

10 Landscape and Visual

10.1 Introduction

This chapter of the Environmental Impact Statement describes the prevailing landscape conditions and the existing visual environment in the area surrounding the proposed development, predicts the impacts on same arising from the proposed development and, where considered appropriate, mitigation measures have been specified. It is divided into the following sub-sections:

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10.2 Methodology

This section of the EIS considers any potential impacts upon:

- landscape character and resources, including effects on the aesthetic values of the landscape,
- characteristics, character and qualities of the landscape as a result of the proposed development, including all its component parts; and

- visual amenity, including effects upon potential viewers and viewing groups caused by change in the appearance of the landscape as a result of the proposed development.

Landscape character and resources are considered to be of importance in their own right and are valued for their intrinsic qualities, regardless of whether they are seen by people. Impacts on visual amenity as perceived by people are therefore clearly distinguished from, although closely linked to, impacts on landscape character and resources. Landscape and visual assessments are therefore separate, although linked, procedures.

10.2.1 Definitions and Key Steps

The assessment was undertaken in accordance with the Landscape Institute and Institute of Environmental Management and Assessment, *Guidelines for Landscape and Visual Impact Assessment*, Second Edition published 2002.

Key terms and definitions used in the assessment are stated below.

- **Landscape value** is the relative value or importance attached to a landscape, often as a basis for designation or recognition, which expresses national or local consensus, because of its quality, special features including perceptual aspects such as scenic beauty, tranquillity or wildness, cultural associations or other conservation issues.
- **Landscape character** is the distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people.
- **Landscape quality** (or condition) is based upon judgements about the physical state of the landscape and about its intactness from visual, functional, and ecological perspectives. It also reflects the state of repair of individual features and elements which make up the character in any one place.
- **Landscape capacity** is the degree to which a particular landscape character type or area is able to accommodate change without unacceptable adverse effects on its character. Capacity varies according to the type and nature of the change being imposed.

The aims of the Landscape and Visual assessment are as follows:

- to describe the landscape character areas and types present in the study area defined by the visual envelope or locations where the development can be seen;
- to identify significant landscape features that may be affected by the project;
- to identify key viewpoints and viewers likely to be affected by the project;
- to predict the effect of the project on landscape resources and character and on visual amenity;
- to evaluate the significance of these impacts; and

- to identify measures that will be taken to mitigate significant adverse impacts.

The following steps are undertaken in order to fulfil the above mentioned aims:

- The area which corresponds broadly with the visual envelope, the zone of visual influence (ZVI), of the development was surveyed and the results used to inform the assessment. Viewpoints representative of the range of viewing opportunities available in the ZVI were selected.
- The existing baseline character of the landscape was analysed and an assessment made of topographical structure, key vegetation, key forms of landscape importance, *e.g.* archaeological, ecological or water bodies, existing condition or quality, value - reflecting landscape designations, and capacity to accept development of the type and scale proposed.
- A desk study of the proposed development, maps and other documents was undertaken to identify potential impacts on landscape character, landscape features and visual amenity of viewers during construction and operation of the development.
- Photomontage images of the development were prepared from selected viewpoints.
- Using the results of the site work and visualisations, impacts on landscape character, landscape features and visual amenity were predicted and the level of significance of each impact was assessed.
- Options for mitigation of identified negative impacts of the development were also outlined and presented in a preliminary landscape design for the proposals.

The landscape and visual impact assessment was informed by data gathered from the following sources:

- Ordnance Survey maps;
- *Offaly County Development Plan 2003-2009, Draft Offaly County Development Plan 2009-2015, Westmeath County Development Plan 2002 – 2008, Draft Westmeath County Development Plan 2008 -2013, County Meath Development Plan 2007-2013 and Kildare County Development Plan 2005-2011;*
- Landscape Character Assessments for the Offaly, Westmeath, Meath and Kildare areas;
- Field surveys carried out to confirm the desktop studies;
- Computer generated theoretical ZVIs; and
- Computer modelled photomontages.

Comments made by the various consultees are included in Chapter 1 *Introduction* with responses in Appendix 1D *Consultation Responses*.

10.2.2 ZVI Production

A Zone of Visual Influence (ZVI) is the area from which the development is theoretically visible. It is represented as a map using colour (red) to indicate the area of influence and is used as a tool to select sensitive locations for more detailed assessment. A 20 km radius ZVI, measured from the centre of the proposed development site was plotted. The ZVI included tree cover at 30 m height. The inclusion of this additional data enabled a more realistic representation of the project's visibility in the area compared to the bare earth version which is commonly used.

The ZVI indicates where visibility might be possible anywhere within a 0.04 ha grid square, i.e. that is its level of resolution. The Digital Terrain Model (DTM) is 20 m resolution, 20 m x 20 m = 400 metres sq = 0.04 ha. The ZVI map for this project was produced as follows:

- All ZVI analysis was calculated using landform based on a digital terrain model derived from the Ordnance Survey of Ireland 20 m DTM data.
- Areas of woodland were manually added into the model at a notional height of 30 m using aerial photography.
- The resulting ZVI map was overlaid on OSI 1:50,000 mapping using ArcGIS.

10.2.3 Photomontage Production

Details of the photomontage production methodology are set out below.

(i) Site Photography, Panorama Stitching and Perspective Matching

Photographs were taken with a full frame digital single lens reflex (SLR) camera and 50 mm lens. A sequence of 3 frames in a panorama was taken at each viewpoint site. Each individual frame had a 20 degree overlap. For each viewpoint, ACD Photostitcher was used to combine the individual photographic frames into panoramas.

Matching computer-generated panoramas were constructed using Microsoft's Visual Nature Studio programme. These computer generated panoramas were matched with the photographs by iteratively adjusting the perspective parameters, particularly viewcone and azimuth, until all major features in the image were aligned satisfactorily. These panoramas showed the surrounding landform based on a digital terrain model derived from the Ordnance Survey of Ireland 20 m DTM data. Where appropriate, objects in the landscape such as electricity pylons were used as additional markers.

(ii) Rendering and Output

A full model at the scale of the proposed development was built within Microsoft's Visual Nature Studio. Surface materials and colours were chosen to match those intended when the proposed development is constructed. For each viewpoint, the date and approximate time of photography was used to calculate the sun azimuth and elevation, to ensure a correct lighting model. The final photomontages were composited using Adobe Photoshop.

Two important issues must be considered when interpreting the photomontages:

- There is an element of judgement inherent in the representation of changes shown in a photomontage. While the data sources are largely factual, or based on the judgement of professionals, the finished image is ultimately what is believed to be a reasonable imitation of a photograph of the completed proposed development taken in similar conditions.
- Each photomontage incorporates the lighting seen in the base photograph. It therefore only truly represents the appearance of the proposed development as it would have appeared at that time on that day. The perceptibility of the changes and the visual character of elements of the scheme will be different under different weather or lighting conditions. However, the assessment has regard to the worst case aspect of the proposed development.

