



Environmental Impact Assessment Report (EIAR)

Volume 3 of 6: Environmental Assessment

(Chapter 16) Landscape & Visual

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Acronyms and Abbreviations

Acronym/Abbreviation	Meaning
ACA	Architectural Conservation Area
BPT	Break Pressure Tank
BPS	Booster Pumping Station
CC	Construction Compound
CEMP	Construction Environmental Management Plan
CDP	County Development Plan
DSM	Digital Surface Model
DTM	Digital Terrain Model
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
FCV	Flow Control Valve
GDA WRZ	Greater Dublin Area Water Resource Zone
GIS	Gas Insulated Switchgear
GLVIA	Guidelines for Landscape and Visual Impact Assessment
HGV	Heavy Goods Vehicle
HLPS	High Lift Pumping Station
ICMZ	Integrated Coastal Management Zone
IEMA	Institute of Environmental Management & Assessment
LCA	Landscape Character Area
LCT	Landscape Character Type
LI	Landscape Institute
LVIA	Landscape and Visual Impact Assessment
OD	Ordnance Datum
OHL	Overhead line
PSD	Pipe Storage Depot
RW	Raw Water
RWI&PS	Raw Water Intake and Pumping Station
RWRM	Raw Water Rising Main
SR	Scenic route
TPR	Termination Point Reservoir
VRP	Viewshed Reference Point
VP	Viewpoint
WTP	Water Treatment Plant
ZTV	Zone of Theoretical Visibility

16. Landscape & Visual

16.1 Introduction

1. This chapter reports the assessment of the likely significant effects of the Proposed Project on the landscape context. In accordance with the requirements of the Environmental Impact Assessment (EIA) Directive, it identifies, describes and assesses the likely significant landscape and visual effects of the Proposed Project on the receiving environment during the Construction and Operational Phases of the Proposed Project.
2. This chapter sets out the methodology used, describes the existing environment, examines the predicted effects of the Proposed Project, proposes mitigation measures and identifies residual effects. The assessment has been conducted in accordance with best practice guidance and methodology, specifically the Guidelines for Landscape and Visual Impact Assessment (Landscape Institute (LI) and Institute of Environmental Management & Assessment (IEMA) 2013).
3. Landscape effects and visual effects have been considered separately, but presented as related issues:
 - Landscape effects describe changes in the character and quality of the landscape itself, namely ‘...an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’ (Council of Europe 2000). These factors include, for instance, landform, water features, land use, pattern, vegetation and cultural influences
 - Visual effects describe changes in the character and quality of the views available to people at residential properties, users of public rights of way, open spaces and roads.
4. The assessment reported in this chapter has considered the mitigation that has been embedded into the design to avoid or reduce environmental effects. Embedded mitigation is an intrinsic part of the Proposed Project design and therefore the assessment of effects assumes all embedded design measures are in place. Embedded mitigation relevant to this topic is included in Section 16.5.1.
5. Table 16.1 outlines the principal Proposed Project elements that have been assessed within this chapter. A full description is provided in Chapter 4 (Proposed Project Description) of this Environmental Impact Assessment Report (EIAR).

