyclogh demesne (c.6% of the total area) and results in the removal of some vegetation including a tree belt (Ch.20+100 to 20+400, c.300m) and some other field vegetation. A small area of the demesne is isolated from the majority of the area by the proposed road. Stoneville Demesne is considered to be of higher value as it is listed in the NIAH Survey and is described as having “*Main features substantially present - peripheral features unrecognisable*”. A small corner of the demesne landscape would be affected which includes field areas, a woodland belt (Ch.26+825 to 27+050, c.6000sq.m) and roadside hedgerows. Approximately 2% of the historic area of Stoneville Demesne is affected and it is peripheral.

The mainline is elevated for almost all of Section C, with only a very short section of minor cut at Ch.22+670 to 22+800. The landscape is locally undulating and the fill is variable up to 11m or more in places. This increases the level of visibility of the proposed road but as the landscape is heavily covered with mature trees and hedgerows, both as field boundaries and along the local roads, levels of visibility are generally relatively low, except where the road is in close proximity to dwellings located on the local roads that it crosses. This is particularly the case at Station Road (L-1236) at Ch.22+500 south of Askeaton where the local road will be elevated 9-10m above the existing ground to cross over the mainline. There is a cluster of houses to the south which will have views of the realigned local road and over-bridge. Similarly, where the mainline crosses the L-1222 and R-518 roads at Graigeen townland (Ch.26+500 to 27+300) north of Rathkeale, there are groups of houses along the R-518 which will have views of the elevated road and structures 5-6m above the existing L-1222 road and approximately 10m above the R-518. The mainline crosses the L-6132 Doohyle Road at Ch.27+600 at a height of almost 9m above the existing road surface and generates similar effects on dwellings adjacent. The earlier crossing of the L-1220 Creeves Road at Ch.20+600 does not generate the same level of impact as those mentioned above, as there is just one house in proximity to the north-east with hedgerows and trees adjacent.

Two high-voltage electricity lines cross the proposed road development and will require changes in this section, with the potential to generate landscape and visual effects, as follows:

- At Ch. 25+075 a 220KV line will require a new, taller replacement tower of 34m maximum height above ground adjacent to the location of the existing tower which is 24.5m above ground;
- At Ch. 26+700 a 110KV line which will require 1 new pole-set and one existing pole-set to be raised; both pole-sets will be 21m in height above ground, compared to the existing 17m and 18m high pole-sets.

The only public recreational amenity affected by the proposed road is a proposed extension of the Great Southern Trail Greenway, a long-distance walking and cycling route which follows an abandoned rail line between Rathkeale and Tralee. At present, the 3km stretch from Ballingarrane Junction to Rathkeale is described as “undeveloped”, but there is a proposal to develop a greenway on this section of the former railway line as an extension of the existing trail from Rathkeale. The proposed road development intersects this route at a very shallow angle over an extended length

of 800m, and this will require the removal of the railway and boundary hedges on both sides. The proposed road will make provision for a replacement trail parallel to the new road with an underpass at Ch.28+250 where the proposed greenway will cross underneath the new road from the western side of the road corridor south of this point to the eastern side north of this point. The trail corridor then re-joins the original railway line around Ch.28+450 and continues south-westwards to Rathkeale.

The visual sequence along the R-518 travelling towards Rathkeale is considered to be sensitive, particularly where views of St Mary's Church (Rathkeale) steeple are available. The road is generally enclosed with hedges, itself a valuable landscape feature, but occasional openings allow views to St. Mary's Church in Rathkeale or the skyline of Rathkeale heritage town. The proposed road will not impact on views of the steeple, but it could generate additional traffic and infrastructure in the middle ground of views.

The junction with Rathkeale is at-grade and includes two roundabouts with a road linking them. The junction is set to the north of the town of Rathkeale and a number of the local roads are modified or realigned. As the realignment of the N21 will allow for the retention of the majority of the existing tree belt along the roadway, between the town of Rathkeale and the new road, this effectively acts as a screen, reducing the visibility of the proposed road development from dwellings and public areas of the heritage town core. However, at Ch.29+125 to Ch.29+225, at the southern roundabout and along the road linking to the roundabout from the west, the trees / hedgerows will be removed, resulting in open or partial views of the new road, Rathkeale Link Road and reconfigured junctions from dwellings on the northern edge of Rathkeale.

Section D: Rathkeale to Attyflin [Ch. 50+000 to Ch. 67+500; 17.5km in length]

This section is composed of dual carriageway Motorway, from the roundabout at Rathkeale to Attyflin, east of Adare, where it joins the existing M21 motorway. This section is within the Agricultural Lowlands classification, and is generally of good scenic quality, but areas around the railway and N21 road have lower scenic quality and lesser quality views locally. Again, the landscape is quite similar to the previous sections, in that it is primarily pasture and tillage fields bounded by hedgerows with mature trees. The topography is again undulating and there are a lot of watercourses and drains. The principal rivers crossed are the Maigne, Greanagh and Clonshire.

The motorway follows a series of cut and fill sections through Section D. From the Rathkeale Roundabout, it is on fill of up to 9.5m as far as Ch.51+300. Visual receptors in this area include a cemetery at Ch.50+250 (D50-PV1). The existing boundary hedge will be retained and protected during construction, but there will be views of traffic and the motorway on fill from the cemetery. At Ch.50+900 the proposed motorway on fill passes close to a single dwelling (D50-013) to the north.

The following section which extends to Ch.51+700 is in cut up to 5m deep. At Ch.51+325 there is a single dwelling (D51-001) immediately south of the proposed motorway. A single dwelling at Ch.51+600 (D51-003) south of the motorway will have partial views of the L-6023 Blossomhill Road elevated over the motorway and the motorway itself.

After Ch.51+700, the fill section is up to 6m high as far as Ch.52+400. Two dwellings at Ch.51+900 and one at Ch.52+125 will also have views of the motorway on fill.

This is followed by a long section of cut, extending 3.6km to Ch.56+000, and up to 11m deep in places. This is likely to result in exposed bedrock on side-slopes at deeper

areas of cut. Within this section of cut, the L-1421 (Cappagh Road) crosses over the motorway at Ch.54+460. Several houses adjacent (D54-007 to 010 and D54-012 / 012A) have views of the overbridge. The Croagh grade-separated junction is at Ch.55+600. The Croagh junction is connected to the existing N21 at Croagh, some 500m away, where a roundabout is proposed. Several local houses have views of the roundabout and link road (nos. D55002-008). This area has good quality hedgerows and parkland trees which will be removed.

After the Croagh Junction, the motorway returns to a predominantly fill section at Ch.56+000 and remains predominately on fill to Ch.60+000. Maximum fill height in this section is approximately 10m. The motorway crosses over the L-8025 Clonshire More Road and Clonshire River at Ch.56+500, the L-8024 Clonshire Beg Road at Ch.57+650 and the railway at Ch.58+000. There are also two underpasses in this section. There are several dwellings at the road crossings which will have views of the proposed motorway and / or the proposed bridges or underpasses. Two courses of the Greanagh River are also crossed at Ch.58+200 and Ch.59+250.

From Ch.58+750 to Ch.59+900, the motorway is on up to 9m fill, and crosses over the L-1422 Blackabbey Road at Ch.59+000 and Greanagh River at Ch.59+250. There is a cluster of dwellings along Blackabbey Road which will have views of the motorway on fill and Grenagh River bridge.

The proposed motorway then passes through the southern slope of a small local hill of 17m height above sea level, resulting in cut of up to 9m for 250m to Ch.60+500. Station Road L-1423 is realigned and crosses over the motorway near the peak of the hill at Ch.60+300 and there are two dwellings on the road which will have views of the overbridge.

The motorway then returns to fill at Ch.60+500 and crosses the Mague River at Ch.60+950 on a bridge structure to the north of Adare. The abutments are set wide enough apart to accommodate access tracks and flood berms. This part of the landscape is particularly low-lying, with the banks only 2m above sea level. The road level on the bridge is at 8m OD so the structure is relatively low in the landscape, but will be a substantial 200m long, 3-span bridge. During the construction phase, there will be cranes in place and craneage platforms will be temporarily erected adjacent to the river. There are several dwellings with potential views of the bridge. After the motorway passes the river, it runs through the northern slope of a small local hill, resulting in a short cut section from Ch.61+500 to Ch.61+875.

The Adare Junction at Ch.61+950 is grade separated and raised on fill of up to 11m in places. The Adare link road joins the existing N21 road to the north of Adare Manor demesne at a new roundabout, all of which is in cut, before joining the existing road. The proposed roundabout results in moving the road alignment further from the demesne wall than the existing road and creates a small landscape space between the road and wall. Existing stone walls on the northern side of the existing N21 road will be removed over a distance of c.280m to facilitate construction of the new link road and roundabout. Adare Manor demesne is not affected. There are some houses to the west of the proposed roundabout which will have potential views of the junction.

The mainline remains on fill to Ch.64+000 and there is a cluster of houses north of Ch62+600 which will have views. From there on, the proposed motorway is more or less at grade, and it joins to the existing motorway at approximately Ch.67+500 at the N20/M20 Junction at Attyflin.

Throughout Section D, hedgerows with mature trees and some individual mature parkland trees will be removed. The amount of hedgerow removed in this section is approximately 17.85km in length. Substantial numbers of mature trees within hedgerows will be removed along with 8no. mature parkland trees which are not in hedgerows. There are no woodlands, although there are some areas of scrub associated with the rivers, with a total of 1.51 hectares to be removed.

There are three demesnes that intersect with the proposed route in Section D: Smithfield House, Curraghbridge House and Ballycarrane House. All three are recorded in the NIAH Gardens & Designed Landscapes Survey.

- (i) Smithfield House is east of Croagh and the north-western corner of the demesne land is close to the proposed road at Ch.55+100. The NIAH Survey records this landscape as having *"Main features unrecognisable - peripheral features visible."* The road has been designed to avoid direct impacts to the demesne landscape, although there is potential for some impacts to boundary tree roots which could cause decline in the trees.
- (ii) Curraghbridge House demesne is located to the west of the Maigne, northwest of Adare. The NIAH Survey records this landscape as having *"Main features substantially present - peripheral features unrecognisable."* The realignment of L-1423 (Station Road) at Ch.60+300 results in the loss of some land at the southwestern edge of the demesne. This is a grass field with roadside and boundary hedgerows with no features of particular interest and no mature trees, less than 2% of the land area of the demesne.
- (iii) Ballycarrane House demesne at Ch.64+850 was already severed by the M21 and railway, the proposed road development results in no additional impacts. The NIAH Gardens Survey states that there are *"Virtually no recognisable features."*

In terms of publicly important views, the visual sequences along the roads into Adare heritage town on the N21 from the east and southwest are an important part of the character of the village and add to the tourism and amenity value in visual terms. The approach from the southwest is lined with mature trees and there are frequent heritage or visually interesting elements such as estate walls, historic houses and village green.

The approach along the N21 from the east is particularly visually interesting and dynamic, with a range of different elements and focal points. It can be said to begin at the gate lodge to Adare Manor at Lantern Lodge, a recently renovated stone structure set at the roundabout with the N21 and L-1424 Kilgobbin Road and L-1420, some 1.5km north-east of the village. The road then winds around the boundary of the Adare Manor demesne (now a hotel and golf course) which is defined with a stone wall and is heavily planted with mature parkland trees such as Beech, Sycamore and Pine. The N21 then passes over the Maigne River on a stone bridge, with views of an extensive ruined castle, Desmond Castle, set on the banks of the river. Across the bridge there are views of St. Nicholas Church of Ireland, a stone church in the vernacular style. Views open out again with parkland on both sides of the road before entering the final approach into Adare, which is again defined by stone walls and mature parkland trees lining the road.

The proposed road will not impact directly on either of these visual sequences, except to reduce the amount of traffic passing through Adare. The position of the junction for Adare is west of Lantern Lodge so this feature will no longer form part of the visual sequence for drivers exiting the motorway for Adare Village. However, the view from the proposed link road into Adare Manor is considered to be of high amenity value.

11.4.2 Predicted Landscape Impacts

This section should be read in conjunction with Table 11.7 which sets out the landscape impacts for the proposed road development.

Landscape impacts will be most acute during the construction phase, which is expected to last 30-36 months. Landscape impacts that occur in the construction phase generally have longer term effects, most notably felling of mature trees and changes to topography.

Impacts to landscape character will arise from the contrast of the new road with the surrounding context and character of rural, agrarian landscape. There are a large number of roads already crossing this landscape which reduces the levels of sensitivity somewhat, so this is generally a moderate impact, but rises to significant in sensitive areas, particularly at the crossing of the River Deel which is currently an area with very little development. The crossing of the River Maigue will also generate significant landscape effects because of the scale of the proposed bridge in a sensitive landscape area. The scale of the overbridge at Robertstown will also result in predicted significant negative effects. At all other areas with substantial structures or junctions, where there is potential for greater impact, there are existing man-made elements such as existing roads or quarries or they are on the fringes of urban areas, so the impacts are reduced by existing adverse factors.

The landscape impacts will include severing of fields which changes the pattern, but as there is no strong patterning to the form of the fields in general, this is considered to be localised to the fields which are affected and therefore is a moderate impact.

Removal of mature trees and hedgerows is quantified in section 11.4.1 and whilst the amount removed is substantial locally, it is considered to be a moderate negative impact as the quantity that will be removed within the road corridor is a small minority of the overall vegetation in this landscape unit. It should also be noted that the design has avoided most of the wooded areas and designed landscapes in the region which may have particularly old or unusual trees or mature avenues or designed features, so the potential impact level was reduced by avoidance.

Impacts to historic designed landscapes or demesnes are considered slight and negative, as the more valuable demesnes in terms of designed landscape have been avoided in the design and only peripheral areas of three demesnes are impacted upon.

When the road is operational, the changes made to the landscape at construction stage described above will persist if no mitigation measures are implemented.

In terms of landscape amenity, the proposed road will have no impact on public access to the landscape as all local roads and accommodation tracks are reinstated or have minor diversions. The Great Southern Trail Greenway is accommodated in the design of the proposed road development, ensuring that connectivity is maintained and the future development of the greenway is not compromised by the proposed road development. The proposed Greenway route is diverted away from the old rail line for a short distance and a new underpass is provided. This is considered a neutral impact in terms of the cyclists/walkers' amenity and landscape values.

11.4.3 Predicted Visual Impacts

This section should be read in conjunction with Table 11.9 which sets out the visual impacts to each sensitive receptor identified in the study, and with regard to the Photomontages provided in Volume 5 of the EIAR. Impacts are illustrated on Figures

11.1 -11.23 of Volume 3 (Figures) of this EIAR. The following section sets out a summary of the most affected receptors in the study area. Primary views from the properties were assessed. Nine properties are being acquired as part of the proposed road development. These are identified as such within the following tables and have not been assessed for visual impact.