10.2.4 Prediction and Evaluation of Landscape and Visual Impacts

The assessment of landscape and visual impacts is based on three stages:

- classification of the sensitivity of the landscape or visual receptors to the type of development proposed;
- prediction of the magnitude of change in the landscape or the view of the site resulting from the development; and
- evaluation of the significance of landscape and visual impacts, depending on the sensitivity of the landscape or viewer to change, and the magnitude of change.

(i) Sensitivity of Landscape and Visual Receptors

The sensitivity of a landscape is judged on the extent to which it can accept change of a particular type and scale, without unacceptable adverse effects on its character. Sensitivity will vary according to the type of development proposed and the landscape's individual elements, key characteristics, inherent quality or condition, value, capacity to accommodate change, and on specific values, such as designations, that apply.

The sensitivity of viewers depends upon the extent to which a visual receptor can accept change without unacceptable adverse effects upon the view. Viewer sensitivity depends on the location and context of the viewpoint, its importance, the current occupation and viewing opportunity of the people and groups of people being considered and the number of people affected. The duration of view, contrast with the existing view, angle of view, its openness/degree of obstruction by trees and buildings, and the distance of the viewer from the proposed change, all affect viewer sensitivity.

As part of this assessment, a broad range of visual receptors were considered and fully assessed in terms of the potential visual impact of the proposed development. The visual receptors considered covered all the nearby residential dwellings, locations of archaeological and tourism importance and the drivers and passengers using the nearby road network, i.e. M6 motorway.

For the purpose of this assessment sensitivity is described as *low*, *medium* or *high* as defined in Table 10.1 *Levels of Significance of Landscape Impacts* for landscape impacts, and Table 10.2 *Levels of Significance of Visual Impacts* for visual impacts.

(ii) Magnitude of Change

The magnitude of change affecting landscape or visual receptors depends on the nature, scale and duration of the particular change that is envisaged in the landscape, and in the location in which it is proposed, and the overall effect on a particular view. This may be very small if the development is at some distance. In a landscape, the magnitude of change will depend on the loss or change in any important feature or change in the backdrop to or outlook from a landscape that affects its character. The angle of view, duration of view, distance from the development, degree of contrast with the existing view and the extent of visibility all influence the magnitude of the change in view.

For the purpose of this assessment the magnitude of change is described as being *imperceptible, small, medium or large* as defined in Table 10.1 *Levels of Significance of Landscape Impacts* and Table 10.2 *Levels of Significance of Visual Impacts*.

(iii) Significance of Impacts

The significance of any potential impact is determined by considering the sensitivity of the landscape or visual receptor and the magnitude of change expected as a result of the development. Each case is assessed on its own merits, as significance is not absolute, and factors unique to each circumstance need to be considered. However, the general principles underpinning the evaluation of significance are set out in Table 10.1 *Levels of Significance of Landscape Impacts* and 10.2 *Levels of Significance of Visual Impacts* and these provide a guide to the application of professional judgement and experience in each individual case.

The significance of impacts is described as being *not significant, minor, moderate or major*.

Table 10.1: Levels of Significance of Landscape Impacts

		<i>Magnitude of Change in Landscape caused by Proposed Development</i>				
		Imperceptible	Small	Medium	Large	
		An imperceptible, barely or rarely perceptible change in key landscape characteristics or components.	A small change in key landscape characteristics or components over a wide area, or a moderate change, either over a restricted area or infrequently perceived.	A moderate change in key landscape characteristics or components, frequent or continuous and over a wide area, or a clearly evident change, either over a restricted area or infrequently perceived.	A clearly evident and frequent/continuous change in key landscape characteristics or components affecting an extensive area.	
Sensitivity of Landscape to Proposed development	Low	A landscape which is not valued for its scenic quality or where its character, existing land use, pattern and scale are tolerant of the type of change envisaged, and the landscape has capacity to accommodate change.	<i>Not significant</i>	<i>Not significant</i>	<i>Minor</i>	<i>Minor to moderate</i>
	Medium	A moderately valued landscape, perhaps a locally important landscape, or where its character, land use, pattern and scale may have the capacity to accommodate a degree of the type of change envisaged.	<i>Not significant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Moderate to major</i>
	High	A landscape protected by a regional (structure plan) or national designation and/ or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged.	<i>Not significant</i>	<i>Minor to moderate</i>	<i>Moderate to major</i>	<i>Major</i>

This table is a guide only. The descriptions of levels of magnitude and sensitivity are illustrative only. Each case is assessed on its own merits using professional judgement and experience, and there is no defined boundary between levels of impacts.

Table 10.2: Levels of Significance of Visual Impacts

			<i>Magnitude of Change in View caused by Proposed Development</i>			
			Imperceptible	Small	Medium	Large
			Change which is barely visible, such as at very long distances; or visible for a very short duration, perhaps at an oblique angle; or which blends with the existing view.	Minor changes in views, such as at long distances; or visible for a short duration, perhaps at an oblique angle; or which blends to an extent with the existing view.	Clearly perceptible changes in views such as at intermediate distances; resulting in a either a distinct new element in a significant part of the view; or a more wide ranging, less concentrated change across a wider area.	Major changes in view such as at close distances; affecting a substantial part of the view, continuously visible for a long duration; or obstructing a substantial part or important elements of view.
Sensitivity of Viewpoint	Low	Small numbers of visitors with interest in their surroundings. Viewers with a passing interest not specifically focussed on the landscape eg workers, commuters.	<i>Not significant</i>	<i>Not significant</i>	<i>Minor</i>	<i>Minor to moderate</i>
	Medium	Small numbers of residents and moderate numbers of visitors with an interest in their environment. Larger numbers of recreational travellers.	<i>Not significant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Moderate to major</i>
	High	Larger numbers of viewers especially those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and well-used recreational facilities.	<i>Not significant</i>	<i>Minor to moderate</i>	<i>Moderate to major</i>	<i>Major</i>

This table is a guide only. The descriptions of levels of magnitude and sensitivity are illustrative only. Each case is assessed on its own merits using professional judgement and experience, and there is no defined boundary between levels of impacts.

10.3 Existing Environment

The proposed development site is located within County Offaly on a mineral island within an area of cutaway peatlands. The current site is a Bord na Móna administrative, stores and workshop centre for peat harvesting operations. The County Westmeath border is c. 500 m to the north of the site. Counties Kildare and Meath also fall within a 20 km radius of the site. The character of the site and its local landscape context is described with reference to the Offaly County Landscape Classification, as contained within the *Draft Offaly County Development Plan 2009-2015*.

10.3.1 The Local Area

The site proposed for the development is located in County Offaly for which Landscape Classification and Sensitivity assessment has been undertaken and adopted in the *County Development Plan 2003-2009* (Chapter 4 *Heritage & Amenity*) and also in the *Draft Offaly County Development Plan 2009-2015* (Chapter 16 *Landscape and Amenities*).

The *Draft Offaly County Development Plan 2009-2015* will be adopted at the start of 2009, and this section of the EIS will make use of the landscape classifications and sensitivity assessment as presented in the 2009-2015 plan. As stated in the *Draft Offaly County Development Plan 2009-2015* Chapter 16 *Landscape and Amenities*, the site is situated on “Peatlands (boglands)” an area of Moderate Sensitivity.