Table 16.1: Summary of Principal Proposed Project Infrastructure

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Permanent Infrastructure	
Raw Water Intake and Pumping Station (RWI&PS) (Infrastructure Site) County Tipperary	<ul style="list-style-type: none"> • The RWI&PS would be located on a permanent site of approximately 4ha on the eastern shore of Parteen Basin in the townland of Garrynatineel, County Tipperary. In addition, approximately 1ha of land would be required on a temporary basis during construction. • The RWI&PS has been designed to abstract enough raw water from the River Shannon at Parteen Basin to provide up to 300Mld of treated water by 2050. • The RWI&PS site would include a bankside Inlet Chamber, the Raw Water Pumping Station Building, two Microfiltration Buildings, an Electricity Substation and Power Distribution Building, and Dewatering Settlement Basins. The tallest building on the RWI&PS site would be the Microfiltration Buildings which would be 10.9m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. • Power for the RWI&PS would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation. • A new permanent access road from the R494 would be constructed to access the proposed RWI&PS site. This access road would be 5m in width and 670m in length. • The RWI&PS site boundary would be fenced with a stock proof fence and a 2.4m high paladin security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<p>Raw Water Rising Mains (RWRMs) (Pipeline) County Tipperary</p>	<ul style="list-style-type: none"> The RWRMs would consist of two 1,500mm underground pipelines made from steel that would carry the raw water approximately 2km from the RWI&PS to the Water Treatment Plant (WTP) at Incha Beg, County Tipperary. The water would be pumped from the pumping station at the RWI&PS to the WTP. Twin RWRMs have been proposed so that one RWRM can be taken out of service for cleaning and maintenance while still providing an uninterrupted flow of raw water through the other RWRM. The RWRMs would include Line Valves, a Lay-By, Air Valves and Cathodic Protection. A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the RWRMs.
<p>Water Treatment Plant (WTP) (Infrastructure Site) County Tipperary</p>	<ul style="list-style-type: none"> The WTP would be located on a permanent site of approximately 31ha at Incha Beg, County Tipperary, 2.6km north-east of the village of Birdhill, and 2km east of the proposed RWI&PS. In addition, approximately 2.5ha of land would be required on a temporary basis during construction. The WTP would treat the raw water received from the RWI&PS via the RWRMs. Once treated, the High Lift Pumping Station (HLPS) would deliver the treated water onwards from the WTP to the Break Pressure Tank (BPT) at Knockanacree, County Tipperary, via the Treated Water Pipeline. The WTP would comprise of a series of tanks and buildings including the Raw Water Balancing Tanks, Water Treatment Module Buildings, Sludge Dewatering Buildings, Sludge Storage Buildings, Clear Water Storage Tanks and HLPS, an Electricity Substation and Power Distribution Building, and the Control Building. The tallest building on the WTP site would be the Water Treatment Module Buildings which would be up to 15.6m above finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. There would also be a potential future water supply connection point at the junction between the permanent access road and the R445. Power for the WTP would be supplied via an underground connection to the existing Birdhill 38 kV electricity substation. Solar panels would be placed on the roofs of the Chemical Dosing Manifold Building, the Water Treatment Module Buildings, Clear Water Storage Tanks and Sludge Storage Buildings, and at a number of locations on the ground to supplement the mains power supply. A new permanent access road from the R445 would be constructed and would be 6m in width and 640m in length. The WTP site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary. The site would be landscaped in line with the surrounding environment to reduce its visual impact.
<p>Treated Water Pipeline from the WTP to the BPT (Pipeline) County Tipperary</p>	<ul style="list-style-type: none"> The Treated Water Pipeline from the WTP to the BPT would consist of a single 1,600mm underground steel pipeline which would be approximately 37km long. The water would be pumped through this section of the Treated Water Pipeline by the HLPS. The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection and Lay-Bys. A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.