The majority of sensitive visual receptors are individual dwellings and impacts are greatest where they have a close view of the road, motorway or a bridge or other structure associated with the road. There are very few public viewpoints that are considered to be sensitive as there are no parks or public footpaths in most of the study area and only one walking route (Great Southern Greenway).

In the construction stage, the visual effects are predicted to be at their highest level, due to construction traffic, plant and the visual appearance of the landscape under construction. These will be temporary visual effects, lasting less than 1 year for most receptors, although the full construction period may be longer, so some receptors could experience short-term effects lasting up to 2 years. Dwellings with open views of construction works around structures and the associated taller construction plant such as cranes, piling rigs, etc. will endure the greatest impacts. It is anticipated that Dwellings A02-007, A02-009, D57-007, D57-008 and D59-002 will experience profound negative visual impact during construction, and a further 37 properties will experience very significant impacts: Dwellings A02-007A, A02-007B, A02-013, A02-014, A02-017, A02-018, C22-014A, C22-019, C23-001, C24-001, C26-005, C26-008/009 / 008A, C27-003, C27-004/ 005/ 006, D50-PV1, D50-013, D51-001, D51-003, D51-006/ 007, D52-001, D55-002, D56-009, D56-013, D57-001, D57-007, D57-008, D59-002, D60-003, D60-004 and D62-004/ 006 / 006A. Almost all properties within 200m of the proposed road development will experience significant or moderate negative visual change temporarily during the construction phase due to the nature of typical road construction activities.

In the operational phase there are 5 no. properties which are assessed as experiencing a Very Significant negative impact and a further 32 with Significant negative impacts, as summarised in the following table. Table 11.9 gives the predicted visual impacts for all receptors.

Table 11.7 Summary of Significant and Very Significant Predicted Visual Impacts – Operational Stage

Location	Ref.	Impact	Description
Ch. 2+500	Dwelling A02-007	Very Significant negative	Direct views of the new bridge structure at Robertstown to the east of the property, and over-bridge over the existing N69, truncating views towards the Shannon Estuary and over farmland within 50m of the property.
Ch. 2+650	A02-009	Very Significant negative	Elevated road and bridge structure at Robertstown will be visible from front of house in close proximity and will significantly alter views across the landscape to the south.
Ch. 2+500	A02-007A & A02-007B	Significant negative	Views will be partially blocked by embankment to north and north-east of house, where views through trees are available.

Location	Ref.	Impact	Description
Ch. 2+685	A02-013	Significant negative	The proposed road on substantial fill at a distance of less than 140m will block views of Robertstown Church from the property and bridge structure will also be visible.
Ch. 2+925	A02-014	Significant negative	The proposed road on substantial fill at a distance of less than 150m will block views of Robertstown Church from the property and bridge structure is also likely to be visible at an oblique angle at 350m distance. Views north and east affected and views west unaffected.
Ch. 2+500	A02-017 & 018	Significant negative	Elevated road will be visible from front of houses in secondary views west.
Ch. 22+600	C22-014A	Significant negative	Mainline on fill visible to north and east from property. Realigned L-1236 on fill visible to west.
Ch. 22+800	C22-019	Significant negative	Mainline on fill visible to north and east from house and garden areas.
Ch. 23+400	C23-001	Significant negative	Visual sequence to arrive at house is changed by the proposed accommodation track; open views across landscape to the south and west interrupted by proposed road on fill.
Ch. 24+800	C24-001	Significant negative	Views to west unaffected, but views east are truncated close to dwelling by proposed road on fill. Some existing trees will be removed, and visual environment of dwelling will be substantially altered both at the dwelling and on the entrance drive.
Ch. 26+725	C26-005	Significant negative	Mainline on bridge over L-1222 and on fill highly visible to west with bridge abutments c.80m from dwelling.
Ch. 26+950	C26-008/009	Significant negative	Mainline on bridge over R-518 and on fill highly visible to west with bridge abutments c.60m from dwelling.
Ch. 26+875	C26-008A	Significant negative	Mainline on bridge over R-518 and on fill partially visible through existing tree and hedge lines to west and south.
Ch. 27+075	C27-003	Significant negative	Mainline on bridge over R-518 and on fill highly visible to east with bridge abutments c.60m from dwelling. Views to west unaffected.
Ch. 27+250	C27-004/005/006	Significant negative	Mainline on fill highly visible to east limiting views of agricultural landscape.
Ch. 27+700	C27-026	Significant negative	Mainline on fill highly visible to east limiting views at c.180m distance.
Ch. 29+250	D50-PV1	Significant negative	Mainline on fill visible to south and west of Cemetery with existing vegetation partially screening to south.

Location	Ref.	Impact	Description
Ch. 50+900	D50-013	Significant negative	Mainline on fill highly visible to south, embankments very close to boundary. Primary views across the landscape from the dwelling are not affected, but the entrance route and visual approach is to be altered substantially as trees/hedging will be removed and the proposed motorway will be closer than the existing N21.
Ch. 51+325	D51-001	Significant negative	A partially enclosed property with some views to the north across the landscape. The proposed motorway will pass c.50m to the north of the property, partially in cut, resulting in removal of mature vegetation, leaving potentially open views of the motorway.
Ch. 51+600	D51-003	Significant negative	Existing mature trees provide some screening to immediate north, but proposed road in slight cut visible in views northeast.
Ch. 51+900	D51-006/007	Significant negative	Proposed road on fill visible in views.
Ch. 52+125	D52-001	Significant negative	Mainline on fill highly visible to south and east, trees and hedgerows removed from landscape to south and east of dwelling.
Croagh Roundabout	D55-002	Significant negative	Roundabout and link road to east highly visible from property.
Ch. 56+200	D56-009	Significant negative	Road on slight fill will be visible, due to existing trees being removed.
Ch. 56+600	D56-013	Significant negative	Road on fill partially visible to north & west. Existing trees and hedgerows partially screen road on fill.
Ch. 57+050	D57-001	Significant negative	Road on fill visible to south & east. Entrance sequence altered due to diversion of access road under mainline on fill.
Ch. 57+650	D57-007	Very Significant negative	Road on fill and bridge highly visible to south and east.
Ch. 57+725	D57-008	Very Significant negative	Road on fill and bridge highly visible to north and west.
Ch. 59+025	D59-002	Very Significant negative	Road and overbridge highly visible to north and west with existing vegetation removed. Views south over river valley unaffected.
Ch. 60+200	D60-003	Significant negative	L-1423 realignment pulled away from property giving more space but is on fill so will be more visible. Mainline visible to south.
Ch. 60+250	D60-004	Significant negative	L-1423 realignment pulled away from property giving more space but is on fill so will be more visible. Mainline partially visible to north.
Ch. 62+600	D62-004/006/006A	Significant negative	Mainline on fill highly visible to south, trees and hedgerows removed from landscape west, south and east of dwellings.

11.5 Mitigation & Monitoring Measures

The following recommendations are put forward to mitigate against the negative impacts mentioned above and to reinforce the positive impacts of the proposed road development. Mitigation measures are proposed and considered only on the lands within the land-take envelope.

It should be noted that the assessment has operated in a stepwise refinement method with the identification of impacts at an earlier stage forming the basis for design of the proposed road development. Therefore, the methodology has informed and assisted in the design of the proposed road development as opposed to being an assessment of a predetermined development. For instance, the route was designed throughout the Route Selection Phase and design stage to avoid demesne landscapes inasmuch as possible, which has been successful in avoiding and minimising impacts to historic designed landscape in the region. Similarly, designated landscapes, forest parks and other sensitive landscapes in the wider study area were avoided.

The primary strategic objectives of the proposed landscape mitigation works are to re-integrate the proposed road development into the landscape through which it passes and to screen the road from affected visual receptors. The proposed road development passes through a landscape defined by a pattern of fields, hedgerows, woodland, settlement, pasture, existing infrastructure, water courses and locally undulating topography, as described above, and the landscape mitigation measures aim to reflect this character.

Mitigation measures from other specialist areas of assessment that take the form of landscape planting, notably Biodiversity and Agriculture, have been coordinated with the landscape mitigation measures and included in the provisions in Figures 11.1 to 11.23 of Volume 3.

The proposed landscape mitigation measures described in the following sections 11.5.1 and 11.5.2 are illustrated on Figures 11.1 to 11.23 in Volume 3 (Figures) of this EIA and have been devised with reference to the Transport Infrastructure Ireland (TII) documents "*A Guide to Landscape Treatments for National Road Schemes in Ireland*" [Ref: GE-ENV-01102; February 2006] and "*Guidelines on the Implementation of Landscape Treatment on National Road Schemes in Ireland*" [GE-ENV-01103; July 2012]. These mitigation measures will ensure that the effects identified in the predicted impacts section are addressed to mitigate the landscape and visual effects on the receptors in the study area, and will be integrated into the landscape design treatments for the proposed road development going forward.

11.5.1 General Mitigation and Monitoring Measures

The landscape mitigation will formulate a schedule of landscape types that can be used to provide a visual connection between the route and the existing environment at specific locations. Another aim of the landscape proposals is to mitigate adverse visual impacts on individual properties affected by the route by means of hedgerow or woodland screening. Finally, it is the intention of the landscape proposals to take the opportunity to create a diverse range of ecological habitat types along and within the land-take line, following coordination with the Biodiversity specialist (see Chapter 7 and Appendix 7.1). The Agricultural specialist has also been consulted with regard to screen planting required for stud farms or horse-related enterprises along the proposed road development.

A suitably qualified landscape architect will devise the specification for the proposed road development based on the mitigation measures outlined in this EIAR, in consultation with a suitably qualified ecologist. The drawings, specifications and management documents will include for the treatment of the existing vegetation, soil preparation, seeding, planting, maintenance and establishment works. In addition, requirements put forward in Chapter 7 Biodiversity will be coordinated with the landscaping works.

Consultation with a suitably qualified arborist is required for the successful and safe retention of existing mature trees where possible. A Tree and Vegetation Management Plan will be prepared by the arborist which will identify the specific trees for retention and measures required for protection of trees prior to commencement of construction works, with reference, where appropriate, to BS 5837:2012 *Trees in relation to design, demolition and construction. Recommendations.*

Existing semi-mature and mature tree groupings within the land-take area or adjacent, that are to be retained will be protected through the erection of fencing prior to the commencement of construction works on site. The fence must remain intact for the duration of the works and will exclude any construction related activities. The fence type, installation method and location to be advised by a suitably qualified landscape architect. A suitably qualified arborist will assess the condition of the retained trees during and post construction works (and in particular will advise on the risk of windthrow, particularly where the route divides woodland areas).

In considering landscape mitigation measures, it should be noted that Ash (*Fraxinus excelsior*) is currently restricted due to Ash Dieback Disease and cannot therefore be planted at present. Ash is one of the most common native trees in Irish hedgerows, woodlands and scrub. For the purposes of this assessment, it is assumed that these restrictions will be lifted prior to the construction of the road and implementation of the landscape scheme. If they are not, Ash should be omitted and replaced with appropriate native alternatives suited to the site.

The plants selected for the landscape treatments are found in the existing landscape and are appropriate to the local soil types and climatic conditions. The breakdown of the proposed landscape treatments, which have been devised to achieve the objectives for landscape mitigation, are as follows:

- **Hedgerow / Treelines:** In order to re-establish hedgerow / treeline corridors that have been severed by the proposed road development, the fence-lines are to be established with native hedgerow material. The native hedgerow material will include species which widely occur in the existing landscape area; such as – Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*) and Willow (*Salix* spp.) with emergent trees including Elder (*Sambucus nigra*), Ash, Sycamore, Rowan (*Sorbus* spp.), Birch (*Betula pendula*), Aspen (*Populus tremula*) and Oak (*Quercus robur*). Many of the hedgerows in the study area have a proportion of both native and non-native parkland trees and form linear treelines in the landscape. Thus a proportion of non-native parkland tree species should be included in the hedgerows to reflect the history of the landscape. Appropriate species currently found in this landscape are Beech (*Fagus sylvatica*), Horse Chestnut (*Aesculus hippocastanum*), Lime (*Tilia* spp.), Sweet Chestnut (*Castanea sativa*), Larch (*Larix decidua*), and Lombardy Poplar (*Populus nigra italica*). The number of non-native species in the proposed mix should be approximately 30% of the native tree numbers.
- **Compensatory Parkland Trees:** This landscape has a high proportion of parkland trees, some of which will be unavoidably removed. Replacement trees

will be planted where appropriate clearance distance from the carriageway permits. Species will be determined at detailed design stage but may include Oak (*Quercus robur*), Scots Pine (*Pinus sylvestris*), Beech (*Fagus sylvatica*), Horse Chestnut (*Aesculus hippocastanum*), Sycamore (*Acer pseudoplatanus* & varieties), Maple (*Acer platanoides*, *A. campestre*), Lime (*Tilia* spp.), Sweet Chestnut (*Castanea sativa*), Hornbeam (*Carpinus betulus*) and Lombardy Poplar (*Populus nigra italica*). This measure is to be implemented as part of Specific Landscape Measures (SLMs); see following section 11.5.2.