The bog surrounding the proposed development site consists primarily of cutaway peatland, which covers a large part of the landscape of Co. Offaly. In their entirety, peatlands occupy c. 42,000 hectares, which represent a very significant proportion, c. 21%, of the land area in Co. Offaly. In the *Draft Offaly County Development Plan 2009-2015*, Offaly County Council recognises the need for a land use plan for the future development and utilisation of large areas of cutaway peatland within the county.

Bord na Móna is currently developing management plans for the future use of the cutaway bogs in the area and, until these plans are completed, it is not possible to specifically delineate the future uses of the cutaway bog areas surrounding the proposed development site. However, there are a number of potential land uses for cutaway peatlands, which include wilderness, grassland, forestry, natural recolonisation, wetlands and recreation. Some cutaway bog landscapes are more robust and may be considered for other uses. The development of Lough Boora, designated as high sensitivity, acts as a prototype in the creation of a landscape with parkland character. However, some of these cutaway peatlands may be appropriate for other sensitively designed and located developments including renewable energy, such as wind farms or biomass crops, and/or industrial use.

10.3.2 Neighbouring Areas

Table 10.3 *Landscape Character Areas within 20 km of Proposed Development Site* summarises all the landscape character areas and their sensitivity within 20 km of the proposed development site - refer to Figure 10.1 *Landscape Character Areas*. The following is a list of the character areas, within 20 km of the centre of the site, identified and divided between the four relevant county council areas:

Offaly County Council - Draft Offaly County Development Plan 2009-2015:

- Peatlands (boglands)
- Uplands
- Forests
- Eskers
- Waterways, Lakes and Wetlands

Westmeath County Council - County Development Plan 2008-2014:

- River Deel Lowlands
- Central Hills & Lakes
- Royal Canal Corridor
- South Central Hills
- Lough Ennell & SE Corridor
- South Westmeath Eskers

Meath County Council - County Meath Development Plan 2007-2013:

- South West lowlands

Kildare County Council - Kildare County Development Plan 2005-2011

- North-Western Lowlands
- Western Boglands

Table 10.3: Landscape Character Areas within 20 km of Proposed Development Site

County Council	Regional Landscape Area	Approx Distance from site	Landscape Sensitivity	Capacity to Accept Change
Offaly	Peatlands (boglands)	Adjacent/varies	Medium	Moderate
Offaly	Uplands (Croghan Hill)	4.5 km	High	Low
Offaly	Forests	250 m/ varies	Low	Moderate
Offaly	Eskers	11 km	High	Low
Offaly	Waterways, Lakes and Wetlands (Yellow River/ Grand Canal)	2 km/varies	High	Low
Westmeath	River Deel Lowlands	17 km	Low	Moderate
Westmeath	Central Hills & Lakes	13 km	Medium	Moderate/ Low
Westmeath	Royal Canal Corridor	12 km	High	Low
Westmeath	Lough Ennell & SE Corridor	500 m	High	Low

County Council	Regional Landscape Area	Approx Distance from site	Landscape Sensitivity	Capacity to Accept Change
Westmeath	South Westmeath Eskers	8.5 km	Medium	Low
Meath	South West Lowlands	5 km	Medium	Moderate
Kildare	North-Western Lowlands	12 km	Low	High
Kildare	Western Boglands	12 km	Low	Moderate

10.3.3 Landscape Policy and Designations

Various landscape policies and designations, relevant to landscape and visual issues, are summarised below.

(i) Offaly County Development Plan 2003 – 2009

The following descriptions of landscape areas are presented in the *Offaly County Development Plan 2003 - 2009*.

Cutaway Bogs class 2

Cutaway bogs cover a large part of the landscape of Co. Offaly and in their entirety, are potentially the size of the Wicklow Mountains. There are probable land uses for these landscapes, which include wilderness, grassland, forestry and recreation. This Landscape in time could become Class 3. This cutaway bog landscape is potentially very valuable as a “green” backdrop to future development. Lough Boora acts as a proto-type in the creation of parkland character. The Council recognises the need for a land use plan for the future development and utilisation of large areas of cutaway bog. Cutaway bogs have good potential for forestry and 40% of the area can be developed for forestry. Coillte Teoranta, COFORD, BOGFOR and the Forest Ecosystem Research Group is currently assessing the cutaway bogs’ suitability for different tree species and various cultivation methods for coniferous and hardwood afforestation.

Croghan Hill and its environs: class 3

Croghan Hill, Raheenmore Bog, which was designated a nature reserve under the Wildlife Act 1976, and Cannakill Deserted Medieval Village are the main elements of the high amenity area. Croghan Hill is an extinct volcano 769 feet above sea level and commands views over Co. Offaly and the surrounding counties.

This is an area of archaeological and high amenity value and is highly sensitive to new developments. Croghan Hill, due to its elevated nature, impacts on the visual quality of the surrounding area and is highly sensitive to developments of any nature, particularly quarrying.

The Grand Canal Corridor class 3

The Co. Offaly section of the Grand Canal comprises some 64 km from Edenderry to Shannon Harbour. It passes through the towns of Daingean and Tullamore. There is a disused Kilbeggan branch line, which is now used as a walking route. The canal traverses large tracts of boglands and is bordered by hedgerows dating back 200 years and little fringes of wild vegetation along the bank. The Grand Canal is a focus for a wide range of uses, especially for recreation and tourism purposes.

The visual quality of the surrounding areas is intrinsic to maintain the attractiveness of the Grand Canal corridor. Hence, the corridor is especially sensitive to large development structures, insensitively designed sporadic housing and large-scale land uses such as extractive industries. As the landscape around the Grand Canal Corridor is both flat and undulating, height restriction should apply to built development in the flatter areas to avoid long distant visual intrusion.

(ii) Draft Offaly County Development Plan 2009-2015

Peatlands (boglands)

Peatlands cover over 1.34 million hectares of the country's total land area. In the case of County Offaly c. 42,000 hectares of its landscape is comprised of Peatlands, with c. 6,000 classified as being high sensitive areas and c. 36,000 hectares classified as being of moderately sensitive areas. There is a fundamental need for the preparation of management strategies for peatlands as a whole. These should aim for a combination of land uses which are sympathetic to the landscape and compatible with the ecology of the bogs.

(iii) Designated Areas

There are no nationally designated landscape areas within the 20 km Zone of Visual Influence (ZVI) of the proposed development site.

A short distance northwest of the site at Garrane High, scenic viewpoints have been identified. These point northwest towards Lough Ennell and southeast towards Croghan Hill. The direction of the proposed development site is more eastern than the protected view - refer to Figure 10.2 *Viewpoint 8*.

Outside of Co. Offaly, but within the study boundary, lies the Lough Ennell Area of High Amenity. Associated with this area are a number of scenic viewpoints, mainly directed into the area but also outwards towards the north. None of the views are directed towards the proposed development site. Further north, and at the very edge of the study area, lies the Lough Owel Area of High Amenity. In Co. Kildare, to the east and partly within the study area, lies the Kildare Scenic Route. Table 10.4 *Summary of Landscape Designations and Amenity Features* and Figure 10.3 *Landscape Designations* outline these designations.