<p>Break Pressure Tank (BPT) (Infrastructure Site) County Tipperary</p>	<ul style="list-style-type: none"> The BPT would be located on a permanent site of approximately 7ha in the townland of Knockanacree, County Tipperary. In addition, approximately 0.8ha of land would be required on a temporary basis during construction. The BPT would be located at the highest point of the pipeline. It marks the end of the Treated Water Pipeline from the WTP to the BPT and the start of the Treated Water Pipeline from the BPT to the Termination Point Reservoir (TPR) in the townland of Loughtown Upper, at Peamount, County Dublin. It would act as a balancing tank and would be required to manage the water pressures in the entire Treated Water Pipeline during flow changes, particularly during start-up and shut-down. The BPT site would include the BPT and a Control Building. The BPT would be a concrete tank divided into three cells covered with an earth embankment. The BPT tanks would be 5m in height and partially buried below finished ground levels. The Control Building would be 7.5m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. Access to the BPT site would be via a new permanent access road from the L1064 which would be 5m wide and 794m in length. Power for the BPT would be supplied via an underground connection from the existing overhead power line. Solar panels would be placed on the south facing side of the control building roof, on the BPT and at ground level to the south of the site to supplement the mains power supply. The BPT site boundary would be bounded by the existing hedgerow / tree line with a 2.4m high palisade security fence around the permanent infrastructure. The site would be landscaped in line with the surrounding environment to reduce its visual impact.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<p>Treated Water Pipeline from the BPT to the TPR (Pipeline)</p> <p>Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> The Treated Water Pipeline from the BPT to the TPR would consist of a single 1,600mm underground steel pipeline, approximately 133km long. The water would normally travel through the Treated Water Pipeline by gravity; however, flows greater than approximately 165Mld would require additional pumping from the Booster Pumping Station (BPS) in the townland of Coagh Upper, County Offaly. The Treated Water Pipeline would include Line Valves, Washout Valves, Air Valves, Manways, Cathodic Protection, Lay-Bys and potential future connection points. A 20m wide Permanent Wayleave would provide Uisce Éireann with operational access to the pipeline (this Wayleave has been extended to approximately 30m at some Line Valves to provide access between the Lay-Bys and Line Valves). There would be an additional 10m wide Permanent Wayleave at certain locations for operational access to smaller pipes connecting Washout Valves with permanent discharge locations.
<p>Booster Pumping Station (BPS) (Infrastructure Site)</p> <p>County Offaly</p>	<ul style="list-style-type: none"> The BPS would be located on a permanent site of approximately 2.6ha in the townland of Coagh Upper, County Offaly. It would be located approximately 30km downstream from the BPT. In addition, approximately 3ha of land would be required on a temporary basis during construction. The BPS would be required when the demand for water causes the flow through the pipeline to exceed approximately 165Mld. The BPS site would consist of a single-storey Control Building with a basement below. It would have a finished height of 7.6m above finished ground level. There would also be a separate Electricity Substation and Power Distribution Building. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. Power to the BPS would be supplied from an existing 38 kV electricity substation at Birr, through cable ducting laid within the public road network. There would be ground mounted solar panels on the southern side of the BPS site to supplement the mains power supply. The site would be accessed directly from the L3003. The BPS site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence between 5m-12m inside the boundary. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.
<p>Flow Control Valve (FCV) (Infrastructure Site)</p> <p>County Kildare</p>	<ul style="list-style-type: none"> The FCV controls the flows in the Treated Water Pipeline from the BPT to the TPR. It would be a small permanent site of approximately 0.5ha in the townland of Commons Upper in County Kildare. In addition, approximately 0.6ha of land would be required on a temporary basis during construction. It would consist of three 700mm diameter FCVs and three flow meters installed in parallel with the Line Valve and housed within an underground chamber. Access to the FCV site would be directly off the L1016 Commons Road Upper. Power supply to the FCV site would be provided from the existing low voltage network via a combination of overhead lines and buried cables. There would be ground mounted solar panels on the north-eastern side of the site to supplement the mains power supply. Kiosks at the FCV site would house the Programmable Logic Controller, telemetry and power supply for the Line Valve. There would also be a telemetry mast, the top of which would be 14m above finished ground level. The site boundary would be fenced with a stock proof fence and a 2.4m high palisade security fence 5m inside the boundary.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