- **Screen Planting Measures:** At specific areas, there will be a requirement for particular screening of the proposed road development in views from properties, to address potential visual impact. These will be established using woodland planting with a specific emphasis on quick establishment of a woodland screen, with larger material to create woodland screening and effective woodland in the long-term, as well as an understorey of planting to screen at lower levels. Species to be included are: Scots Pine (*Pinus sylvestris*), Holly (*Ilex aquifolium*), Ash (*Fraxinus excelsior*), Oak (*Quercus petraea*), Birch (*Betula pendula*), Alder (*Alnus glutinosa*), Hawthorn (*Crataegus monogyna*), Willow (*Salix* spp.). In some cases, where woodland planting could adversely affect the level of light in the property to be screened, or where woodland would be inappropriate in the landscape context, it would be more appropriate to plant only shrub understorey species which will reach 4-5m, sufficient to provide adequate screening of traffic or integrate structures into the landscape, such as Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*), Willow (*Salix* spp.), Guelder Rose (*Viburnum opulus*), Spindle (*Euonymus europaeus*) and Elder (*Sambucus nigra*). Screen planting measures will have a minimum of 10 rows of planting parallel to the carriageway / element to be screened, spaced at 1-1.5m, unless space is limited. Screen planting will be located as far as practicable from the property to be screened to avoid excessive dominance / presence of large trees adjacent to the house, particularly where screen planting is located to the south of the house and could limit light into the property.
- **Riparian / Wetland Planting:** Throughout the study area there are copses beside streams and riverbanks of wet woodland. These are generally scrubby in make-up and distributed at random in the low-lying areas in particular. In order to integrate the proposed road development into the landscape it is proposed to plant copses or groups of appropriate tree species along the route in these areas. Species to be included are: Alder (*Alnus glutinosa*), Birch (*Betula pendula*) and Willow (*Salix aurita*, *Salix purpurea*, *Salix caprea*, *Salix cinerea*). These areas are to be planted in naturalistic groups and integrated with either wildflower seeding, hay-strewing or bare-earth recolonization techniques.
- **Attenuation Ponds:** Drainage attenuation ponds or basins will be designed as passively-safe so that visually intrusive secure fencing is not necessary. Tree and shrub planting to create naturalistic barriers and for visual amenity or screening where needed around the ponds will include the following species: Alder (*Alnus glutinosa*), Birch (*Betula pendula*) and Willow (*Salix aurita*, *Salix purpurea*, *Salix caprea*, *Salix cinerea*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*). Where space is available, areas of grass should be allowed to develop adjacent to ponds as suitable foraging habitat for Barn Owl (see Biodiversity Chapter 7) with clumps of trees of the above species. Within the ponds, establishment of native aquatic or marginal plant species will be encouraged through management. See Figures 11.24 to 11.26 for examples of the layout required at all attenuation ponds.
- **Scrub Planting:** Selected areas are to be established with scrub in order to integrate the proposed road development into the landscape, provide variety,

stabilise embankments, and for ecological reasons. Areas planted with native scrub species will include species such as: Bramble (*Rubus* spp.), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Spindle (*Euonymus europaeus*), Willow (*Salix caprea*), Buckthorn (*Rhamnus frangula*) and Dogwood (*Cornus sanguinea*). See further details of Barn Owl mitigation measures below.

- **Grass:** Grass verges immediately alongside the carriageway (max 3m width), slip roads, roundabouts and side roads are to be established with a low maintenance grass seed mix, consisting predominantly of indigenous fescue grasses.
- **Wild Grass / Flower Meadow:** Where screening and scrub planting is not a requirement, semi-natural grasslands are to be allowed to establish using bare-earth regeneration techniques or hay-strewing (gathering seed from appropriate areas adjacent to the scheme). Such areas will be monitored by the project ecologist.
- **Stabilising Grass Seeding:** Drains, ponds, basins and swales are to be established using a specific grass seed mix of predominately fescue grasses to stabilise the slopes, but that will not impede the flow of water once established.
- **Rock Faces:** In cut slopes where natural bedrock is present and can be left exposed, this will be retained as a landscape feature on the route. No landscape works will be carried out, unless there is a need to stabilise or modify certain areas for safety. Hydroseeding with native seed could be considered in such a scenario.

An important aspect of the proposed landscape planting measures is to enhance the effectiveness of the Biodiversity mitigation measures, such as mammal underpasses or culverts for use by bats as described in Chapter 7 Biodiversity. Native hedge and shrub planting will be included at the entrances to underpasses or culverts to ensure that they can be detected by target species and used by them.

Mitigation measures for Barn Owl are required across the proposed road development (see Chapter 7 Biodiversity, and Appendix 7.3 Recommendations for mitigation to minimise the impacts of the proposed Foynes to Limerick Road on Barn Owls (*Tyto alba*)), and will be integrated into the general landscape treatment as follows to optimise conditions favourable to Barn Owl conservation:

- Within 3m of the edge of the hard shoulder, the grass should be maintained to a height not exceeding 100mm, or replaced with gravel if appropriate (noting that gravel would generally be considered inappropriate unless there are issues for access for maintenance, or aesthetic considerations at feature areas, such as roundabouts or entrances to towns);
- Between 3-5m from the hard shoulder a 2m-wide belt of shrubs and trees that will reach a minimum of 4m in height should be planted to divert the flight of the owls over the height of the Heavy Goods Vehicles. This should be varied in composition appropriate to the landscape adjacent and may consist of a mix of fast-growing species such as Alder (*Alnus glutinosa* - 5% of mix), Birch (*Betula pendula* - 5%), Whitebeam (*Sorbus aria* - 5%), Mountain Ash (*Sorbus aucuparia* - 5%), Hazel (*Corylus avellana* - 40%) and Willow (*Salix aurita*, *Salix caprea*, *Salix cinerea* - 40%) and understory species such as Bramble (*Rubus* spp. - 60% of understory mix), Hawthorn (*Crataegus monogyna* - 10%), Holly (*Ilex aquifolium* - 10%) and Blackthorn (*Prunus spinosa* - 20%).

It should be noted that this belt of scrub and trees proposed is within the 'Clear Zone' defined by TII technical guidance. For new plantings or

existing trees within the Clear Zone, the maximum allowable diameter shall not exceed 100mm or a girth of 314mm (when measured at 0.3m above the ground). For new plantings, the design shall consider the mature size of the tree. The grouping of trees with trunk diameters $\leq 100\text{mm}$ and/or girths $\leq 314\text{mm}$ together may constitute a hazard due to the cumulative impact of the trees on an errant vehicle for a spacing of less than 1500mm. (Reference: The Design of Road Restraint Systems (Vehicle and Pedestrian) for Roads and Bridges Transport Infrastructure Ireland [TII Ref: DN-REQ-03034 - May 2019]). Thus, to achieve the desired mitigation for Barn Owls, the trees should be planted as multi-stem or bush forms in these locations, as they will reach the required height, but will not breach the 314mm girth limit (when measured at 0.3m above the ground). Such trees should be planted at 3.5-4m height from the outset, in order to ensure that the required protection is in place.;

- In areas of cut, the belt of shrubs and trees should be extended up the sides of the cut slopes so that the owls flight path is diverted to the required extent.
- Behind the shrub and tree belt, topsoil should be a minimum of 200mm deep to allow for tall grass ("rank grassland") to develop which is the preferred habitat of the Barn Owl's rodent prey, providing suitable and safe habitat areas.
- At attenuation ponds, areas are to be left free of planting with rank grassland as suitable foraging habitat, set back from the road and in combination with the measures outlined above.

At 32no. locations along the proposed road development, specific landscape planting measures are proposed for the mitigation of impacts to Bats (see Chapter 7 Biodiversity for further details). The planting is proposed where hedgerows / scrub / treelines will be removed or bisected as a result of the construction of the proposed road development. The purpose of the planting is to provide alternative flight paths or reinstate such features for commuting bats. This planting will comprise of a mix of native species, of the same species removed wherever possible. Such planting should be of a size directed by the project ecologist in order to ensure continuity of cover. Nominal size expected for such planting is 3.5-4m in height for trees and 1.5-2m for hedgerow / shrub plants.

Where planting for landscape and visual mitigation and biodiversity mitigation are proposed within the same areas, this will be resolved by selection of species that are suited to both purposes. It is anticipated that this will not compromise either mitigation in any substantive way.

With regard to biodiversity, native plants with value for pollinators and other insects will be included in planting design specifications. In addition to structural and functional planting (all native species which are flowering and fruiting) listed above, the plant mixes will include small quantities of Honeysuckle (*Lonicera periclymenum*), native Rose species (*Rosa canina*, *Rosa pimpinellifolia*, etc.) and herb layer flowering plants.

Chapter 7 Biodiversity noted very little presence of invasive species along the proposed road development, with some plants recorded at the River Deel, and at the Blossomhill Stream in Ballingarrane. Where invasive plants are discovered within the development boundary, measures to eradicate or prevent their further spread will be specified in the landscape works. Measures to control the spread of Invasive Species are outlined in the Environmental Operating Plan, see Appendix 4.1 of this EIAR.

In the construction process, the excavation and grading of all areas will be carried out in a sensitive manner to marry in the new formations with the existing landscape. Sharp

ridges or overly steep embankments will be avoided where possible. In general, embankments are designed with 1:3 slopes which are flatter than typical road embankments, resulting in a more sympathetic fit with the existing landscape.

Care will be taken when clearing existing drains or streams to avoid damage to existing vegetation and the general character of these landscape features.

With regard to the setting out and arrangement of planting this will be carried out using naturalistic planting arrangements associated with those already found in the landscape and in order to create a mosaic of habitats. For example, in wet woodland areas this may involve planting clusters of plants at wider randomised spacings. Where screening is required and a general covering of plants to integrate the proposed road development, close planting densities will be followed at 1.5m spacings. Woodland mixes will be planted at varying widths to ensure the linearity of the road is not emphasised and variety is maximised. Planting guidelines laid down by TII (*A Guide to Landscape Treatments for National Road Schemes in Ireland* – Transport Infrastructure Ireland [TII Ref: GE-ENV-01102; February 2006]) are to be referred to in this regard.

Unless otherwise stated, road verge or bank planting will consist of “bare root transplants”, “whips” and “feathered trees” which are more natural in form and, due to their smaller stock size at time of planting, will adapt more easily to the disturbed ground and exposed site conditions. Larger sized stock may be required to achieve specific objectives for ecological mitigation, as already noted, and some Specific Landscape Measures (see section 11.5.2) may also require larger stock.

All trees, shrubs, transplants, hedging material and ground cover planting shall be guaranteed for a minimum three year period (post planting) against death, deformation, die-back, or disease other than that caused by malicious damage. Maintenance to establishment is to be included in all planting and planting works and maintenance to be carried out by a fully qualified and experienced Landscape Contractor. *Note that all mitigation requirements proposed in the EIAR must be established, monitored and maintained into perpetuity.*

The contractor will prepare a landscape maintenance plan after the implementation of the proposed road development. All landscape works will be in an establishment phase for the initial three years. This will include (a) Weed and litter control including monitoring particularly during the early growing seasons of the landscape maintenance contract, (b) Grass cutting and replacement of failed plants and (c) compliance with all health and safety standards in particular with regard to maintenance works during the operation phase of the road.

Redundant sections of the disused road network can be reinstated as grassland, scrub or woodland where appropriate.

In certain areas, where there are views to monuments or other landscape features in the adjacent landscape and where screening is not required, the embankments will be maintained free of planting to allow views into the landscape and enhance the tourism and scenic potential of the new road. This is included at Milltown Cashel (Ch24+000 west), in particular, which is a particularly fine upstanding monument and there are no visual receptors in the vicinity.

11.5.2 Specific Mitigation Measures

Areas that have been identified as having particular landscape effects along the proposed road development may merit a specific landscape treatment. Elements such as bridges over rivers or roads, roundabouts and junctions require specific consideration to ensure that they are integrated into the landscape. Screening measures identified in the assessment which overlap with an SLM will be integrated into the SLM where necessary. Individual receptors visually impacted upon where the proposed road development passes very close will also be treated, where necessary, with specific landscape measures (SLM), as appropriate to the conditions. Consideration is given to such factors as appropriate plant species selection e.g. evergreen, rapid establishment, height etc. and appropriate hard landscape or feature elements in some instances. In some locations, a SLM may be merited where the adjoining landscape is sensitive or requires landscape design which takes into account the context, landscape typology, sense of place, etc. or where there is an important arrival or exit point to a town or other place of interest.

The proposed specific landscape measures (SLM) for this project are as follows:

SLM 0 HGV Service Area (Chainage 0+000)

Building and parking area to be screened with native woodland. Existing trees to be retained where possible. Arborist to be engaged to develop a plan for the safe retention of the tree group adjacent to the site entrance and trees along the rail line during construction. Plan for service area to include native shrub and tree planting to the islands and fringes, with non-native evergreen groundcover planting where necessary for maintenance purposes. The large areas surrounding and on the boundaries should be planted with selected native trees and hedgerows, allowing for open grassland where possible. Barn Owl mitigation measures (see Section 11.5.1) incorporated along edges of vehicular routes. Proposed boundary ditches / streams and attenuation pond are to be integrated into design.

SLM 1 Foynes Roundabout (Chainage 1+000)

This landscape area created by the realigned roadways offers an opportunity for a landscape or artistic feature at the entrance to Foynes to create a sense of place and aid in wayfinding. Such a feature could reference the port, and/or heritage of the town. The stone walls removed as a result of the proposed development will be replaced with stone walls to match the existing at the edges of the proposed road development in this area. Noise barriers to be screened with hedgerow or shrub species. Barn Owl mitigation planting (see Section 11.5.1) is to be incorporated into the landscape design within this SLM. Screen Planting will be provided within the SLM to further screen views from adjacent properties.

SLM 2 Over-bridge, Sroolane North / Robertstown (Chainage 2+250 to 3+000)

The provision of appropriate screen planting along the embankments of the proposed road development to provide a balance between screening, aesthetics and allowing light into the properties. Special design consideration given to integrating the bridge structure with the landscape in terms of finishes and landscape planting. Noise barriers to be screened with hedgerow or shrub species. Barn Owl mitigation planting (see Section 11.5.1) to be incorporated into landscape proposals along the embankments.

SLM 3 Ballyclogh Roundabout & Local Roads (Chainage 10+000 & environs)

Ballyclogh Roundabout is set in a rural location and will be treated sensitively to integrate the proposed road and structures into the landscape. Existing trees and

vegetation are to be protected where possible by minimising working space and erecting protective fencing. Riparian vegetation along existing rivers in particular are marked for habitat protection in the Biodiversity Mitigation Drawings and will be fenced off prior to construction. Appropriate native planting will be provided to integrate the roundabout and embankments into the landscape. Parkland trees as compensation for trees removed from surrounding areas will also be included. Design consideration has been given to the context and surrounding habitats, which include fen and streams, taking into account the Project Ecologist's recommendations. Extensive planting is proposed for Biodiversity mitigation (see Chapter 7) and Barn Owl mitigation is proposed around these areas to provide suitable foraging areas which are segregated from the traffic by shrub and tree lines.

SLM 4 Askeaton Roundabout & Adjacent Roads (Chainage 11+900 & environs)

This landscape area created by the realigned roadways, offers an opportunity for a landscape or artistic feature at the entrance to Askeaton to create a sense of place and aid in wayfinding. Such a feature could reference the heritage of the town. Planting, including parkland trees, will be provided in landscape spaces and the decommissioned area of N69 road to compensate for removal of trees and shrubs along existing N69 and hedgerows / treelines in fields to north. This planting will also provide screening for the junction from adjacent properties and lands. Biodiversity mitigation measures will be incorporated in this SLM including Barn Owl mitigation planting as included along the majority of the proposed road development (see Section 11.5.1).

SLM 5 Ballycullen / Ballyclogh Bridge (Chainage 20+425 to 20+800)

Compensate for hedgerow/trees removed by planting similar species mix along embankments. Planting to screen road from receptor C20-002. Biodiversity mitigation measures to be incorporated including Barn Owl mitigation planting (see Section 11.5.1). Existing Pill Box to be protected in accordance with recommendations in Chapter 14 Architectural, Archaeological and Cultural Heritage and surrounding area to be kept clear of planting.