Table 10.4: Summary of Landscape Designations and Amenity Features

Landscape Designation or Feature	Location	Sensitivity
Croghan Hill Area of High Amenity	Co. Offaly	High
Scenic Viewpoints at Garrane High	Co. Westmeath	High
Lough Ennell Area of High Amenity	Co. Westmeath	High
Lough Owel Area of High Amenity	Co. Westmeath	High
Scenic Route	Co. Kildare	High

10.3.4 Zones of Visual Influence and Viewpoints

A Zone of Visual Influence (ZVI) was developed showing the extent of theoretical visibility of the proposed development within a 20 km radius. This is presented in Figure 10.4 *Zone of Visual Influence*. This ZVI includes woodland set at 30 m in height.

Beyond 20 km from the site, elevated locations such as hills and mountains will provide additional elevated, longer distance views on clear days. On days when visibility is poor, or the cloud base is below the level of the proposed development, or below the level of the viewer, there will be limited or no views.

Within the theoretical 20 km ZVI there are several different types of locations from which people may see the proposed development. These are listed in Table 10.5 *Main Distant Viewpoints to the Proposed Development*.

Table 10.5: Main Distant Viewpoints to the Proposed Development

Principal settlements		
• Rochfortbridge	• Castletown	• The Downs
• Rhode	• Kinnegad	• Clonbulloge
• Edenderry	• Ballinabrackey	• Ballina
• Milltownpass	• Castlejordan	• Killucan
Main roads		
• R446	• N4 Dublin to Sligo	• R400 road route
• M6 (Motorway)	• N52 road route	• R441 road route
National monuments and heritage areas		
• Castlejordan		
Main hills and hill groups or ranges		
• Croghan Hill, 234m		
Main water courses, lakes and canals		
• Lough Ennell	• Milltown River	• Royal Canal
• Mongagh River	• Yellow River	• Grand Canal

Taking these locations into account, a desk study was undertaken and 24 sensitive visual receptors were identified. Following a site visit, the original number of locations was reduced to 11 viewpoints, due to the very limited visibility of the proposed development site from the discarded 13 locations. As shown on the ZVI, the relatively flat topography, and abundance of vegetation means that views are relatively restricted from a number of the sensitive receptors.

Visibility of the site is mainly limited to the area within 5 km of the site, with an extended visual envelope to the north of the site, up to 10 km. There is theoretically a larger area of visibility to the east extending up to 15 and 20 km. To the northwest above Lough Ennell, there is a large area of visibility at a distance of between 15 and 20 km from the site which is due to elevated ground at this location. Previous experience, from assessments of similar large scale developments, has shown that at distances greater than 15 km, visual and indirect effects are generally not significant even for receptors of high sensitivity.

A further two viewpoints along the M6 corridor were added to the assessment following the consultation process, taking the total to 13 viewpoints. All viewpoints considered are listed in Table 10.6 *List of Viewpoints* and their locations are shown on Figure 10.5 *Viewpoint Locations*.

Nine of the 13 viewpoints were selected for further illustration and photo wires and photomontages were prepared for these locations. The viewpoints are listed in Table 10.6 *List of Viewpoints* with an indication of the reason for choosing, their distance from the site, the type of viewers and description of existing view and their sensitivity.

Table 10.6: List of Viewpoints

Viewpoint No	Location and Viewer type	Approx Distance from site	Reason for choosing and Component of existing view.	Sensitivity	Photomontage available
1	On bridge crossing M6 junction with R400. 47712E, 39622N 97m AOD Road users.	2.3 km	View from elevated section of road crossing M6. Travel is in direction of site. View of road barriers, signage, lampposts and hazard warnings with trees in middle ground and on horizon.	Low	Photomontage
2	Rochfortbridge. 47304E, 41505N 88.9m AOD Residential.	3.8 km	Typical view from nearby residential properties. View of undulating fields with trees in foreground, middle ground and along horizon. Pylon is only detracting feature.	High	Photowire

Viewpoint No	Location and Viewer type	Approx Distance from site	Reason for choosing and Component of existing view.	Sensitivity	Photomontage available
3	Bog road near Derryarkin. 48647E, 36717N 87m Residential. Workers.	1.5 km	Mid distance view from west similar to views obtained by nearby property. View of flat fields with trees at far horizon.	Medium and Low	Photomontage
4	R400 travelling north west. 50000E, 37637N 85m Road users.	570m	Close view obtained from main road adjacent to site. View includes straight road with adjacent scrub. Trees in mid distance and particularly at horizon which is adjacent site.	Low	Photomontage
5	Minor road to Garr south east of site at the base of Knockdrin Hill 50609E, 37645N 85.8m Road users and residential.	900m	Similar view to those obtained by adjacent properties further east. View across flat fields with no particular focal point. Trees near site visible at horizon.	Low and High	Photomontage

Viewpoint No	Location and Viewer type	Approx Distance from site	Reason for choosing and Component of existing view.	Sensitivity	Photomontage available
6	R400 near Coolcor travelling north west. 52405E, 35451N 70m Road users and residential	4 km	Distant view of site from main road which passes site. Similar to those obtained by nearby properties and near Yellow River. View along road with considerable roadside vegetation. Heavily wooded horizon.	Low and High	None
7	Croghan Hill. 48469E, 34335N 120.5m AOD Residential. Walkers.	3.8 km	Sensitive landscape receptor at high elevation. Panoramic elevated view across flat bogland with quarry in foreground forming focus. Extreme level horizon is a landscape feature of the view.	High	Photomontage
8	Garrane High 43293E, 38787N 140.2m AOD Residential. Road users.	6.1 km	Scenic views available from high point to west of site. View consists of heavily wooded horizon with Croghan Hill partially visible. Fields in foreground.	High	Photowire

Viewpoint No	Location and Viewer type	Approx Distance from site	Reason for choosing and Component of existing view.	Sensitivity	Photomontage available
9	Cemetery at Milltownpass. 49636E, 43345N 87.2m Visitors. Adjacent residential.	4.9 km	Sensitive receptor with similar views towards site as adjacent properties. View is focused south east by orientation of path and cross as focal point. Gravestones grass and boundary walls are main features of view.	High	Photowire
10	Castlejordan 59100E,38800N 70m AOD Residential. Monument.	9.5 km	Distant view from sensitive receptor east of site. Monument is sited in heavily vegetated location with no direct view available towards site at ground level.	High	None
11	Minor road to Castlejordan east of site. 53891E,38509N 86m Residential. Road users.	4 km	Mid distance view from east of site similar to those obtained by nearby properties. View consists of gently undulating fields and scrub with wooded elevated horizon adjacent to site. Sporadic tree cover in mid distance.	Low and High	None

Viewpoint No	Location and Viewer type	Approx Distance from site	Reason for choosing and Component of existing view.	Sensitivity	Photomontage available
12	N6 51949E, 42736N 78.5 AOD Road users	4.8 km	Following the consultation process it was decided to include an extra viewpoint representing views from the M6. View across heath land towards woodland which forms the whole horizon.	Low	None
13	N6 48297E, 40127N 81.7 AOD Road users	2.1 km	Following the consultation process it was decided to include an extra viewpoint representing views from the M6. View towards site is at 90 degrees to direction of travel. Flat pasture in foreground all the way up to dense trees at horizon. Higher ground in far distance.	Low	Photomontage

10.4 Landscape and Visual Impacts

The following section presents the assessment of the landscape and visual impacts from the construction and operation phases of the proposed development.