<p>Termination Point Reservoir (TPR) (Infrastructure Site) County Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> The TPR would be located on a permanent site of approximately 8.3ha adjacent to an existing treated water reservoir in the townland of Loughtown Upper, at Peamount, County Dublin (within the administrative area of South Dublin County Council) and would have capacity for 75MI of treated water supply. In addition, approximately 1.1ha of land would be required on a temporary basis during construction. It would be located at the downstream end of the Treated Water Pipeline from the BPT to the TPR and would be the termination point for the Proposed Project. It would be at this location that the Proposed Project would connect to the existing water supply network of the Greater Dublin Area Water Resource Zone (GDA WRZ). The TPR would consist of an above-ground storage structure, associated underground Scour Water and Overflow Water tanks and a Chlorine Dosing Control Building. The TPR would be a concrete tank divided into three cells and covered with an earth embankment. The top of the TPR would be 11.2m above finished ground level. The Chlorine Dosing Control Building would be 8.4m over finished ground level. Additionally, there would be a telemetry mast, the top of which would be 14m above finished ground level. Power for the TPR would be supplied via an underground connection to the existing electricity substation at Peamount Reservoir. There would be solar panels on top of a portion of the northern cell of the TPR to supplement the mains power supply. A new permanent access road from the R120 would be constructed and would be 5m wide and 342m in length. The TPR site would be bounded by the existing hedgerow to the west and existing fence to the east with a 2.4m high palisade security fence around the permanent infrastructure. The site itself would be landscaped in line with the surrounding environment to reduce its visual impact.
Proposed 38 kV Uprate Works – Power Supply to RWI&PS and WTP	
<p>Proposed 38 kV Uprate Works Ardnacrusha – Birdhill (Power Supply) Counties Clare, Limerick and Tipperary</p>	<ul style="list-style-type: none"> The proposed 38 kV Uprate Works would be necessary to deliver adequate electrical power to the RWI&PS and WTP. The proposed works would include the uprating of the existing Ardnacrusha – Birdhill Line and the replacement of polesets/structures with an underground cable along a section of the Ardnacrusha – Birdhill – Nenagh Line. There would also be works at the existing Birdhill 38 kV electricity substation including the provision of a new 38 kV modular Gas Insulated Switchgear Modular Building, new electrical equipment and lighting, together with new fencing and associated works.
Temporary Infrastructure – Required for Construction Phase Only	
<p>Construction Working Width Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> A Construction Working Width would be temporarily required for the construction of the RWRMs and the Treated Water Pipeline, and the subsequent reinstatement of the land. The Construction Working Width would generally be 50m in width but would be locally wider near features such as crossings, access and egress points from the public road network, Construction Compounds and Pipe Storage Depots.
<p>Construction Compounds Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)</p>	<ul style="list-style-type: none"> Eight Construction Compounds would be temporarily required to facilitate the works to construct the Proposed Project. Five Construction Compounds would be located along the route of the Treated Water Pipeline at the following Infrastructure Sites: RWI&PS, WTP, BPT, BPS and TPR, with an additional three Construction Compounds located at Lisgarriff (County Tipperary), Killananny (County Offaly) and Drummond (County Kildare). Construction Compounds would act as a hub for managing the works including plant/material/worker movement, general storage, administration and logistical support. The Principal Construction Compound at the WTP would require 30ha of land during construction. The other three Principal Construction Compounds would require land temporarily during construction ranging between approximately 12ha and 16ha. The four Satellite Construction Compounds at the other permanent Infrastructure Sites (excluding the FCV) would require land during construction ranging between approximately 3ha and 12ha.
<p>Pipe Storage Depots Counties Tipperary, Offaly and Kildare</p>	<ul style="list-style-type: none"> Nine Pipe Storage Depots would be temporarily required to supplement the Construction Compounds and would serve the installation of pipe between the WTP and the TPR. Pipe Storage Depots would take direct delivery of the pipe for storage before onward journey to the required location along the Construction Working Width. The Pipe Storage Depots would vary in size and require land temporarily during construction generally ranging between approximately 2ha and 7ha but with one site being larger at 11ha.