SLM 6 Ballycullen (Chainage 20+870 to 21+160)

Appropriate wetland planting of Willow and Birch, and sensitive treatment of the fen habitat at this location. Biodiversity mitigation measures to be incorporated including Barn Owl mitigation planting (see Section 11.5.1).

SLM 7 L-1236 Station Road over Mainline (Chainage 22+450 to 22+575)

The provision of screen planting to screen the bridge structure from visual receptors to north and south and to integrate the proposed road development into landscape. Redundant road sections also to be planted with hedgerow and landscape planting. Replacement planting will be provided at entrances to properties where they are impacted / realigned, similar to the existing landscaping.

SLM 8 Mainline over River Deel (Chainage 23+800 to 24+325)

Appropriate riparian planting will be provided taking into account the Project Ecologist's recommendations for barn owl mitigation and bat connectivity measures. The landscape scheme in this area allows for open views to Milltown Cashel from the bridge.

SLM 9 Bullaun (Chainage 24+325 to 25+680)

Existing trees and vegetation are to be protected where possible by minimising working space and erecting protective fencing, in accordance with a Tree Management Plan to

be prepared by the Arborist. Appropriate riparian and wetland planting along stream / drain channels will be provided, taking into account the Project Ecologist's recommendations for bat and barn owl mitigation in Chapter 7 and responding to the varied character of this landscape area. Screening is required to property C24-001 at Ch24+780. Measures to include compensatory tree planting for any parkland or woodland trees removed. Noise barriers to be screened with planting and integrated to improve impermeable visual screening.

SLM 10 Mainline over L-1222 and R-518 roads at Graigeen (Ch26+540 to 27+350)

The provision of appropriate planting to screen the bridge structure from visual receptors and integrate into landscape in terms of finishes and landscape planting. Planting scheme will be cognisant of avoiding light restriction into nearby properties. Planting will also be appropriate to potential wetland condition in part of area adjacent to attenuation pond. Noise barriers to be screened with hedgerow or shrub species. Biodiversity mitigation measures to be incorporated including Barn Owl mitigation planting (see Section 11.5.1). Climbing plants will be provided on the bridge to mitigate the visual impacts associated with the structure.

SLM 11 Great Southern Trail Greenway (Chainage 27+500 to 28+300)

The proposed road development includes for the accommodation of a future greenway along the abandoned railway line which is currently undeveloped between Rathkeale and Ballingarrane. The underpass at Ch28+250 is designed to be a wide and comfortable space. Consideration has been given to retention of the historic railway context in the design, through the preservation of the old railway bridge over the Doohyle Stream within a wide-span underpass below the proposed road development. Replacement boundary hedges will be planted along the diverted greenway to mimic the existing arrangement of a green corridor and Biodiversity mitigation measures are also integrated (See Chapter 7 & Appendix 7.1 for details) including those for Barn Owl. Noise barriers to be screened with hedgerow or shrub species.

SLM 12 Rathkeale Junction (Chainage 50+000 & environs)

The landscape areas created by the realigned roadways offer an opportunity for a landscape or artistic feature at the entrance to Rathkeale to create a sense of place and aid in wayfinding. Such a feature could reference the heritage of the town. Screen planting for the cemetery and other visual receptors is proposed. The majority of the current mature planting along the existing Rathkeale Bypass will be maintained and protected. Compensatory planting for all trees removed is to be instated in the SLM area, which should be of a similar low canopy native woodland type plantation. Noise barriers to be screened with hedgerow or shrub species. Barn Owl protection strategy is also to be implemented around the junction.

SLM 13 Smithfield Demesne (Chainage 55+100 to 55+400)

The proposed road development passes close to the northwest corner of the demesne. There are 3 mature trees on the corner of this estate, which are closest to the proposed works. Specific measures will be developed by an Arborist to safeguard these trees and all trees on the boundary with Smithfield House demesne south of the proposed attenuation pond. Drainage routes should be located to avoid the existing trees and root protection areas defined by the arborist.

SLM 14 Croagh Junction (Chainage 55+170 to 56+010, link road and environs)

The landscape areas created by the grade separated junction and link road offer an opportunity for a landscape or artistic feature at the entrance to Croagh to create a sense of place and aid in wayfinding. The link road will be planted according to a

specific landscape scheme taking into account the local landscape character and historic designed demesne landscapes nearby. Parkland trees (see section 11.5.1) and hedgerows / treelines (Hedgerow Type 2 – see 11.5.1) are proposed to reflect the character of the nearby demesne landscapes (note that no demesne is directly affected here) and to compensate for those removed in the construction of the proposed junction. Barn Owl mitigation planting (see Section 11.5.1) is to be incorporated into landscape scheme also.

SLM 15 Motorway over L-1422 Blackabbey Road and Greanagh River (Chainage 58+750 to 59+800)

The provision of appropriate planting to screen the bridge structure from visual receptors on both sides of proposed road development and integrate into landscape. Riparian planting (see section 11.5.1) to river area will be provided taking into account the Project Ecologist's recommendations, and all other Biodiversity requirements, including mitigation measures for Barn Owl (see chapter 7 and section 11.5.1). Noise barriers to be screened with hedgerow or shrub species.

SLM 16 L-1423 Station Road over Mainline (Chainage 60+325)

The realigned local road will be planted with boundary hedges and treated to acknowledge Curraghbridge House demesne to the north. Redundant sections of road to be removed and planted with screen woodland and scrub planting for biodiversity mitigation. Noise barriers to be screened with hedgerow or shrub species.

SLM 17 Mainline over River Maigne (Chainage 60+525 to 61+200)

This is an extensive area around the River Maigne, allowing for appropriate riparian planting, taking into account the Project Ecologist's recommendations. Evergreen planting will be specified around the existing railway embankments at Ardshanbally in accordance with Irish Rail requirements. Screen planting to mitigate the visual impacts of the road will, where possible, be in keeping with the riparian character of this location and parkland trees should be included in hedgerows. Noise barriers to be screened with hedgerow or shrub species.

SLM 18 Adare Junction (Chainage 61+225 to 62+600) Link Road and Environs

The roundabouts and surrounding areas created by the grade-separated junction and link road offer an opportunity for a landscape or artistic feature at the entrance to Adare to create a sense of place and aid in wayfinding. The entrance road will be planted according to a site-specific landscape scheme taking into account the local landscape character of the heritage town. In particular, the view of Adare Manor demesne and boundary wall from the link road is important. For the purposes of assessment, the SLM will consist of – at a minimum – shrub and tree planting to the landscape areas along the entrance and the stone wall which will be removed will be replaced with walling of the same design and materials in the vicinity of the roundabout. Wetland or riparian plant species to be incorporated around attenuation ponds as necessary. Barn Owl mitigation planting (see Section 11.5.1) incorporated into landscape scheme. Noise barriers to be screened with hedgerow or shrub species.

SLM 19 Tie-In to Existing N21 (Chainage 65+250 to 65+550)

Landscape measures to tie into the current landscape treatment of trees and grassing along the existing N21. Along the remainder of the proposed road development, the existing planting and treatments will be maintained as per the current situation, with the addition of Barn Owl mitigation measures (see section 11.5.1).

Where boundaries or entrance routes to existing dwellings or private properties are altered as a result of the proposed road development, a specific scheme of mitigation will be agreed with the landowners at the appropriate time. For the purposes of this assessment, the minimum level of mitigation will be taken to be the planting / building of similar boundaries to those existing. For example, where the proposed road development results in the realignment of a wall and removal of hedgerows and trees, these are assumed to be reinstated along the new boundary and entrance route to the same standard as the existing landscape.

11.5.3 Summary of Mitigation Measures

As well as measures to protect the existing landscape and vegetation where feasible during the construction of the proposed road development, the above measures specify planting and landscape measures for reinstatement, compensation, integration and enhancement where appropriate. These proposals are shown on Figures 11.0 to 11.26 in Volume 3 of this EIAR. The approximate quantity of vegetation proposed as a result of the main mitigation measures can be summarised as follows:

(A) Screen Planting to Mitigate Visual Impacts

Area of Proposed Measure:	37.2 hectares
Approximate Number of Trees:	18,600
Approximate Number of Shrubs:	298,000

(B) Wet Woodland & Riparian Planting

Area of Proposed Measure:	21.1 hectares
Approximate Number of Trees:	5,000
Approximate Number of Shrubs:	84,000

(C) Hedgerow & Treelines

Area of Proposed Measure:	45.18 km (along CPO boundaries)
Approximate Number of Trees:	4,500
Approximate Number of Shrubs:	135,000

(D) Specific Landscape Measures

Area of Proposed Measures:	85.4 hectares
Approximate Number of Trees:	11,500
Approximate Number of Shrubs:	213,000

(E) Scrub & Tree planting for Barn Owl Mitigation along Road

Area of Proposed Measure:	37.3 hectares
Approximate Number of Trees:	18,500
Approximate Number of Shrubs:	298,000

PLEASE NOTE:

- 1) *All planting and landscape mitigation proposals will comply with appropriate requirements for road operational safety, including sightlines and planting of large trees at a safe distance from the carriageway (in accordance with current TII requirements at time of implementation). This has been taken into account in the specification of mitigation measures where possible. At detailed design stage, it is possible that some elements of the scheme described above may be omitted or*

changed if it is not possible to site same in a safe manner. This may require re-design to achieve the required mitigation identified. It is considered a low risk that mitigation as described herein cannot be achieved in this scenario.

- 2) *All mitigation proposals contained herein are contingent on the acquisition of the lands in question. If, at planning or procurement stage, it is not possible to acquire the lands, the relevant measures will be omitted.*
- 3) *It should be noted that the areas shown on Figures 11.1 to 11.23 in Volume 3 Figures of this EIAR are the extents to which the SLM is recommended to apply, and this does not necessarily mean that this area should be completely planted out in all instances. It is simply intended to indicate the area that should be considered for a specific landscape design with a particular objective or set of objectives. The design response may include minimal or no planting in some instances.*

Table 11.8 Summary of Predicted Landscape Impacts, Proposed Remedial or Reductive Measures and Residual Landscape Impacts (to be read in conjunction with text Section 11.4, 11.5, 11.6)

Road Section	Landscape Classification	Predicted Landscape Impacts	Proposed Remedial or Reductive Measures	Residual Landscape Impact Year 15 (2039)
A Foynes to Ballyclogh Ch. 1+000 to Ch. 7+320 6.3km	Shannon Integrated Coastal Management Zone	<p>Contrast of the new road with the surrounding context and character of rural, agrarian landscape, severing fields and hedgerows, particularly at Foynes and Ballyclogh roundabouts, over-bridges, Ahacronane River crossing, Robertstown Overbridge, culverted streams and in deep cut at Mulderricksfield. These represent predicted significant negative impacts.</p> <p>There is substantial treeline & hedge removal (c.4.5km) and woodland and scrub removal (c.2.5 hectares), considered to be a moderate impact in the overall context.</p> <p>Stone wall removed at Robertstown due to the widening of the road and at Foynes due to roundabout.</p> <p>There are no demesnes affected in Section A.</p>	<p>SLM 0 / 1 / 2 / 3;</p> <p>Screening of HGV Service area with native woodland;</p> <p>Hedgerow reinstatement along road development boundary (c.12km);</p> <p>Biodiversity mitigation planting;</p> <p>Parkland tree planting where possible within development boundary;</p> <p>Reinstatement of stone wall at Foynes roundabout.</p>	<p>Slight negative permanent impact on this landscape over time, following establishment of the proposed mitigation measures, due to its relatively high absorption capacity. The scale of the overbridge at Robertstown and removal of stone wall will result in residual moderate negative effects.</p> <p>Loss of mature trees will not be fully compensated by Year 15 so residual slight negative impact remains to the tree resource, despite proposed planting measures.</p>
B Ballyclogh to Askeaton Ch. 10+000 to Ch. 11+940 1.9km	Shannon Integrated Coastal Management Zone	<p>Contrast of the new road with the surrounding context and character of rural, agrarian landscape, severing fields and hedgerows, particularly at Ballyclogh roundabout and over-bridges for local roads.</p> <p>There is substantial tree & hedge removal (c.1200m of hedgerow/treelines in this 1900m section), considered to be a moderate impact in the overall context.</p> <p>No Demesne landscapes are affected in Section B.</p>	<p>SLM 3 / 4;</p> <p>Hedgerow reinstatement along development boundary (c.4km);</p> <p>Biodiversity mitigation planting;</p> <p>Parkland tree planting where possible within development boundary.</p>	<p>Slight negative permanent impact on this landscape over time, following establishment of the proposed mitigation measures, due to its relatively high absorption capacity.</p> <p>Loss of mature trees will not be fully compensated by Year 15 so residual slight negative impact remains to the tree resource, despite proposed planting measures.</p>

Road Section	Landscape Classification	Predicted Landscape Impacts	Proposed Remedial or Reductive Measures	Residual Landscape Impact Year 15 (2039)
C Ballyclogh to Rathkeale Ch. 20+000 to Ch. 29+250 9.3km	Shannon Integrated Coastal Management Zone / Agricultural Lowlands	<p>Contrast of the new road with the surrounding context and character of rural, agrarian landscape, severing fields and hedgerows, particularly at Ballyclogh roundabout and over-bridges for local roads, Deel River crossing, culverted streams and mainline crossing over R-518.</p> <p>There is substantial tree & hedge removal and some woodland and scrub removal, considered to be a moderate impact in the overall context. 5.4km of hedgerows/treelines removed over the 9.3km distance of this section and a total of 3.3 hectares of woodland / scrub area.</p> <p>Two demesne landscapes are affected: Ballyclogh House and Stoneville Demesne. Impacts are peripheral and considered to be slight in extent.</p> <p>In terms of landscape amenity, the accommodation of the Great Southern Trail Greenway within the design of the proposed development is considered to be a neutral impact.</p>	<p>SLM 3 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12;</p> <p>Hedgerow reinstatement along development boundary (c.18km);</p> <p>Biodiversity mitigation planting;</p> <p>Parkland tree planting where possible within development boundary.</p>	<p>Slight negative permanent impact on this landscape over time, following establishment of the proposed mitigation measures, due to its relatively high absorption capacity.</p> <p>Local level moderate negative impact at the River Deel crossing.</p> <p>Neutral impact on the Great Southern Train Greenway.</p> <p>Loss of mature trees will not be fully compensated by Year 15 so residual slight negative impact remains to the tree resource, despite proposed planting measures.</p>
D Rathkeale to Attyflin Ch. 50+000 to Ch. 67+500 17.5km	Agricultural Lowlands	<p>Contrast of the new road with the surrounding context and character of rural, agrarian landscape, severing fields and hedgerows, particularly at Croagh and Adare Junctions, Mague/Clonshire/Greanagh River crossings, culverted streams, and various bridges.</p> <p>There is substantial tree & hedge removal (7km of hedgerows/treelines removed over the 17.5km distance of this section) and some woodland and scrub removal, considered to be a moderate impact in the overall context.</p> <p>One demesne landscape is affected by section D: Curraghbridge House. Impacts are peripheral and considered to be slight in extent.</p> <p>Stone wall removed at Adare Link roundabout.</p>	<p>SLM 12 / 13 / 14 / 15 / 16 / 17 / 18 / 19;</p> <p>Hedgerow reinstatement along Scheme boundary (c.35km);</p> <p>Biodiversity mitigation planting;</p> <p>Parkland tree planting where possible within development boundary;</p> <p>Reinstatement of stone wall.</p>	<p>Slight negative permanent impact on this landscape over time, following establishment of the proposed mitigation measures, due to its relatively high absorption capacity.</p> <p>Local level moderate negative impact at the crossing of the River Mague.</p> <p>Loss of mature trees will not be fully compensated by Year 15 so residual slight negative impact remains to the tree resource, despite proposed planting measures.</p>