10.4.1 Description of the Proposed Development

The implementation of the proposed development will introduce changes into the landscape and views. The project details are described in full in Chapter 3 *Description of the Development* of this EIS. The proposed development is situated on the site of an existing Bord na Móna works. Located on the R400, approximately 4 km south east of Rochfortbridge, the site is a mineral island surrounded by cutaway peatlands. Essentially the development comprises two power generating units located on the site. These are a flexible combined cycle gas turbine unit (CCGT) of c. 430 MW and a peaking/reserve open cycle gas turbine unit (OCGT) of c. 170 MW.

The tallest plant component is the exhaust stack from the Heat Recovery Steam Generator (HRSG), which will measure a maximum of 50 m from ground level and 6.9 m in diameter. Other tall structures include the HRSG building, 40 m from ground level and 36 m by 30 m in length and width, the turbine building, 30 m from ground level and 81 m by 48 m in length and width, the Air Cooled Condenser (ACC), 35 m from ground level and 60 m by 46 m in length and width, and the OCGT stack, 40 m from ground level.

The cooling system of the proposed power plant will use the technique of air fan cooling, which will result in no water vapour plume emissions.

When the power plant is fired on natural gas there will also be no visible emissions, except where the air temperature is very low and water vapour condenses above the exhaust stack. However, when either unit is fired on distillate oil, there will be a more visible vapour plume, due to water injection for NO_x abatement. More detailed information is contained in Chapter 3 *Description of the Development*.

10.4.2 Construction Phase Impacts

During the construction period, there will be short term landscape and visual impacts arising from activities on the site associated with the proposed power plant development, including the following:

- Site compounds, temporary fencing, access ;
- Machinery and material storage ;
- Plant and machinery including cranes, lifting equipment, excavators and earth moving equipment ;
- Clearance of vegetation and topsoil stripping ;
- Road works ;
- Vehicle movements in the site and on adjacent roads, including vehicles carrying parts of the proposed structures to the site;

- In-situ concrete works including excavations for foundations ; and
- Construction site lighting in winter months.

It is acknowledged that construction, vehicle activities, views of tall cranes, night time lighting, etc. will provide a degree of increased disruption to the landscape and intrusion into views, especially to visual receptors in surrounding residential properties within a 5 km radius. However these impacts will be short-term and restricted to the construction period. A detailed description of the construction programme, activities and proposed machinery is provided in Chapter 3 *Description of the Development*.

The significance of the construction impacts on the local landscape is judged to be “minor to moderate”, for although the magnitude of change associated with constructing the development is large, the sensitivity of the local landscape to construction is low. In terms of the wider landscape, the significance of the impact reduces to “minor to not significant” due to screening and the limited visual envelope.

With regard to visual impacts from construction, it is judged that impacts will vary similar to those for the landscape. However, as nearby residents are considered of high sensitivity, the significance of visual impact from construction will range from minor to major.

10.4.3 Operational Phase Impacts

The development will result in the following physical and direct adverse changes in the landscape.

The proposed development will result in the loss of small areas of trees, shrubs and scrub within the site boundary. The sensitivity of the vegetation to be removed is low as there is abundant such vegetation elsewhere in the study area. The extent of change is small, therefore the magnitude of landscape impact is not significant.

A small quantity of hedgerow vegetation will be removed at various locations within the main site. The sensitivity of the vegetation to be removed is low, and the extent of change is small, therefore the magnitude of landscape impact is not significant.

Impacts on the landscape character areas (LCAs) may be *direct* and *adverse*, hereinafter reported as *direct*, which means that the proposed development will result in direct or physical changes of an adverse nature to the receiving landscape. Impacts may also be *indirect* and *adverse*, from here on reported as *indirect*. These indirect adverse effects are concerned with the impact that the proposed development will have on the setting of a particular landscape as perceived by the viewer. Indirect impacts or effects are inextricably linked with views. The impacts of the proposed development on LCAs are discussed below.

(i) Co. Offaly Landscape Classification

As described in Section 10.3.3 *Landscape Policy and Designations*, the Co. Offaly landscape, in which the proposed development will be located, has been classified into five components. The only direct landscape impact will be on the Peatlands classification. All other impacts will be indirect effects, which will occur where the development is visible, as shown in the ZVI and verified in the field.

The small amount of peatland area within the site is directly impacted by the proposed development. There are existing buildings on the site which will be removed. The existing buildings do not impart an industrial character over a wide area. The structures associated with the power plant development, by contrast, will add man-made elements of considerable scale to the landscape, in particular the proposed stack, gas and steam turbine building, heat recovery steam generator (HRSG) and air cooled condenser. These will become new identifiable landmarks, and a point of reference in views, from the wider area. There are few similar structures in the area of such a scale and industrial in nature and, although the Lagan Cement works is located some 8 km to the east, this does not result in an industrial or particularly degraded character to the wider area.

The magnitude of this change is large, due to the size and bulk of the proposed development, as described above. The peatlands are considered as having a medium sensitivity to this type of change and therefore it is judged that the significance of the landscape impact is moderate to major.

Croghan Hill sits within the Uplands landscape classification, and this is deemed a landscape of high sensitivity. There is much intervisibility between the uplands and the surrounding landscape so changes can be very apparent. The location of the proposed development within the visual envelope of Croghan Hill is considered a small magnitude of change, owing principally to the reduced scale effect with distance, resulting in a minor to moderate indirect significance of landscape impact.

In terms of the remaining landscapes within Co. Offaly, the magnitude of change on Eskers, Waterways, Lakes and Forests is considered imperceptible. There are no direct impacts on any of these landscapes and, due to factors such as distance and the characteristics of the features, even indirect impacts are judged not significant. The significance of the impact of the development on the landscape is summarised in Table 10.7 *Co. Offaly Landscape Classification – Landscape Impacts*.

Table 10.7: Co. Offaly Landscape Classification - Landscape Impacts

Components	Distance from site	Landscape Sensitivity to development	Magnitude of change	Significance of Impact
Eskers	Varies, closest 11.3 km	High	Imperceptible	Not significant
Peatlands	Within site	Medium	Large	Moderate to Major
Waterways, Lakes and Wetlands	To the south, varies 7 to 20 km	High	Imperceptible	Not significant
Forests	Varies, closest 2.5 km	Low	Imperceptible	Not significant
Uplands	Croghan Hill approx 4 km	High	Small	Minor to Moderate (Indirect effect)

(ii) Landscape Impacts in the Wider Area

The proposed development will be theoretically visible from varied locations outside of the Co. Offaly features referred to above. Outside of Co. Offaly, the proposed power plant development is expected to be visible particularly from elevated locations, of which there are very few, and most are at considerable distance from the site. There are many landscapes or areas located at the same level or at lower elevations than the site, which typifies the general landscape character of the area. In this type of flat landscape, vegetation, buildings and undulating landform can easily interrupt views. Where these screening elements are absent, views of tall structures can be obtained at large distances.