* Note all land take numbers in this table are affected by rounding to one decimal place.

6. The construction of the Proposed Project is anticipated to run from 2028 through 2032, with the first operational year anticipated to be 2033.
7. This chapter has been prepared alongside, and should be read in conjunction with, the following chapters and their appendices, which incorporate elements of the Landscape and Visual Impact Assessment (LVIA):
 - Chapter 14 (Population)
 - Chapter 17 (Cultural Heritage).
8. This chapter is also supported by the following documents:
 - Appendix A16.1 (Operational Phase Visual Impact Appraisal at Representative View Points)
 - Appendix A16.2 (Photomontages).
9. Figures which are referenced in the text are provided in Volume 5 of this EIAR.
10. This assessment has been undertaken and reported by a team of competent experts. Refer to Chapter 2 (The Environmental Impact Assessment Process) for a description of the qualifications and expertise of the specialists that have inputted to this chapter.

16.2 Methodology

11. Although closely linked, landscape and visual impacts have been considered separately within the assessment reported in this chapter.
12. Landscape impact assessment relates to changes in the physical landscape, brought about by the Proposed Project, which may alter its character and how this is experienced. This requires a detailed analysis of the individual elements and characteristics of a landscape that combine to make up the overall landscape character of that area. By understanding the aspects that contribute to landscape character, it is possible to make judgements in relation to its quality (integrity) and to identify key sensitivities. This, in turn, provides a measure of the ability of the landscape in question to accommodate the type and scale of change associated with the Proposed Project, without causing unacceptable adverse changes to its character.
13. Visual impact assessment relates to changes in the composition of views as a result of changes to the landscape, how these are perceived and the effects on visual amenity. Such impacts are population-based, as perceived by local communities within, visitors to and people passing through the landscape, rather than resource-based, as in the case of landscape impacts. Visual impacts may occur from: visual obstruction (blocking of a view, be it full, partial or intermittent); or visual intrusion (interruption of a view without blocking).
14. For the purposes of assessing the landscape and visual effects, this chapter refers to the RWRMs and Treated Water Pipeline. This also includes Line Valves, Washout Valves, Air Valves, BPS power connection, BPT power connection, Construction Compounds and Pipe Storage Depots. The RWI&PS, WTP, BPT, BPS, FCV and TPR are collectively called the 'Infrastructure Sites'.
15. The preparation of this chapter followed an extensive optioneering exercise and a series of site selection stages, whereupon the route of the Pipeline Corridor and the proposed locations of all other associated Infrastructure Sites (RWI&PS, WTP, BPT, BPS, FCV and TPR) were selected in preference to other potential sites and routes (refer to Chapter 3: Consideration of Reasonable Alternatives). This optioneering phase included consideration of landscape and visual effects and consequently some avoidance of potential adverse environmental effects is embedded within the design that has been assessed and reported in this chapter. This is referred to as embedded mitigation and is described further

in Section 16.5. The assessment of likely significant effects was undertaken following an extensive desk-based study and a comprehensive programme of field work and site visits. The proposed landscape mitigation measures set out in this chapter in response to the likely significant effects were informed by stakeholder consultation and professional judgement by a chartered landscape architect.

16. Production of this LVIA involved the following methodology:

- A desktop study to establish an appropriate study area within which the likely significant effects of the Proposed Project could occur
- Identification of relevant landscape and visual designations in the respective County Development Plans (CDPs) that are within the landscape and visual study area, as well as other sensitive visual receptors. This stage culminated in the selection of a set of potential Viewshed Reference Points (VRPs) from which to assess the visual effects of the Proposed Project
- Fieldwork to confirm the extents of the study area, establish the landscape character of the receiving environment and to confirm and refine the set of VRPs used for the visual assessment
- Assessment of the significance of the landscape effects of the Proposed Project as a function of landscape sensitivity weighed against the magnitude of the landscape impact
- Assessment of the significance of the visual effect of the Proposed Project as a function of visual receptor sensitivity weighed against the magnitude of the visual impact. This aspect of the assessment is supported by photomontages prepared in respect of the selected VRPs
- Incorporation of mitigation measures to reduce likely significant effects and reporting of residual effects once mitigation has become established.

16.2.1 Scope of the Assessment

17. The scoping exercise undertaken in Autumn 2022 did not identify any matters to be scoped out of the Construction Phase assessment and all landscape and visual effects and receptors were therefore included. However, for the Operational Phase assessment it was concluded that the pipeline would be buried below ground and would not result in any material landscape or visual effects. Therefore, the operational assessment has only considered above-ground features: Infrastructure Sites and permanent structures along the route of the Preferred Pipeline Corridor.
18. The Proposed Project would deliver nationally important strategic infrastructure with individual elements designed with a lifespan of 80 to 100 years. The strategic importance of the Proposed Project for water supply in the Eastern and Midlands Region is such that there is no plan to decommission these structures and Uisce Éireann is committed to maintaining and repairing them into the future. On this basis it is not likely that the structures will be decommissioned, and therefore decommissioning of the Proposed Project has not been considered further in this assessment.
19. There would be no landscape and visual effects from testing and commissioning activities over and above those assessed for the Construction and Operational Phases. Therefore, testing and commissioning of the Proposed Project has not been considered further in this assessment.
20. The WTP, BPT, BPS, FCV and TPR would include solar arrays. A glint and glare assessment is included in Appendix A18.2. This concludes that there would not be significant effects as a result of glint and glare from any of the solar arrays. The analysis indicated that the proposed landscape planting at the Infrastructure Sites would be sufficient to remove instances of glare; therefore, the visual impact of the solar arrays on receptors is considered low with no further mitigation required. As such, glint and glare from solar arrays is not considered further in this chapter.