Table 11.9 Summary of Predicted Visual Impacts, Proposed Mitigation and Residual Visual Impacts (to be read in conjunction with text section 11.4, 11.5, 11.6)

Note re. abbreviations on impact levels: N.I. = No Impact; Level 1 = Imperceptible Effects; Level 2 = Not significant; Level 3 = Slight Effects; Level 4 = Moderate Effects; Level 5 = Significant Effects; Level 6 = Very Significant Effects; Level 7 = Profound Effects

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
Section A										
A00-001 to 007	7 dwellings, Dernish Avenue	0+000 (northern extent of works)	180m north	Group of suburban houses on fringe of Foynes facing southwest, with limited views of existing countryside.	Proposed road and roundabout to the south / southeast of these properties will not be visible due to the trees and hedgerows in the middle ground of the views.	1	SLM 0 and SLM1	1	1	1
A00-008 to 013	6 dwellings, Dernish Avenue	0+000 (northern extent of works)	180m north	Group of suburban houses with good views across flat countryside to east, southeast and south, partially limited by hedgerows and clumps of deciduous scrub vegetation or woodland. Existing ESB substation and Foynes Port access road in views at present.	Proposed road and roundabout to the south of these properties will not be visible due to the trees and hedgerows in the middle ground of the views. Service Area partially visible at 400m distance with existing trees and vegetation limiting views.	2	SLM 0 and SLM1	2	1	1
A00-014 to 017	4 dwellings, local road	0+000 – 0+150 (northern extent of works)	250m west	Linear group of dwellings facing east, most of which have limited views due to mature trees along the eastern side of the road on which they are set, but there are occasional long-distance views to the horizon across a field which rises to a ridge within 50m of the houses.	The ridged topography is some 6m above the level of the road so will screen the proposed road and traffic in views from these properties.	N.I.	NA	N.I.	N.I.	N.I.

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A00-018	Dwelling, N69	0+050 (northern extent of works)	Adjacent to CPO	Bungalow enclosed on southern boundary by mature trees and hedgerows on garden boundary. Open views of existing N69 to front (west) of house.	Proposed road and roundabout to the south of this property will not be visible due to the trees and hedgerows in the middle ground of the views. Existing boundary wall / gate on western boundary with road and part of driveway will be removed and re-built in the same location during construction stage, due to road levels and new footpath.	2	SLM1	2	1	1
A00-019/021	2 dwellings, N69	0+050 (northern extent of works)	Adjacent to CPO	Two bungalows enclosed within mature treelines and hedgerows on garden and field boundaries. Only distant views are from A00-021 to the south-east and east.	Proposed road and roundabout to the south of these properties will not be visible due to the trees and hedgerows in the middle ground of the views.	1	SLM1	1	1	1
A00-020	Dwelling, N69	0+050 (northern extent of works)	Adjacent to CPO	House enclosed within mature treelines and hedgerows on garden and field boundaries. Primary views are due west over the existing N69 to field beyond.	Proposed road and roundabout to the south will not be visible due to the trees and hedgerows on boundaries blocking the views.	1	NA	1	1	1
A01-001	Dwelling, N69	1+100	25m west	Dwelling with partially open boundaries to the north, with views over the adjacent field and N69. Boundaries to the east are enclosed with mature vegetation.	Views of the roundabout and traffic from the entrance gate, side garden and gable end of the house, which will be at a similar level to the existing N69. Road realignment works to the immediate west of the property will also be visible during construction stage. Mainline will not be visible to east of property due to mature treeline.	4	SLM1; Screen Planting	4	3	3
A01-002/003	2 dwellings, N69	1+170	100m west	Dwellings with boundaries to the east enclosed with mature vegetation. Some glimpses through the trees are possible. Views to west of N69 and wooded slopes.	Views of the mainline to the east on fill up to Ch1+320 in small gaps through trees.	4	SLM1; Screen Planting	3	1	1
A01-004	Dwelling	1+100	190m southwest	No views of the proposed road due to existing scrub, mature vegetation and topography.	No impact due to intervening scrub, mature vegetation and topography.	N.I.	NA	N.I.	N.I.	N.I.

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A01-006/007/008	3 dwellings, N69	1+225 to 1+300	150m -180m west	Views from dwellings are constrained by ridge 6-8m higher than the dwellings.	No views available from dwellings towards proposed road due to natural topography.	1	NA	1	N.I.	N.I.
A01-PV1 <i>VP1</i>	Public View	1+000	1700m west	Panoramic view from elevated viewpoint (172m OD) Knockpatrick Burial Ground & Church. View encompasses heritage elements (church, headstones, stone wall) in foreground, with a panoramic view of the Shannon Estuary and the landscape of west Limerick. Horizons are formed by hills to the south, southeast within 5-10km and more distantly to the east.	The proposed road, Sections A, B and C will be partially visible, but Section A, and the structure at Robertstown will be most visible. At this distance, the road and structures are likely to be perceived as minor elements in the panorama.	4	SLM2, Screen Planting and other general measures as outlined across the development	4	3	3
A02-001	Dwelling	2+000	225m west	Dwelling on ridge of high ground with partial views across landscape constrained by existing hedgerows and trees on field boundaries.	Proposed road on fill will still be c.5m lower than the ground level at the dwelling, so views available from the property and environs will not be blocked, but the character of the views will be altered as the road will be partially visible. <i>Note: Screen planting for mitigation along the roadway should be limited in height to avoid blocking views.</i>	4	Screen Planting (Shrub 5m height)	4	3	3
A02-004	Dwelling, private road	2+050	230m east	No views west due to enclosing vegetation and position of farm buildings.	The new road will be visible in glimpses only from the property and driveway due to existing vegetation cover on field boundaries.	3	Hedge on CPO line	3	1	1
A02-005-006	2 dwellings, local road	2+200	170m east	Open views across landscape to hills rising on south-western horizon.	Proposed road on fill at 150m from houses will be visible and will reduce quality of views, although hills on horizon will not be blocked. <i>Note: Screen planting for mitigation along the roadway should be limited in height to avoid blocking views.</i>	4	Screen Planting (Shrub 5m height)	4	3	3

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A02-007 <i>VP3</i>	Dwelling, N69	2+500	Adjacent to CPO	Open views across landscape to north and north-east.	Views will be blocked by proposed embankment to north and north-east of house. Bridge, abutments and fill embankments will all be highly visible close to dwelling.	6	SLM2	5	4	4
A02-007A & 007B	2 dwellings, N69	2+450	80m west	Views across landscape to north and north-east partially blocked by existing deciduous and evergreen trees.	Views will be partially blocked by embankment to north and north-east of house, where views through trees are available.	5	SLM2	4	3	3
A02-008	Dwelling	2+500	100m east	Primary views are to the east across open landscapes. Secondary views across landscape to west partially blocked by existing hedgerow on road.	Secondary views west will be partially blocked by hedgerow, but elevated road will be visible from front of house.	4	SLM2	4	3	3
A02-017 & 018	2 dwellings	2+500	140m east	Primary views are to the east across open landscapes, but secondary views across landscape to west are open and of good quality also.	Elevated road will be visible from front of houses in secondary views west.	5	SLM2	4	3	3
A02-PV1	Roberts-town Church ruin and Graveyard	2+400	290m east	Primary views from elevated ruined church and graveyard are to the north over the Shannon Estuary. Secondary views across landscape to west partially blocked by existing hedgerow on road.	Secondary views west will be partially blocked by hedgerow, but elevated road will be visible from graveyard.	4	SLM2	4	3	3
A02-009 <i>VP4</i>	Dwelling, N69	2+650	85m northeast	Primary views are to the south across the N69 to open landscape beyond.	Elevated road and bridge structure will be visible from front of house in close proximity and will significantly alter views across the landscape to the south.	6	SLM2	6	5	5
A02-010	St. Roberts Church	2+750	135m northeast	Primary views are to the south across the N69 to open landscape beyond.	Elevated road will be visible from front of church and car park.	4	SLM2	4	3	3

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A02-011 / 012	2 Dwellings, L-1222	2+550	270m southwest	Existing view from entrance to properties and house to east / northeast across agricultural landscape towards Robertstown Church. Existing trees along local road frame and limit views to east / northeast. Property also has similar views to the north and west. Views south are limited by existing treeline.	The proposed road on substantial fill at a distance of 250m will block framed views of Robertstown Church from the entrance to the property. Existing trees will limit visibility of bridge structure and views to north and west will not be affected.	4	SLM2	4	3	3
A02-013	Dwelling, L-1222	2+685	125m southwest	Existing view from entrance to property and house to northeast across agricultural landscape towards Robertstown Church. Existing garden trees limit views partially. Other views are limited by existing hedges/ treelines.	The proposed road on substantial fill at a distance of less than 140m will block views of Robertstown Church from the property and bridge structure is also likely to be visible.	5	SLM2	5	4	3
A02-014	Dwelling, L-1222	2+925	100m south	Existing view from entrance to property and house to north across agricultural landscape towards Robertstown Church. Existing outbuildings limit views partially.	The proposed road on substantial fill at a distance of less than 150m will block views of Robertstown Church from the property and bridge structure is also likely to be visible at an oblique angle at 350m distance. Views east partially affected and views west unaffected.	5	SLM2, Screen Planting	5	4	3
A02-015 / 016	2 dwellings, L-1222	2+950 / 2+980	200m / 225m south	Existing views from these properties to the north / northeast are limited by garden hedges and planting.	The proposed road on fill at a distance of less than 200m will become partially visible above the hedging from certain areas of the private amenity space.	4	SLM2, Screen Planting	4	3	3
A03-001	Dwelling, L-1222	3+050	240m south	Existing views from this property to the north / northeast are limited by large trees, hedgerow and outbuildings.	The proposed road on fill at a distance of less than 240m will be partially visible from certain areas of the private amenity space and upper floor windows.	4	SLM2, Screen Planting	4	3	3
A03-003	Dwelling, L-1222	3+150	305m south	This property is enclosed by large trees and hedgerows.	No impacts perceivable long-term during summer, but potential for glimpses of proposed road on fill at 300m+ distance during winter when trees are without leaves.	3	SLM2, Screen Planting	3	2	1

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A03-004/005	2 dwellings, N69	3+375	240m north	Existing views from these properties to the south are partially limited by garden hedges and planting. Where views to the south are available from these properties, they are extensive, with the hills to the south defining the horizon, more than 10km distant. Views to the north, east and west across the agricultural landscape are also of good quality.	The proposed road on fill at a distance of less than 240m will be visible from certain areas of the private amenity space and dwellings and may block or partially block the distant views to the south, but other views will not be affected.	4	SLM2, Screen Planting	4	3	3
A03-006	Dwelling, L-6068	3+610	170m north	Existing views from this property to the south are limited by trees and hedgerow.	The proposed road in cut, will not be visible from the dwelling, except in partial, oblique views. Local road is terminated to south of property, resulting in reduction in passing traffic.	3	Hedge on CPO line, Screen Planting	3	1	1
A03-007	Dwelling, L-6068	3+610	215m north	Existing views from this property to the south / northeast are limited by trees and hedgerow, including a large area of scrub vegetation. Views available from upper floor windows.	The proposed road in cut will not be visible from the dwelling, except in partial, oblique views. Local road is terminated to south of property, resulting in reduction in passing traffic.	3	Hedge on CPO line, Screen Planting	3	1	1
A04-001	Dwelling, N69	4+025	180m north	This property is enclosed by topography, large trees and hedgerows.	No impacts perceivable as road is in cut and existing vegetation encloses house.	1	Hedge on CPO line	1	N.I.	N.I.
A04-002	Dwelling, accessed from N69	4+875	330m north	This property is enclosed by large trees, woodland and hedgerows.	No impacts perceivable as existing vegetation encloses house.	N.I.	Hedge on CPO line	N.I.	N.I.	N.I.
A05-001 & Adj. Properties	9 dwellings, L-6062	5+350	400-450m north	Extensive views to south of properties, partially limited by vegetation in landscape.	No impacts perceivable as road is in deep cut.	1	Hedge on CPO line	1	N.I.	N.I.
A05-005	Dwelling, off L-6062	5+425	135m north	Extensive views to south of property, partially limited by hedgerow and trees adjacent to property.	Partial views of cut slope to south of road, but road is in deep cut so traffic will not be visible. Overbridge c.350m southeast will not be visible due to existing hedgerows in landscape.	3	Hedge on CPO line	3	1	1