(iii) Landscape Impacts on the Co. Westmeath Landscape Character Areas

Co. Westmeath Landscape Character Areas (LCAs) are located to the north and west of the site. Only six of these LCAs are situated within the 20 km radius of the study area - see Table 10.8 *Co. Westmeath Landscape Character Areas- Landscape Impacts*. Potential impacts are all indirect effects and therefore reference is made to the ZVI which shows the theoretical visual influence of the development across the study area. The ZVI indicates that the power plant and stacks are mainly visible up to 10 km from the site.

The only LCA which is within 10 km of the site is the Lough Ennell and South Eastern Corridor. The new M6 motorway runs through this LCA. The sensitivity of this landscape is considered high although, in the area closest to the site, the presence of the new M6 motorway adds an urban element to the landscape. Due to the large spread of this character area, there is a variation in the magnitude of change and consequently a variation in the significance of the indirect effect. It is judged therefore that this varies from moderate to minor effect.

The remaining LCAs within Co. Westmeath are all at distances of 10 km and greater from the proposed development. The sensitivities of these to the development vary from high to low. It is considered that, due to the distances involved, the low lying nature of much of the area, and the presence of an abundance of intervening vegetation, the magnitudes of change are small or imperceptible and therefore the landscape effects are not significant.

The significance of the impact of the development on the landscape is summarised in Table 10.8 *Co. Westmeath Landscape Character Areas – Landscape Impacts*.

Table 10.8: Co. Westmeath Landscape Character Areas - Landscape Impacts

Character Area	Distance from Site (range within study area)	Landscape Sensitivity to Development	Magnitude of Change	Significance of Impact
River Deel Lowlands	15 km to 20 km	Low	Imperceptible	Not significant
Central Hills & Lakes	12 km to 20 km	Medium	Imperceptible	Not significant
Royal Canal Corridor	11 km to 20 km	High	Imperceptible	Not significant
South Central Hills	16 km to 20 km	Low	Small	Not significant
Lough Ennell & South Eastern Corridor	0.6 km to 16 km	High	Medium to small	Moderate to minor (Indirect effect)
South Westmeath Eskers	10 km to 20 km	Medium	Imperceptible	Not significant

(iv) Landscape Impacts on the Co. Meath Landscape Character Areas

The County Meath Landscape Character Area, located northeast of the site, only contains one LCA within the study area which is the South West Lowlands - see Table 10.9 *Co. Meath Landscape Character Areas –Landscape Impacts*. The ZVI suggests that both the buildings and the stack will be theoretically visible within this area. The lack of tall vegetation in the direction of this LCA, which would otherwise screen the proposed development, means that the magnitude of change in the area nearest the site will be medium, but reducing to small with distance. The significance of landscape effect therefore is judged to vary from moderate to minor.

Table 10.9 Co. Meath Landscape Character Areas - Landscape Impacts

Character Area	Distance from Site (range within study area)	Landscape Sensitivity to Development	Magnitude of Change	Significance of Impact
South West Lowlands	5.5 km to 20 km	Medium	Medium to small	Moderate to minor (indirect effect)

(v) Landscape Impacts on the Co. Kildare Landscape Character Areas

The County Kildare Landscape Character Area, located east of the site, contains two LCAs within the study area. The low lying nature of this area, and intervening vegetation, combine to exclude views of the proposed development from these areas. Views are available in theory in the southern part of the area, but in reality local vegetation such as trees and hedgerows effectively screen views. As such, the magnitude of change to the landscape will be small to imperceptible, and the effect of the proposed development on this landscape of low sensitivity would be not significant.

The significance of the impact of the development on these landscapes is summarised in Table 10.10 *Co. Kildare Landscape Character Areas – Landscape Impacts*.

Table 10.10: Co. Kildare Landscape Character Areas - Landscape Impacts

Character Area	Distance from Site (range within study area)	Landscape Sensitivity to Development	Magnitude of Change	Significance of Impact
North Western Lowlands	11 km to 20 km	Low	Small to imperceptible	Not significant
Western Boglands	19 km to 20 km	Low	Imperceptible	Not significant

(vi) Impacts on the Landscape Setting of Designated Landscapes and Amenity Features

The power plant development may be visible from some of the designated landscapes and features illustrated in Figure 10.3 *Landscape Designations*. As indicated in the baseline section, there are no nationally designated landscapes within the study area, therefore the following assessment table includes all known local designations.

Only three Areas of High Amenity are located within the study area. Two of these are associated with Loughs and their surroundings; Lough Ennell to the northwest and Lough Owel further north. Both of these designations include scenic viewpoints, which mainly focus and are orientated towards the Loughs. The theoretical ZVI indicates that there is little visibility of the development around Lough Ennell, and only visibility to the north west of the Lough where the land rises. This is at a distance of over 15 km.

Croghan Hill is an Area of High Amenity located to the south of the site, and also includes a number of Scenic Viewpoints. These viewpoints are south of Croghan Hill, providing a southern aspect, and are therefore not affected by the development.

There are Scenic Viewpoints included at Garrane High which is west of the site. These views are directed towards Lough Ennell to the north, and Croghan Hill to the south, and therefore are unaffected by the development.

The Co. Kildare Scenic Route is located east of the site and, according to the ZVI, the buildings and stack may be visible from this location. However, this is at distances of over 15 km.

Table 10.11 *Summary of Impacts on Landscape Designations and Amenity Features* provides a summary of the impacts of the proposed development on landscape designations and amenity features within the 20 km study zone.

Table 10.11: Summary of Impacts on Landscape Designations and Amenity Features

Landscape Designation or Feature	Location	Sensitivity	Magnitude of Change	Significance of Impact
Croghan Hill Area of High Amenity	Co. Offaly	High	Small	Minor to moderate (indirect effect)
Scenic Viewpoints at Garrane High	Co. Westmeath	High	Imperceptible	Not significant
Lough Ennell Area of High Amenity	Co. Westmeath	High	Imperceptible to small	Not significant to minor (indirect effect)
Lough Owel Area of High Amenity	Co. Westmeath	High	Imperceptible	Not significant
Scenic Route	Co. Kildare	High	Imperceptible to small	Not significant to minor (indirect effect)

(vii) Impacts on Potential Sensitive Receptors

The introduction of new structures and activity on the site will have adverse impacts upon the quality of views experienced by people living in, working in or visiting the surrounding area.

Figure 10.5 *Viewpoint Locations*, identifies the viewpoints selected to represent the range of locations from where people may see the development. Particular importance was placed on representing the views experienced by nearby residences, views experienced by locals using the local and national road network, and views from any locations of tourism, architectural or archaeological value.