16.2.2 Study Area

21. The study area used for the assessment of landscape and visual effects varied along the length of the Proposed Project and was dependent on the location being considered and the works proposed in that location. This is because the visual context and extent of potential intrusion would differ for different elements of the Proposed Project and is influenced by the existing baseline features such as topography and vegetation.
22. The Proposed Project passes through (or close to) portions of counties Clare, Limerick, Tipperary, Offaly, Laois, Kildare and Dublin. While a small portion of the study area for the Pipeline Corridor includes a small area within County Laois (approximate Chainage TWB – 24800), the Construction Working Width does not occur within the county; thus, there would be no direct, physical impact on the landscape within County Laois. Furthermore, as the Pipeline Corridor would be primarily below ground in this area during the Operational Phase, there would be no potential for significant effects on landscape character or on visual receptors in County Laois.
23. For the Construction Phase assessment, the study area for the Pipeline Corridor was a 1km buffer from each side of the pipeline centreline and a 1km radius from the Planning Application Boundary at the Construction Compounds and Pipe Storage Depots. Different study areas were used for the different permanent features ranging from 1km to 10km either side of the Planning Application Boundary. The various study areas were determined on a precautionary basis using the maximum distances at which significant visual effects could potentially occur based on a combination of best practice and professional experience. These are set out in Table 16.2. The extent of the fixed infrastructure study areas can be seen in Figure 16.1 to Figure 16.8 and Figure 16.15 to Figure 16.16. In addition to showing the study areas, these figures also show the results of Zone of Theoretical Visibility (ZTV) analysis. The ZTVs are discussed in more detail in Section 16.4.5.2.
24. Following completion of construction, the Pipeline Corridor would be substantially reinstated to existing conditions. However, there would be new permanent, above-ground features which would remain during the Operational Phase. These would include Line Valves, Washout Valves, Air Valves and the FCV and the overhead power lines and new or relocated polesets for the 38 kV Uprate Works. However, the largest permanent features would be at the Infrastructure Sites along the Pipeline Corridor. These would consist of permanent above-ground structures that, in some cases, have the potential to be seen from locations in the wider landscape setting beyond the immediate Planning Application Boundary, particularly where elevated vantage points occur within the surrounding area.

Table 16.2: LVIA Study Areas for Various Elements of the Proposed Project

Proposed Project Element	LVIA Study Area
38 kV Uprate Works	1km radius
Raw Water Intake and Pumping Station (RWI&PS)	10km radius
Water Treatment Plant (WTP)	10km radius
Break Pressure Tank (BPT)	5km radius
Booster Pumping Station (BPS)	5km radius
Flow Control Valve (FCV)	1km radius (Operational Phase structures would small scale and/or primarily be below ground so no dedicated figure showing ZTV)
Termination Point Reservoir (TPR)	5km radius
Pipeline Corridor	1km buffer to each side of pipeline centreline (Operational Phase structures would primarily be below ground so no dedicated figure showing ZTV)
Construction Compounds	1km radius (Construction Phase only so no dedicated figure showing ZTV)
Pipe Storage Depots	1km radius (Construction Phase only so no dedicated figure showing ZTV)