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
A05-008 A06-004/006	3 dwellings; L-6062	5+975; 6+150; 6+250	145m - 195m	Three dwellings at similar distances to the road and in similar situations. Views to south of properties limited by garden vegetation and/or hedgerow and trees adjacent or within viewshed.	No impacts perceivable as existing vegetation limits views and road is in cut.	1	Hedge on CPO line, Screen planting for A06-006	1	N.I.	N.I.
A05-007, A06-001/002/ 003/005	5 dwellings, L-6062	5+875 to 6+150	275m to 480m	Five dwellings at similar distances to the road and in similar situations. Views to south of properties limited by rising topography, garden vegetation and/or hedgerow and trees adjacent or within viewshed.	No impacts perceivable as existing vegetation limits views and road is in cut.	1	Hedge on CPO line	1	N.I.	N.I.
A06-007	Dwelling, L-6062	6+425	200m north	Property completely enclosed by garden hedges and trees adjacent to property.	No perceivable impacts with existing vegetation screening views to the south.	1	Hedge on CPO line, Screen Planting	1	N.I.	N.I.
A06-008	Dwelling, L-6062	6+650	240m north	Extensive views to south of property, partially limited by hedgerow and trees in landscape.	The proposed road on fill at a distance of less than 240m will be visible from the dwelling and may partially block the distant views.	4	Screen Planting	4	3	3
A07-001	Dwelling, L-6062	7+050	330m north	Property enclosed by hedgerow and trees adjacent to property.	Potential for some visibility of proposed road in fill 330m to south and local road realignments on fill from entrance and driveway with existing vegetation partially screening views.	4	SLM 3	4	3	3
Section B										
B10-001/002/ 003	3 dwellings, L-1220	L-1220 realignment	c.200m north / north-east of L-1220 realignment	Properties enclosed by hedgerow and trees adjacent to property.	Potential for some visibility of local road realignments on fill from entrances and driveways with existing vegetation partially screening these views and fully screening the mainline Section B.	3	SLM 3, Screen Planting	3	1	1

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
B10-004	Dwelling, L-1221	10+540	330m south	Primary views appear to be due east of the property due to the orientation of the house and position of farm buildings. Trees and hedgerows on boundaries restrict views in other directions.	Road on slight fill visible north-east of the dwelling in periphery of views.	3	Hedge on CPO line, Screen Planting	3	1	1
B10-005 & Adj. Properties	12 Dwellings, L-1221	10+750-11+300	350-550m south	Properties have good views over agricultural landscape to the north, with hedgerows and trees limiting views in middle distance.	Potential for slight visibility of road on fill from dwellings with existing vegetation substantially screening these views.	3	Hedge on CPO line	3	1	1
B11-001	Dwelling on local road off N69	11+475	250m northwest	Property with views to south limited by outbuildings and wall; views are primarily northward from property.	Potential for slight visibility of road on fill from dwellings with existing vegetation substantially screening these views.	3	Hedge on CPO line	3	1	1
B11-001A & 001B	2 Dwellings on local road off N69	11+600	305m northwest	Properties with views to south and east limited by existing treelines and hedgerow field boundaries in middle-ground.	Potential for slight visibility of road on fill from dwellings with existing vegetation substantially screening these views.	3	Hedge on CPO line	3	1	1
B11-002 to 005	4 x Dwellings on local road off N69	11+700	305 to 460m northwest	Properties with views to south and southeast limited by substantial existing treelines and hedgerow field boundaries on property boundaries.	Potential for slight visibility of road on fill from dwellings with existing vegetation substantially screening these views.	1	SLM 4	1	N.I.	N.I.
B11-006	Dwelling, N69	N69 realignment	80m west of roundabout	Views from property to south / southwest limited by vegetation. Opening in vegetation east of house with open views of field and across landscape east from limited areas of property.	New mainline and roundabout will be visible in views of fields from gable end and side garden.	4	SLM 4	4	3	3
B11-007	Dwelling, N69	N69 realignment	100m northwest	Property with views to north, primarily. N69 in views to south, limited by hedgerows / plantations along the N69.	No perceivable change due to presence of hedgerows / plantations along the N69.	1	SLM 4	1	N.I.	N.I.

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
B11-008 & 009	2 Dwellings, N69	Askeaton round-about	80m southeast of roundabout	Views from properties to south / southwest limited by vegetation. Opening in vegetation west of houses with open views of field and across landscape from limited areas of property.	New mainline and roundabout will be visible in views of fields from gable end and front/side gardens. Minor impacts due to works to front of houses.	4	SLM 4, Screen Planting	4	3	3
B11-010 and 011, B12-003 and 004 and B12-007 to 016	14 Dwellings, R-518	N69 realignment	100-500m east of roundabout	Views from peri-urban properties to south / southwest limited by garden boundary vegetation.	No perceivable change to views from properties.	1	SLM 4	1	N.I.	N.I.
B12-001	Dwelling, N69	N69 realignment	80m northwest	Property with views to north, primarily. N69 in views to south, limited by hedgerows / plantations along the N69.	No perceivable change due to presence of hedgerows / plantations along the N69.	1	SLM 4	1	N.I.	N.I.
B12-005 and B12-006	2 Dwellings, R-518	N69 realignment	200m east	Peri-urban properties with no extensive views	No perceivable change to views from properties.	1	SLM 4	1	N.I.	N.I.
B12-017 to 020	4 Dwellings	In Askeaton	400m east	Peri-urban properties with no extensive views	No perceivable change to views from properties.	1	SLM 4	1	N.I.	N.I.
B12-021	Dwelling	0+250	On alignment	<i>Note: To be acquired</i>						
B12-022	Dwelling	0+550	100m east	Property with views to south. N69 screened to north by hedgerows / trees along the N69.	No perceivable change to views from property.	1	SLM 4	1	N.I.	N.I.
B12-023 to 025	3 Dwellings, N69	N69 realignment	100m east	Properties with views to north, primarily. N69 in views to south, limited by hedgerows / plantations along the N69, field boundaries and garden boundaries.	No perceivable change due to presence of hedgerows / plantations along the N69, field boundaries and gardens.	1	SLM 4	1	N.I.	N.I.
Section C										
C20-001 VP5	Dwelling, L-1221	L-1220 realignment	250m east	Dwelling with open views to west and north across agricultural landscape.	Realigned L-1220 and mainline sections B & C both visible on fill from dwelling in elevated position.	4	SLM 3, Screen Planting	4	3	3

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C20-002 <i>VP5</i>	Dwelling, Ballycullen House, L-1221	20+550	220m east	Views from dwelling are limited by existing vegetation at Ballyclogh Bridge west of L-1220; open views from entrance to west and north across agricultural landscape.	No impact to views from dwelling. Realigned L-1220 and mainline sections B & C both visible on fill from entrance gate on L-1221 in elevated position.	4	SLM 3, Screen Planting	4	3	3
C20-002A	Dwelling	20+600	75m north	<i>Note: To be acquired</i>						
C20-003	Dwelling, L-1220	20+560	180m west	Views from dwelling are partially limited by existing treeline along entrance road.	Road on fill visible to east of dwelling.	4	Screen Planting	4	3	3
C20-004/005/006	3 Dwellings, L-1220	20+750	260m southwest	Views from dwellings are partially limited by existing treeline and hedgerows along road and in fields, and outbuildings.	Road on fill partially visible, partially screened by existing vegetation to northeast and east of dwellings at 260-350m distance.	3	Screen Planting	3	1	1
C22-001	Dwelling, L-1236	22+400	200m south / 80m west	Open views to north across scrub and agricultural landscape.	Realigned L-1236 on fill over mainline visible to north-east <100m and mainline on fill visible to north c.200m from property.	4	SLM 7	4	3	3
C22-003 to 014	12 Dwellings, L-1236	22+450	100-400m north	Existing landscape hedgerows and garden hedging / planting restrict views from these properties to south. Primary views to east and west over agricultural landscape	Potential for some visibility of proposed road in fill to south and local road realignment on fill with existing vegetation partially screening views.	3	SLM 7	3	2	2
C22-014A	Site with Planning Permission for Dwelling, L-1236	22+600	110m south	Property with open views north and east across scrub and agricultural landscape, partially limited by hedgerows in landscape.	Mainline on fill visible to north and east from property. Realigned L-1236 on fill visible to west.	5	SLM 7, Screen Planting	5	4	3
C22-015 to 018	4 Dwellings, L-1236	22+600	50 - 220m south / west of realigned local roads	Properties partially enclosed in vegetation, with primary views east across scrub and agricultural landscape.	Realigned L-1236 on fill visible to north <100m from properties and mainline partially visible to east from rear of properties.	4	SLM 7	4	3	3
C22-019	Dwelling, L-1236	22+800	110m south	Property with open views north and east across scrub and agricultural landscape, partially limited by hedgerows in landscape.	Mainline on fill visible to north and east from house and garden areas.	5	Screen Planting	5	4	3

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C22-020	Dwelling, L-1236	23+000	500m southwest	Property partially enclosed in vegetation, with primary views east across scrub and agricultural landscape.	Mainline on fill visible to north and east from house and garden areas 500m away.	3	Screen Planting	3	1	1
C22-021/022	2 Dwellings, L-1236	23+250	360m - 410 southwest	Properties partially enclosed in vegetation, with primary views east across scrub and agricultural landscape.	Mainline on fill visible to north and east from house and garden areas 360m away.	3	Screen Planting	3	1	1
C23-001	Dwelling off L-1236	23+400	280m northeast	Property accessed via private road. Views in all directions, with disused rail line and River Deel to east.	Visual sequence to arrive at house is changed by the proposed accommodation track; open views across landscape to the south and west interrupted by proposed road on fill.	5	Screen Planting	5	4	3
C24-001	Dwelling, private road off L-1222	24+800	50m west	Property accessed via private road. Views east are adversely affected by presence of existing agricultural buildings and limited by existing trees and woodland. Views to west towards River Deel are more open.	Views to west unaffected, but views east are truncated close to dwelling by proposed road on fill. Some existing trees will be removed and visual environment of dwelling will be substantially altered both at the dwelling and on the entrance drive.	5	SLM 9	5	4	4
C25-002/003	2 Dwellings, private road off L-1222	25+700 – 26+000	300m southwest	Properties set in landscape and partially enclosed in vegetation on boundaries, with good views north, south, east and west across scrub and agricultural landscape.	Mainline on fill partially visible to north and east from >300m away.	3	Screen Planting	3	1	1
C26-001/002	2 Dwellings, off R518	26+000	300m northeast	Properties partially enclosed in vegetation on boundaries and field vegetation / hedgerows in landscape further contain views to the west.	Mainline on fill to west from >300m away but unlikely to be visible due to enclosed nature of properties and lines of mature vegetation associated with field boundaries and rail line.	3	Hedge on CPO line	2	1	1
C26-003	Dwelling, R518	26+375	200m east	Property partially enclosed in vegetation, with primary views east across scrub and agricultural landscape.	Mainline on fill partially visible to west from >200m away.	3	Screen Planting	3	1	1

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C26-004	Dwelling, R518	26+500	300m northeast	Property partially enclosed in vegetation, with primary views east across scrub and agricultural landscape.	Mainline on fill partially visible to west from >300m away.	3	Screen Planting	3	1	1
C26-005 <i>VP8</i>	Dwelling, L-1222	26+725	90m northeast	Property partially enclosed in vegetation, with primary views west across scrub and agricultural landscape.	Mainline on bridge over L-1222 and on fill highly visible to west with bridge abutments c.80m from dwelling.	5	SLM 10	5	4	4
C26-006/007	2 Dwellings, L-6021	26+825	145m/200m northeast	Properties partially enclosed in vegetation, with primary views north across agricultural landscape. R-518 in views to west.	Mainline on bridge and on fill over L-1222 and R-518 highly visible to west.	4	SLM 10	4	3	3
C26-008/009	2 Dwellings, R-518	26+950	70m northeast	Properties partially enclosed in vegetation, with primary views east across agricultural landscape. R-518 in views to west.	Mainline on bridge over R-518 and on fill highly visible to west with bridge abutments c.60m from dwelling.	5	SLM 10	5	4	4
C26-008A	Dwelling, R-518	26+875	60m northeast	Property partially enclosed in vegetation, with primary views east across agricultural landscape and R-518 due to enclosed nature of boundaries.	Mainline on bridge over R-518 and on fill partially visible through existing tree and hedge lines to west and south.	5	SLM 10	5	4	4
C27-001/002	2 Dwellings, R-518	27+025 – 27+075	Adjacent to road	<i>Note: To be acquired</i>						
C27-003 <i>VP9</i>	Dwelling, R-518	27+075	70m southwest	Property partially enclosed in vegetation with primary views west across agricultural landscape. R-518 and dwelling C27-002 in views to east and north.	Mainline on bridge over R-518 and on fill highly visible from entrance to property to east with bridge abutments c.60m from dwelling. Views to west unaffected.	5	SLM 10	5	4	4
C27-004/005/006	3 Dwellings, R-518	27+250	140m southwest	Properties partially enclosed in vegetation to rear (west), with primary views east across R-518 and agricultural landscape.	Mainline on fill highly visible to east.	5	SLM 10	5	4	3

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C27-007 to 017	11 Dwellings, R-518	27+350 to 27+560	140-250m southwest	Properties partially enclosed in vegetation to rear (west), with views east across R-518 and agricultural landscape restricted by hedgerow vegetation and trees along R-518 and in fields beyond.	Mainline on fill partially visible to east.	4	Screen Planting	4	3	3
C27-PV1	Public greenway	27+250 to 28+550	Route is diverted under mainline @ Ch28+225	Visual sequence along Great Southern Trail Greenway route, with views of countryside where breaks in the treeline along the former railway line permit. There are several houses and gardens within the visual environment of the route, slightly reducing the amenity value.	Proposed mainline on fill will be highly visible where breaks in the vegetation along the former railway occur. The realigned trail will run parallel to the mainline for approx. 600m and crosses under the mainline @ Ch28+225.	4	SLM 11	4	3	3
C27-019 <i>VP10</i>	Dwelling, L-6132	27+550	70m southwest	This property is enclosed by large trees and hedgerows.	Potential for no impacts during summer, but glimpses of proposed road on fill at 70m distance during winter are likely when trees are without leaves.	4	Screen Planting; Protect existing trees	4	3	2
C27-020	Dwelling, L-6132	27+630	Adjacent	<i>Note: To be acquired</i>						
C27-021/028 <i>VP11</i>	2 Dwellings, L-6132	27+625	90m east	Properties partially enclosed in vegetation to west and mature vegetation along rail line to west, with primary views north and south across agricultural landscape.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	SLM 11	4	3	3
C27-027	Dwelling, L-6132	27+690	Adjacent east	<i>Note: To be acquired</i>						
C27-026	Dwelling, R-518	27+700	180m west	Property partially enclosed in vegetation to rear (east), with primary views south across agricultural landscape.	Mainline on fill highly visible to east.	5	Screen planting	4	3	3