The adverse impact on each of these viewpoints was assessed, taking into account the sensitivity of the viewpoint, the magnitude of change in the view, and the resulting significance of impact. The results are presented in Table 10.12 *Assessment of Visual Impacts at Selected Viewpoints*. The viewpoints are described in terms of their elevation, distance from the site and viewer type. The existing view towards the site is described, and an assessment made of the predicted change in view that is expected to occur with the proposed development in place. The sensitivity of each viewpoint, and the magnitude of change are identified, and the significance of resulting impact defined.

The assessment was assisted by the preparation of photowire images, and photomontage images, where the development was fully visible from nine selected viewpoint locations. The photomontages/photowires are shown in Figure 10.2 *Viewpoint 8*, and in Figures 10.6 to 10.13. The locations are listed in Table 10.12 *Assessment of Visual Impacts at Selected Viewpoints*.

Table 10.12: Assessment of Visual Impacts at Selected Viewpoints

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
1 (Figure 10.6)	On bridge crossing M6 junction with R400. 47712, 39622 97m AOD Road users.	2.3 km View of road barriers, signage, lampposts and hazard warnings with trees in middle ground and on horizon.	View of road barriers, signage, lampposts and hazard warnings with trees in middle ground and on horizon. Main buildings visible in view with taller stacks screened by intervening vegetation.	Low	Medium	Minor
2 (Figure 10.7)	Rochfortbridge. 47304, 41505 88.9m AOD Residential.	3.8 km View of undulating fields with trees in foreground, middle ground and along horizon. Pylon is only detracting feature.	View of undulating fields with trees in foreground, middle ground and along horizon. Pylon is only detracting feature. Power plant development is not visible due to screening by trees.	High	Imperceptible	Not significant

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
3 (Figure 10.8)	Bog road near Derryarkin. 48647, 36717 87m AOD Residential	1.5 km View of flat fields with trees at far horizon.	View of flat fields with trees at far horizon. Power plant development is new visible component in view. The development is a new point of focus unlike any existing element in the landscape.	Medium and Low	Medium	Minor to moderate
4 (Figure 10.9)	R400 travelling north west. 50000, 37637 85m AOD Road users.	570m View includes straight road with adjacent scrub. Trees in mid distance and particularly at horizon which is adjacent site.	Power plant development is major new element in view, punctuating the horizon to the east of the road.	Low	Large	Minor to moderate

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
5 (Figure 10.10)	Minor road to Garr south east of site at the base of Knockdrin Hill. 50609E, 37645N 85.8m AOD Road users and residential.	900m View across flat fields with no particular focal point. Trees near site visible at horizon.	Power plant development is major new feature in view and main focal point. Nearby residential receptors may have intervening vegetation although some are more elevated.	Low and High	Large	Moderate to Major
6	R400 near Coolcor travelling north west. 52405E, 35451N 70m AOD Road users and residential	4 km View along road with considerable roadside vegetation. Heavily wooded horizon.	View along road with considerable roadside vegetation. Heavily wooded horizon. Power plant development unlikely to be visible due to intervening vegetation although where vegetation missing, power plant development will be new element in view.	Low and High	Medium	Minor to Major

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
7 (Figure 10.11)	Croghan Hill. 48469E, 34335N 120.5m AOD Residential. Walkers.	3.8 km Panoramic elevated view across flat bogland with quarry in foreground forming focus. Extreme level horizon is a landscape feature of the view	Panoramic elevated view across flat bogland with quarry in foreground forming focus. Power plant development is new small feature on the horizon. Quarry is still main point of focus but development on horizon detracts from simplicity of original horizon.	High	Medium	Moderate to Major
8 (Figure 10.2)	Garrane High 43293E, 38787N 140.2m AOD Residential. Road users.	6.1 km View consists of heavily wooded horizon with Croghan Hill partially visible. Fields in foreground.	View consists of heavily wooded horizon with Croghan Hill partially visible. Fields in foreground. Power plant development is not visible due to intervening vegetation.	High	Imperceptible	Not significant

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
9 (Figure 10.12)	Cemetery at Milltownpass. 49636E, 43345N 87.2m Visitors. Adjacent residential.	4.9 km View is focused south east by orientation of path and cross as focal point. Gravestones, grass and boundary walls are main features of view.	Gravestones, grass and boundary walls are still main features of view. Power plant development is not visible due to intervening vegetation. It is possible that development might be visible from the boundary of the cemetery.	High	Imperceptible	Not significant
10	Castlejordon 59100E,38800N 70m AOD Residential. Monument.	9.5 km Monument is sited in heavily vegetated location with no direct view available towards site at ground level.	Monument is sited in heavily vegetated location with no direct view available towards site at ground level.	High	Imperceptible	Not significant

Viewpoint No	Location	Distance from site and Description of existing view	Description of proposed view	Sensitivity of visual receptor	Magnitude of change	Significance of visual impact
11	Minor road to Castlejordon east of site. 53891E,38509N 86m Residential and Road users.	4 km View consists of gently undulating fields and scrub with wooded elevated horizon adjacent to site. Sporadic tree cover in mid distance.	View consists of gently undulating fields and scrub with wooded elevated horizon adjacent to site. Power plant development is likely to be new feature on horizon and new point of focus.	Low and High	Medium	Minor to Major
12	M6 51949E,42736N 78.5m AOD Road users	4.8 km View across heath land towards woodland which forms the whole horizon.	View across heath land towards woodland which forms the whole horizon. Power plant development is not visible due to large area of intervening woodland.	Low	Imperceptible	Not significant
13 (Figure 10.13)	M6 48297E, 40127N 81.7 AOD Road users	2.1 km View towards site is at 90 degrees to direction of travel. Flat pasture in foreground all the way to dense trees at horizon. Higher ground in far distance.	Flat pasture in foreground all the way up to dense trees at horizon. Higher ground in far distance. Power plant development is new visible minor element on far horizon. Development is noticeable but is at right angles to direction of focus for drivers.	Low	Medium	Minor

10.5 Landscape and Visual Impact Mitigation

In order to minimise the impact of the proposed development on the landscape and visual environment, account was taken of various measures that will be taken to mitigate these impacts, through design, construction and other means. These were developed through analyses undertaken to identify the expected impacts of the proposed development in the absence of mitigation. From this, mitigation measures to help reduce impacts were developed and agreed.

10.5.1 Construction Phase Mitigation

A detailed Construction Environmental Management Plan (CEMP) will be developed, to include arrangements for the design and implementation of various aspects of the construction works, including soil removal, storage and replacement, woodland planting, and measures to protect landscape resources. The CEMP will be developed prior to the commencement of construction. Measures that will be taken to mitigate landscape and visual impacts during construction will include:

- Design to minimise tree and other vegetation removal ;
- Protection of valued features, such as woodland and scrub and other habitats, to be retained using fencing. Measures used to protect existing vegetation to be retained will comply with that set out in *BS 5837, Trees in Relation to Construction* ;
- Restricting construction lighting outside normal working hours to the minimum required for public safety and security ;
- Maintenance of tidy and contained site compounds ;
- The development of a dust minimisation plan, which will restrict the dispersion of construction dust into the atmosphere by means of regular applications of water to the site where required ;
- The spreading of topsoil and replacement of turf, or reseeded and planting, as soon as possible after sections of work are complete ; and
- Protection of these newly restored areas during re-growth.