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C27-022 to 025	4 Dwellings, L-6050/R-518	27+600 to 27+700	200-250m southwest	Properties partially enclosed in vegetation to (west), with views south across agricultural landscape and east across R-518 and agricultural landscape restricted by hedgerow vegetation and trees.	Mainline on fill partially visible to east.	4	Screen planting	4	3	3
C27-031	Dwelling, L-6132	27+800	100m east	Mature vegetation along former rail line to west, with primary views north across local road and agricultural landscape and south.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	SLM 11	4	3	3
C27-029	Dwelling, L-6132	27+700	170m east	Mature vegetation along former rail line to west, with primary views north across agricultural landscape.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	SLM 11	4	3	3
C27-030/ 032	2 Dwellings, L-6132	27+750/ 27+850	200m east	Properties partially enclosed in vegetation to west and mature vegetation along rail line to west, with primary views north across agricultural landscape.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	SLM 11	3	2	2
C27-033 to 035	3 Dwellings, R-518	27+750 / 27+850	300m southwest	Properties partially enclosed in vegetation to rear of properties (west), with views east across R-518 and agricultural landscape restricted by hedgerow vegetation and trees along R-518.	Mainline on fill partially visible to east.	4	Screen planting	4	3	3
C27-036 & 037	2 Dwellings, R-518	27+850 / 27+950	250m southwest	Properties partially enclosed in vegetation to rear of properties (east), with views east across agricultural landscape restricted by hedgerow vegetation and trees along on garden boundaries.	Mainline on fill partially visible to east.	4	Screen planting	4	3	3
C28- 002/ 003 and Adj. Properties	4 Dwellings, L-1203	28+100	350m east	Views west from properties enclosed by mature vegetation, with primary views east/west across agricultural landscape.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	SLM 11	4	3	3

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
C28-004	Dwelling, off R518	28+500	120m southwest	Property partially enclosed in vegetation, with primary views south and west across agricultural landscape.	Mainline on fill partially visible to east.	4	SLM 11 Screen Planting	4	3	3
C28-005	Dwelling, L-1203	28+700	240m east	Views west from property partially enclosed by mature vegetation, with primary views east across agricultural landscape.	Mainline on fill partially visible to west with existing vegetation partially screening.	4	Screen Planting	4	3	3
C29-001/002/003	3 Dwellings, L-1203	28+700 - 29+050	300m east and 250m north of Section D	Views west from properties enclosed by mature vegetation, with primary views east across agricultural landscape. Views south also enclosed by vegetation.	Mainline Section C on fill partially visible to west and Section D partially visible to southeast with existing vegetation partially screening.	4	SLM 12	4	3	3
Section D										
D50-PV1 <i>VP13</i>	Rathkeale Cemetery	29+250	50m at nearest boundary	Views from cemetery partially enclosed by vegetation on all sides.	Mainline on fill visible to south and west with existing vegetation partially screening.	5	SLM 12	5	4	4
D49-018 to 025 <i>VP12</i>	8 Dwellings, Rathkeale	Rathkeale Junction	50-100m west	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to east of properties.	4	SLM 12	4	3	3
D49-042 to 044 <i>VP12</i>	3 Dwellings, Rathkeale	Rathkeale Junction	50-100m east	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to west of properties.	4	SLM 12	4	3	3
D49-050/051/059 <i>VP12</i>	3 Dwellings, Rathkeale	Rathkeale Junction	50-100m south	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to north of properties.	4	SLM 12	4	3	3
D49-049/052 / 060 to 063 <i>VP12</i>	6 Dwellings, Rathkeale	Rathkeale Junction	100-150m south	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to north of properties.	3	SLM 12	3	1	1

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
D50-001 to 003 <i>VP12</i>	3 Dwellings, Rathkeale	Rathkeale Junction	100-150m south	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to north of properties.	3	SLM 12	3	1	1
D50-004 to 012 <i>VP12</i>	9 Dwellings, Rathkeale	Rathkeale Junction	200-250m south	Views from peri-urban properties enclosed by mature vegetation. No high-quality views from these dwellings.	Realigned roads visible to north of properties.	1	SLM 12	1	N.I.	N.I.
D50-013	Dwelling, N21	50+900	60m north	Property partially enclosed in vegetation to all sides except from south access. Primary views are to the north across landscape.	Mainline on fill highly visible to south, embankments and attenuation ponds very close to boundary and closer than the existing N21. Entrance route is changed, which results in visual disruption Primary views to the north are not affected.	5	SLM 12, Screen planting	5	4	4
D51-001	Dwelling, N21	51+325	50m south	Property partially enclosed in vegetation to all sides. Main views are to the north but are limited by existing vegetation.	The proposed motorway will pass c.50m to the north of the property, in cut, resulting in removal of mature vegetation, leaving potentially open views of the motorway.	5	Screen planting [to restore similar level of visual enclosure]	5	4	4
D51-002	Dwelling, N21	51+500	200m south	No views to north due to early mature planting on N21.	Planting on N21 screens house from visual changes.	3	Screen planting	2	1	1
D51-003	Dwelling, L8027	51+600	50m south	Property with extensive views to northeast, partially enclosed in vegetation to all other sides.	Existing mature trees provide some screening to immediate north, but proposed road in slight cut visible in views northeast.	5	Screen planting	5	4	4
D51-004/005	2 Dwellings, L6023	51+550	200-250m north	Properties have good views over agricultural landscape to the north and east, with rising topography, hedgerows and trees limiting views south.	Potential for slight visibility of realigned access roads on fill and road in cut from dwellings with rising topography and existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D51-006/007	2 Dwellings, L-8027	51+900	90m south	Properties with extensive views to north partially enclosed in vegetation/mature trees to all other sides.	Proposed road on fill visible in views.	5	Screen planting	5	4	4

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
D51-008 to 010	3 Dwellings, L-8027 / L-52309	51+900	180-320m south	No views to north due to existing boundary vegetation.	Potential for slight visibility of realigned access roads and road on fill from dwellings with existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D52-001	Dwelling, L-8027	52+125	60m north	Property partially enclosed in vegetation to all sides.	Mainline on fill highly visible to south / east, trees and hedgerows removed from landscape to south and east of dwelling.	5	Screen planting	5	4	4
D52-002/004	2 Dwellings, L-8027	52+150	250m north	Properties enclosed by vegetation to south.	Mainline on fill may be partially visible to south, existing trees and hedgerows in landscape screen.	4	Screen planting	4	3	3
D52-003	Dwelling, L-8027/ L-52309	52+250	300m south	No views to north limited due to existing boundary vegetation. Views also across fields to west.	Road visible on fill 300m from dwelling	3	Screen planting	3	1	1
D54-001	Dwelling, off L-1421	54+200	200-250m north	Property has good views over agricultural landscape to the north and east, with rising topography, hedgerows and trees limiting views south.	Potential for slight visibility of realigned access roads on fill and road in cut from dwelling with rising topography and existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D54-011	Dwelling, L-1421	54+375	100m south	Property with potentially extensive views to east and west, partially enclosed in vegetation to other sides.	Existing mature trees provide some screening of proposed road to north; proposed road in cut may be visible in some views.	3	Screen planting	3	2	2
D54-007 to 010	4 Dwellings, L-1421	54+375	120-200m south	Properties with views to east across local road to landscape beyond, partially enclosed in vegetation to all other sides.	Existing mature trees and buildings provide some screening of proposed road to north; proposed road in cut unlikely to be visible in views.	3	Screen planting	3	1	1
D54-002 to 006	5 Dwellings, L-1421	54+375	200-300m south	Properties with views to east across local road to landscape beyond, partially enclosed in vegetation to all other sides.	Existing mature trees provide some screening, proposed road in cut unlikely to be visible in views.	3	Screen planting	3	1	1

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D54-012 & 012A	2no. Dwellings, L-1421	54+425	80m north	Properties partially enclosed in vegetation / walls.	Mainline in cut partially visible to south & east; access road in cut visible to side of property. Existing walls, trees and hedgerows partially screen access roads. Views over landscape to northwest, north, northeast unaffected.	4	Screen planting	4	3	3
D54-013 to 015	3 Dwellings, off and on L-1421	54+350	250m north	Properties have good views over agricultural landscape to the north and east, with hedgerows and trees limiting views south.	Potential for slight visibility of realigned access roads on fill and road in cut from dwellings with existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D55-014	Dwelling, Smithfield House	55+250	300m south and 300m west	Views from Smithfield House limited by outbuildings and mature vegetation. Partial or framed views to north, west and east from parts of property.	Road in cut partially visible and Croagh Link Road on fill visible to east.	4	SLM 13, SLM 14, Screen planting	4	3	3
D55-002	Dwelling, N21	Croagh R'bout	50m west of roundabout	Views north partially screened by existing hedgerows and trees. Views across field to west open but limited by trees and hedgerow. Primary views to northeast across open field. Receptor adjacent to N21.	Roundabout and link road to east of property highly visible from property.	5	SLM 14,	5	4	4
D55-003 and 007	2 Dwellings, N21, Croagh	Croagh R'bout	75m east of roundabout	Views restricted by garden planting on boundaries and existing N21 is in the views.	Roundabout and link road to west of properties highly visible from properties.	3	SLM 14	3	3	3
D55-004, 005, 006	3 Dwellings, N21, Croagh	Croagh R'bout	50m east of link road	Views north and west partially screened by existing hedgerows and trees.	Roundabout and link road to west of properties highly visible from properties.	4	SLM 14	4	4	4
D55-008	1 Dwelling, N21, Croagh	Croagh R'bout	125m east of link road	Views restricted by garden planting on boundaries.	No direct views due to existing vegetation.	1	SLM 14	1	1	1
D55-013	Dwelling, L-8026	55+950	450m southeast	Property with good views over agricultural landscape on all sides.	Potential for slight visibility of road with existing vegetation substantially screening these views.	3	Screen planting, SLM 14	3	1	1

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D55-015	Dwelling off L-8026	Croagh junction	90m northwest	Views from dwelling limited by outbuildings and mature vegetation. Partial or framed views to north, west and east from parts of property. Views to south largely screened by mature parkland trees.	Croagh Junction northern roundabout and link road likely to be partially visible.	4	SLM 14	4	3	3
D56-001 to 003	3 Dwellings, L-8026	56+000	160-240m south	Properties with good views over agricultural landscape to the west, with hedgerows and trees limiting views north.	Potential for slight visibility of road with existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D56-005 <i>VP19</i>	Dwelling, L-8026	56+100	60m south	Existing hedgerows and trees limit views to north.	Potential for visibility of road and accommodation works with existing vegetation partially screening these views.	4	Screen planting	4	3	3
D56-006 to 008	3 Dwellings, L-8026	56+100	180-260m south	Properties enclosed by boundary hedgerows and trees.	Potential for slight visibility of road with existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D56-009	Dwelling, L-8026	56+200	90m northwest	Views from dwellings partially limited by vegetation. Extensive views to west from property are the primary views. Views to south currently partially screened by mature vegetation along road.	Road on slight fill will be visible, due to existing trees being removed.	5	Screen planting	5	4	4
D56-010 / 014/ 015	3 Dwellings, L-8026	56+200	120-150m northwest	Views from dwellings partially limited by vegetation. Partial or framed views to north, west and east from parts of property. Views to south largely screened by mature vegetation and buildings.	Road on slight fill likely to be visible, with existing trees creating screening.	4	Screen planting	4	3	3
D56-011	Dwelling, L-8025	56+500	150m northwest	Property partially enclosed in vegetation to all sides.	Mainline on fill partially visible to south & east. Existing trees and hedgerows partially screen road on fill.	4	Screen planting	4	3	3
D56-012/ 012A	2 Dwellings L-8025	56+600	180m southeast	Properties partially enclosed in vegetation to all sides.	Mainline on fill partially visible to north & west. Existing trees and hedgerows partially screen road on fill.	4	Screen planting	4	3	3

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D56-013	Dwelling L-8025	56+600	90m south	Property partially enclosed in vegetation to all sides.	Road on fill visible to north & west. Existing trees and hedgerows partially screen road on fill.	5	Screen planting	5	4	4
D56-016	Dwelling L-8025	56+600	290m northwest	Property with open views east and southeast towards Clonshire River.	Mainline on fill partially visible to east & southeast. Existing mature trees and vegetation along Clonshire River partially screen road on fill and structure.	4	Screen Planting	4	3	3
D57-001	Dwelling off L-8025	57+050	150m northwest	Property partially enclosed in vegetation with views to south and east	Road on fill visible to south & east. Entrance sequence altered due to diversion of access road under mainline on fill.	5	Screen planting	5	4	3
D57-002-to 006	5 Dwellings L-8024	57+450	200-350m southwest	Properties enclosed by boundary hedgerows and trees. Views to southwest.	Potential for slight visibility of road with existing vegetation substantially screening these views.	3	Screen planting	3	1	1
D57-007 <i>VP22</i>	Dwelling, L-8024	57+650	60m northwest	Views to South and West.	Road on fill and bridge highly visible to south and east.	6	Screen planting	6	5	5
D57-008 <i>VP21</i>	Dwelling, L-8024	57+725	60m south	Views to the north and east.	Road on fill and bridge highly visible to north and west.	6	Screen planting	6	5	5
D57-009/ 009A/ 012	3 Dwellings, L-8024	57+700	90-120m northwest	Properties partially enclosed in vegetation to south and east	Mainline on fill visible to south & east. Existing trees and hedgerows partially screen road on fill.	4	Screen and wetland planting	4	3	3
D57-013	Dwelling, L-8024	57+900	150m northwest	Views from dwellings partially limited by vegetation. Partial or framed views to north, west and east from parts of property. Views to south largely screened by mature vegetation along disused railway.	Road on fill / embankments likely to be partially visible where it crosses railway, with existing trees creating screening.	4	Screen planting	4	3	3
D57-014 to 016	3 Dwellings, L-8024	57+950	210-300m northwest	Views from dwellings partially limited by vegetation. Partial or framed views to north, west and east from parts of property. Views to south largely screened by mature vegetation along disused railway.	Road on fill / embankments likely to be visible where it crosses railway, with existing trees removed.	4	Screen planting	4	3	3

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D58-001/004/ 005	3 Dwellings, L-1422	58+800	250m north	Properties partially enclosed in vegetation to all sides.	Mainline on fill unlikely to be visible to south & east. Existing trees and hedgerows screen road on fill.	3	SLM 15, Screen planting	3	1	1
D58-002/003	2 Dwellings, L-1422	58+850	100-150m north	Properties partially enclosed in vegetation to all sides.	Mainline on fill partially visible to south & east, notably from road adjacent to property entrances. Existing trees and hedgerows screen road on fill.	4	SLM 15, Screen planting	4	3	3
D59-PV1	Public view, N21	59+000	>1km	Visual sequence approaching Adare from west: lined with mature trees and frequent heritage or visually interesting elements such as estate walls, historic houses and village green. Considered to be of high visual value.	Proposed roads will not be visible but reduction in traffic results in slight improvement in visual environment.	3 Positive	NA	3 Positive	3 Positive	3 Positive
D59-001	Dwelling, L-1422	59+000	170m north	Property partially enclosed in vegetation to all sides.	Mainline on fill not visible to south & east. Existing trees and hedgerows screen road on fill.	3	SLM 15	3	1	1
D59-002 <i>VP24</i>	Dwelling, L-1422	59+025	60m south	Existing hedgerows and trees limit views to north.	Road and overbridge highly visible to north and west with existing vegetation removed. Views south over river valley unaffected.	6	SLM 15	6	5	5
D59-004/006	2 Dwellings, L-1422	59+050	100-150m south	Properties partially enclosed in vegetation to all sides.	Mainline on fill partially visible to north & east. Existing trees and hedgerows screen road on fill.	4	SLM 15	4	3	3
D59-005/007/ 008	3 Dwellings, L-1422	59+000-59+200	200-400m south	Existing river vegetation and flood banks screen views to north.	Mainline on fill slightly visible to north.	3	SLM 15	3	1	1
D59-009/010/ 011	3 Dwellings, L-14221	59+650-59+750	200-250m south	Properties partially enclosed in vegetation to all sides.	Mainline on fill slightly visible to north.	3	SLM 15	3	1	1
D59-012/ D60-001	2 Dwellings, L-1423	59+950-60+050	350m north, 180m north of L1423 re-alignment	Properties partially enclosed in vegetation to all sides.	Mainline in cut and realigned L-1423 on fill unlikely to be visible to south. Existing trees and hedgerows screen road on fill.	3	SLM 15 & SLM 16	3	1	1
D60-005	Dwellings, L-1423	60+300	200m south	Property partially enclosed in vegetation to all sides.	Mainline on fill slightly visible to north.	3	SLM 16	3	1	1

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D60-003	Dwelling, L-1423	60+200	100m north	Property with open views.	L-1423 realignment pulled away from property giving more space but is on fill so will be more visible. Mainline visible to south.	5	SLM 16, Screen planting	5	4	3
D60-004	Dwelling, L-1423	60+250	100m south	Property partially enclosed in vegetation to all sides.	L-1423 realignment pulled away from property giving more space but is on fill so will be more visible. Mainline partially visible to north.	5	SLM 16, Screen planting	5	4	3
D60-007 to 010 and 012-013 <i>VP29</i>	6 Dwellings, L-1423	60+450-60+600	100 - 250m south	Properties partially enclosed in vegetation to all sides.	Mainline and bridge on fill partially visible to north.	4	SLM 17	3	1	1
D60-011 <i>VP25</i>	Dwelling, off L-1423	60+550	100m north	Property partially enclosed in vegetation to all sides.	Mainline on fill visible to south & east. Bridge over Maigue River also visible at c.350m distance. Existing trees and hedgerows partially screen road on fill.	4	SLM 16 & 17.	4	3	3
D61-PV1 <i>VP27, 28, 29</i>	Public view, N21	61+600 to 62+600	>1km, intersects with Adare Roundabout	Visual sequence approaching Adare village from east: lined with mature trees, passing historic ruins, River Maigue bridge & riparian landscape; Lantern Lodge, estate walls, historic houses and churches. Considered to be of very high visual value.	Proposed Adare junction and roundabout will be visible east of the village and will join the current N21 west of Lantern Lodge which means that one of the elements in the existing sequence is no longer part of the entrance for anyone arriving from the motorway, which is considered a slight negative. The link road will have a view into Adare Manor demesne / golf course, with the mature parkland trees and woodlands. The remainder of the route with the key elements will be unchanged and the roundabout presents an opportunity to create an artistic or landscape feature at the junction. Reduction in traffic results in slight improvement in visual environment.	3 Negative	SLM 18	3 Positive	3 Positive	3 Positive
D61-002/002A	Dwelling, L-21016	61+170	On alignment	<i>Note: To be acquired</i>						

Ref No. <i>Montage no.</i>	Building Type & Location	Nearest Chainage	Approx. Distance from Centre Line	Nature of Receptor (Existing Visual Environment Primary view assessed from property; Description, value, susceptibility to change.)	Nature of Effect (Magnitude, size & scale, extent, duration, reversibility)	Predicted Visual Impacts (see Section 11.5)	Proposed Mitigation (see Section 11.5)	Residual Visual Impacts (see Section 11.6)		
								Year 1	Year 15 (Winter)	Year 15 (Summer)
D61-003 <i>VP26</i>	Dwelling, L-21016	61+230	100m south	Property strongly enclosed in vegetation to all sides.	Mainline on fill will be visible to north & west. Bridge over Maigue River and rail line also visible at c.100m distance. Existing trees and hedgerows partially screen road on fill.	4	SLM 18, Screen Planting	4	4	3
D61-004 to 009 <i>VP26</i>	6 Dwellings, L-21016	61+430-61+600	120-200m south	Properties enclosed in vegetation to north.	Mainline on fill will be partially visible to north & visible to west. Bridge over Maigue River and rail line also visible at c.300m distance. Existing trees and hedgerows partially screen road on fill.	4	SLM 18, Screen planting	4	3	3
D61-010, 011, 013, and 014	4 Dwellings, L-21016, N21	61+600-61+800	150-250m south	Properties strongly enclosed in vegetation to north.	Existing trees and hedgerows largely screen road on fill.	3	SLM 18, Screen planting	3	2	2
D61-015	Dwelling, N21	61+800	210m south	Property partially enclosed with hedges and trees on all sides.	Adare roundabout in cut partially visible 160m to east; realignment works will result in removal of existing trees opening up partial views of road and roundabout from property. Views of mainline West and North.	4	SLM 18, Screen planting	4	3	3
D62-003	Dwelling L-1424	62+575	On alignment	<i>Note: To be acquired</i>						
D62-004/006/006A <i>VP30</i>	3 Dwellings, L-1424	62+600	60m north	Properties partially enclosed in vegetation to all sides. Existing rail line and vegetation on banks reduces sensitivity somewhat.	Mainline on fill highly visible to south, partially screened by existing vegetation on boundaries.	5	SLM18/ Screen planting	5	4	4
D62-005	Dwelling, L-1424	62+600	120m north	Property partially enclosed in vegetation to all sides. Views south blocked by adjacent property.	Slight visibility of mainline on fill.	3	SLM18/ Screen planting	3	1	1
D62-007 to 011; 016 to 017	7 Dwellings, L-1424	62+650-62+850	80-140m north	Properties partially enclosed in vegetation to all sides.	Mainline on fill partially visible to south,	3	Screen planting	3	2	2
D62-012 / 015	2 Dwellings, N21	62+900	210m south	Properties strongly enclosed by outbuildings and vegetation to north.	Mainline on fill will be partially visible to north. Existing trees and hedgerows screen road on fill.	3	Screen planting	3	2	2

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								Year 1	Year 15 (Winter)	Year 15 (Summer)
D62-018 to 024 / D63-001	8 Dwellings, L-1424	62+850-63+000	250-350m north	Properties partially enclosed in vegetation to all sides.	Mainline and realigned L-1423 on fill unlikely to be visible to south. Existing trees and hedgerows screen road on fill.	3	Screen planting	3	1	1
D63-002/ 003 / 005/ 007	4 Dwellings, L-1427	63+050 – 63+975	200 - 240m south	Properties strongly enclosed in vegetation to north.	Mainline partially visible to north. Existing trees and hedgerows along N21 screen the new motorway.	1	Screen planting	1	N.I.	N.I.
D63-004	Dwelling, N21	63+300	60m north	Property enclosed by strong belt of vegetation to south.	New entrance results in improved visual sequence across open landscape. Motorway in slight cut effectively screened by existing trees in views from house.	3	Screen planting	3	2	2
D63-006 / D64-001 to 012	13 Dwellings	63+900 to end	Varies	Variety of properties located near existing motorway or N21.	No appreciable difference in visual conditions after scheme joins existing dual carriageway/motorway.	1	Screen planting	1	N.I.	N.I.
Extent of Effects: N.I. – No impact 1 – Imperceptible 2 – Not Significant 3 – Slight 4 – Moderate 5 – Significant 6 – Very Significant 7 – Profound										

11.6 Residual Impacts

Residual impacts are defined as the likely effects of the proposed road development following the implementation of the above mitigation measures. They are assessed after a period of 1 year and 20 years – winter and summer. At this latter stage the vegetation along the proposed road development will have matured to its expected height (with some minor exceptions). The visual effects are assessed allowing for this period of time for growth of the planting to determine the degree of mitigation or amelioration which the landscape works will have at this point.

It should be noted that construction stage impacts will not be effectively mitigated and will be as per the predicted impacts. The effects discussed in the following sections relate to the operational stage.

11.6.1 Residual Landscape Impacts

This section should be read in conjunction with Table 11.8 which sets out the landscape impacts for the proposed road development.

At year 1, the landscape impacts will be generally moderate across the proposed road development. The planting for Barn Owl and Bat mitigation which will cover much of the landscape spaces along both sides of the proposed road development will take the form of a scrub and tree line at 3.5-4m in height will also have the effect of integrating the road with the existing landscape, most notably in summer, but will soften and create texture in winter too. The remaining landscape mitigation measures will be planted at smaller sizes, so will not have much effect in year one, but will begin to be noticeably effective by year three or thereabouts.

The residual landscape impacts are expected to be slight or locally moderate at year 15 when the proposed mitigation measures have established fully. Moderate impacts will persist at the Maigue and Deel river crossings due to the sensitivity of these landscapes. The overall landscape impact at year 15 is considered to be slight negative as the landscape has high absorption capacity and therefore the contrast of the new road with the surrounding context and character of rural, agrarian landscape will reduce over time and is likely to recover somewhat following the implementation and establishment of mitigation measures. The residual effect on the landscape character and context of the area will be permanent but mitigated over time by appropriate planting and grading.

At a local level, moderate impact may remain at year 15 in sensitive areas, particularly at the crossing of the River Deel and the River Maigue and at Ballyclogh Roundabout principally due to the overbridge structures. The scale of the overbridge at Robertstown will also result in residual moderate negative effects. At all other areas with substantial structures or junctions, the planting measures are expected to help to integrate the road elements. Topographical changes will also be less noticeable as planting establishes.

Removal of mature hedgerows is more than compensated for by the proposed planting and there will be an increase in the amount of hedgerow in the study area as a result of the proposed road, which will be a slight positive impact. 36.67km of hedgerow is removed, with 45.18km proposed to be planted. In relation to the loss of mature trees, it will take a long time for the planted trees to become significant elements in the landscape, a minimum of 20 years and up to 50 or 100 years, depending on the species. However, compensatory planting will reduce the impact on tree resource to slight negative in year 15, where the trees can be expected to reach c.10-12m which

will give them a substantial presence in the landscape. Remaining planting measures will result in substantial new areas of native trees and shrubs and some non-native parkland trees in the landscape of the study area, which is an additional slight positive impact by year 15.

Residual landscape impacts to the three identified historic designed landscapes or demesnes, (Ballyclogh House and Stoneville Demesne in Section C, and Curraghbridge House in Section D) remain as a slight negative. Though the physical area of the demesnes affected is very small and no major features are affected, mitigation measures cannot reinstate the area lost.

In terms of landscape amenity, the proposed road development has no impact on public access to the landscape as all local roads and accommodation tracks are reinstated or involve minor detours, including the Great Southern Greenway trail.

11.6.2 Residual Visual Impacts

This section should be read in conjunction with Table 11.9 which sets out the visual impacts to each sensitive receptor identified in the study area. The following section sets out a summary of the most affected receptors in the study area after establishment of mitigation measures.

The majority of sensitive visual receptors are individual dwellings and impacts are greatest where they have a close view of the road, motorway or a bridge or other structure associated with the proposed road development.

In year 1, the visual impacts will be reduced by the proposed linear planting along the proposed road development. This planting is c.4m high at planting stage and is proposed for barn owl mitigation primarily, but will also aid in screening somewhat, although as a relatively narrow band, it will not give full effect to the screening measures required. It is therefore reasonable to assume that in year one, the residual visual impacts will be largely as per the Predicted Visual Impacts (see section 11.4.3 and Table 11.9), with 4 no. properties which are considered to have a Very Significant negative impact and a further 30 with Significant negative impacts.

Following establishment of the proposed screen planting and other landscape design measures, there are no dwellings rated as having a profound or very significant level of negative impact. By year 15 the impact level will be at significant negative for four properties adjacent to structures where the structure remains visible in views (Receptors A02-009, D57-008, D57-007, D59-002) for the medium to long term. Moderate negative levels persist for 26 of the receptors for the medium to long term. This is primarily due to permanent restrictions on views caused by the new road. In all cases, the proposed main carriageways and structures of the road and the traffic will be screened effectively as there is space to plant screening for all receptors, with only glimpses of the proposed road or structures from entrances to properties remaining in some instances, which is considered to be minimal. The only public amenity receptor with moderate residual negative impact is D50-PV1, Rathkeale Cemetery.

The reduction of traffic through Adare Village will result in a slight visual improvement for the village, which is considered a positive impact for locals and tourists.

Views from the proposed road development are also expected to have a positive impact for road users, particularly from elevated sections of the development, or where currently concealed monuments become visible. This could particularly be the case around the River Deel bridge in Section C where there is a view of the riparian

landscape and also of Milltown Cashel, a ringfort with distinct upstanding remains. Similarly, views may be opened up of Clonshire Castle in Section D as a result of the proposed road development.

11.7 Difficulties Encountered

There were no specific difficulties encountered.

11.8 References

The primary reference sources were as follows:

- *Guidelines for Landscape and Visual Impact Assessment* (3rd Edition, by The Landscape Institute / Institute of Environmental Assessment published by Routledge, 2013).
- *Advice notes on Current Practice in the Preparation of Environmental Impact Statements*, Environmental Protection Agency (2003) [and Draft Advice Notes, 2015]
- *Guidelines on the information to be contained in environmental impact statements*, Environmental Protection Agency (2002) [and Draft Guidelines, 2017]
- Limerick County Development Plan 2010-16 (as extended)
- *A Guide to Landscape Treatments for National Road Schemes in Ireland* - Transport Infrastructure Ireland [TII Ref: GE-ENV-01102; February 2006]
- *Guidelines on the Implementation of Landscape Treatment on National Road Schemes in Ireland* - Transport Infrastructure Ireland [TII Ref. GE-ENV-01103; July 2012].
- *Survey of Historic Gardens and Designed Landscapes – Limerick*; <http://www.buildingsofireland.ie/cgi-bin/viewcounty.cgi?county=13> [Accessed several times throughout assessment; most recently on 11-04-19]
- *Project Appraisal Guidelines for National Roads Unit 7.0 - Multi Criteria Analysis*- Transport Infrastructure Ireland [TII Ref: PE-PAG_02031; October 2016]
- *Safety Barriers (including Amendment No. 2, dated June 2015)* - Transport Infrastructure Ireland [TII Ref: DN-REQ-03034 June 2015]