10.5.2 Operational Phase Mitigation

Elements of the design were developed through preliminary landscape impact analysis, identifying the expected impacts of the proposed development in the absence of mitigation, and proposing changes to the layout of the development, and to the appearance of the proposed structures, to mitigate these impacts. Replacement landscape treatment, comprising native species and a selection of evergreen non native species, selected for screening purposes, will be used to compensate in part for any loss of existing vegetation, as a result of the development, and to mitigate predicted visual impacts. The landscape proposals are illustrated in Figure 10.14 *Landscape Mitigation*, and a schedule of plant species for the proposed mixes is listed in Table 10.13 *Suggested Planting Mixes for Mineral/Organic Soil* and Table 10.14 *Suggested Planting Mixes for Acidic Soil*.

Key operational phase mitigation measures integrated into the final layout include:

- A 20 m wide woodland tree belt will be established around the northern perimeter of the main site, which will tie in with the existing small area of woodland.
- To the east of the main site a 30 m wide woodland belt will be established alongside the boundary. This wider belt is in response to the larger ZVI which is available to the east. A gap will be required in this belt to accommodate the railway corridor.
- A 7.5 m to 15 m wide woodland belt will be established within the southern boundary of the main site.
- Along the western boundary and adjacent the R400, a 10 m tree belt is proposed, which will provide a continuity of landscape character, similar to that imposed by the trees which line the road further north.
- Across the R400 and towards the proposed sub station, a more substantial 20 m wide tree belt is proposed which will align with the main road. This belt will help mitigate views of the main power plant development from the west, in association with the adjacent existing woodland area.
- For the perimeter of the sub station, a 10 to 15 m tree belt is proposed to the north, south and west. However, this will require gaps to accommodate the rail corridor and the overhead electricity pylons. Planting will be maintained a minimum of 7.5 metres from buildings and structures.
- The materials, finishes and colours for the proposed structures will be selected to favour the reduction of potential visual impact. Non reflective finishes will be used, in order to reduce or avoid impacts relating to sunlight reflection or glare, which could be experienced by the viewer. Although the top of the stack will have warning lights, it will not carry any brightly coloured markings.
- The minimum amount of signage should be used for operational purposes, and visual clutter should be avoided, particularly at the entrance to the development.
- There will be minimal external lighting, as required for health and safety and operational purposes. This lighting will be directional and designed to minimise light pollution.

Table 10.13: Suggested Planting Mixes for Mineral/Organic Soil

Proposed Planting Mix	Species Content	Approx % of mix
Proposed high canopy woodland mix planting	Scots Pine (<i>Pinus sylvestris</i>) Ash (<i>Fraxinus excelsior</i>) Pedunculate Oak (<i>Quercus robur</i>)	High canopy dominant species (up to 20% of mix)
Proposed low canopy mix planting	Downy Birch (<i>Betula pubescens</i>) Silver Birch (<i>Betula pendula</i>) Alder (<i>Alnus glutinosa</i>) Willow (<i>Salix sp</i>) Mountain Ash (<i>Sorbus aucuparia</i>)	Low canopy sub dominant species (up to 25% of mix)
Proposed shrub understorey mix planting	Hawthorn (<i>Crataegus monogyna</i>) Holly (<i>Ilex aquifolium</i>) Mountain Ash (<i>Sorbus aucuparia</i>) Blackthorn (<i>Prunus spinosa</i>) Willow (<i>Salix sp</i>)	Shrub understorey and edge species (up to 55% of mix)

Table 10.14: Suggested Planting Mixes for Acidic Soil

Proposed Planting Mix	Species Content	Approx % of mix
Proposed high canopy woodland mix planting	River Birch (<i>Betula nigra</i>) Pin Oak (<i>Quercus palustris</i>) Monterey Pine (<i>Pinus radiata</i>) Ash (<i>Fraxinus excelsior</i>)	High canopy dominant species (up to 20% of mix)
Proposed low canopy mix planting	Strawberry Tree (<i>Arbutus unedo</i>) Alder (<i>Alnus glutinosa</i>) Willow (<i>Salix sp</i>)	Low canopy sub dominant species (up to 25% of mix)
Proposed shrub understorey mix planting	Hawthorn (<i>Crataegus monogyna</i>) Holly (<i>Ilex aquifolium</i>) Mountain Ash (<i>Sorbus aucuparia</i>) Blackthorn (<i>Prunus spinosa</i>) Willow (<i>Salix sp</i>)	Shrub understorey and edge species (up to 55% of mix)

A horticulturist will be employed in order to oversee the proposed planting regime, and will be responsible for the development of a full and detailed planting plan.

10.5.3 Additional Measures to Mitigate Landscape and Visual Impacts

A post-construction restoration plan will be prepared, to guide the appropriate restoration of landscape earthworks, soils and vegetation as part of the Construction Environmental Management Plan, once the construction phase is complete.

10.5.4 Long Term Management Measures

It is recommended that a long term management plan be developed, to address management of the landscape and ecological resources during the years of operation of the power plant. This will include measures to maintain and enhance the landscape, visual amenity and biodiversity of the area, through habitat and land management.

10.5.5 Monitoring

It is recommended that monitoring of the construction phase be undertaken by appropriate environmental staff, such as a landscape architect, to monitor compliance with landscape requirements.

10.6 Residual Impacts

Following the implementation of the mitigation measures, there will be no residual landscape impacts arising from the removal of existing vegetation within the site. In fact, following the implementation of the mitigation planting, there is likely to be a beneficial residual impact on the local landscape, due to the increase in trees, scrub and shrubs, and likely increase in biodiversity.

Over the longer term, the residual impact on the Peatlands landscape classification within Co. Offaly is likely to reduce from major to moderate, following the establishment of the mitigation woodland. It is not anticipated that there will be any changes in the pre-mitigation significance ratings reported for other landscape classifications within Co. Offaly.

Similarly for the LCAs within Co. Westmeath, there will be no change in the pre-mitigation significance ratings reported, except for the “moderate to minor” reported for the Lough Ennell LCA, which is likely to reduce to minor, following the establishment of the mitigation woodland. It is suggested that the same would apply for the South West Lowlands LCA located within Co. Meath, which is likely to reduce to minor.

With regard to residual impacts associated with landscape designations and amenity features, it is suggested that, following the successful establishment of the mitigation proposals, the moderate impact predicted for Croghan Hill Area of High Amenity, is likely to reduce to a minor significance.

Although the proposed mitigation woodland will assist in integrating the proposed development into the local landscape, the height and mass of the various built elements is still likely to be a dominant visual feature. It is difficult to predict the degree of growth and screening that can be expected from the proposed woodland. Due to the nature of the existing soil conditions, the choice of species is restricted and establishment could be challenging. Woodland planting is therefore more likely to reach 15 to 20 m in height, within the operational life of the proposed power plant, rather than 25 to 30 m. It is therefore anticipated that residual ratings of visual significance, especially in the immediate vicinity of the plant, are likely to be similar to pre-mitigation ratings.