16.2.3 Relevant Guidelines, Policy and Legislation

25. This LVIA has used and been prepared by appropriately qualified and experienced specialists in accordance with the following guidance:
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency (EPA) 2022)
 - Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission 2017)
 - Guidelines for Landscape and Visual Impact Assessment (GLVIA) (LI and IEMA 2013)
 - Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government 2018)
 - EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects (Fáilte Ireland, 2023).
26. In addition, the following policy documents were reviewed with respect to landscape and visual-related designations and policies:
- Clare County Development Plan 2023 – 2029 (Clare County Council 2023)
 - Limerick Development Plan 2022 – 2028 (Limerick City and County Council 2022)
 - Tipperary County Development Plan 2022 – 2028 (Tipperary County Council 2022)
 - Offaly County Development Plan 2021 – 2027 (Offaly County Council 2021)
 - Kildare County Development Plan 2023 – 2029 (Kildare County Council 2023)
 - South Dublin County Development Plan 2022 – 2028 (South Dublin County Council 2022).
27. Due to the absence of potential for landscape and visual effects within the small portion of County Laois that occurs within the pipeline study area (outside of the pipeline working corridor), it is not considered necessary to examine the landscape and visual related policy of County Laois.
28. It is highlighted that any references to relevant legislation in this chapter include any amendments thereto.

16.2.4 Data Collection Methods

16.2.4.1 Desk Study

29. The desk study element of data collection involved review of project documents and Geographical Information System files for the Proposed Project. These were read against a backdrop of aerial photography and topographical information. Geographical Information System data sets included landscape areas and scenic designations. These were cross-checked against the relevant CDPs in the interest of thoroughness. The Proposed Project passes through portions of counties Clare, Limerick, Tipperary, Offaly, Laois, Kildare and Dublin, so the CDPs for these counties were reviewed. The cultural heritage data sets from Chapter 17 (Cultural Heritage) were also relevant to the landscape and visual desk study to identify demesnes and historical gardens and these were considered as part of the assessment.

16.2.4.2 Field Surveys

30. Field surveys in respect of the pipeline were undertaken from a vehicle at points where the Proposed Project crosses the road network or runs closely alongside it. Field notes and reference photography were recorded at these locations.

31. Broader and more exhaustive fieldwork was undertaken within the study areas for the Infrastructure Sites and the 38 kV Uprate Works. This involved reviewing and recording aspects of landscape character as well as the capture of high-resolution photography in clear viewing conditions at selected VRP locations for later use in photomontage preparation. This fieldwork was undertaken, in both summer and winter seasons, on the dates outlined in Table 16.3.

Table 16.3: Landscape and Visual Survey Dates

Proposed Project Element	20/06/2017	21/06/2017	22/06/2017	27/07/2017	04/05/2018	16/08/2019	22/07/2021	23/07/2021	28/02/2023	08/03/2023	23/08/2023
38 kV Uprate Works	No	No	No	No	No	Yes	No	No	Yes	No	Yes
Raw Water Intake and Pumping Station (RWI&PS)	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No
Water Treatment Plant (WTP)	Yes	Yes	No	No	No	No	Yes	No	Yes	No	No
Break Pressure Tank (BPT)	Yes	No	No	No	No	No	Yes	No	Yes	No	No
Booster Pumping Station (BPS)	No	No	No	No	No	No	Yes	No	No	Yes	No
Termination Point Reservoir (TPR)	No	No	No	No	Yes	No	No	Yes	No	Yes	No
Pipeline Corridor	Yes	No	No								

16.2.5 Consultations

32. Consultation responses from key stakeholders, landowners and the public were reviewed and considered in compiling this chapter. Chapter 2 (The Environmental Impact Assessment Process) of the EIAR sets out the approach the Proposed Project has taken with regard to environmental scoping, in particular the EIAR Scoping Methodology Report (Uisce Éireann 2023) in respect of the Proposed Project and also the Environmental Impact Statement Scoping Report¹ (Irish Water 2016) relating to a previous iteration of the project.
33. The scoping consultation responses relevant to landscape and visual aspects received from stakeholders are provided in Table 16.4. Further detail on the Proposed Project consultation is included in Chapter 2 (The Environmental Impact Assessment Process) and responses received are in the Water Supply Project: Eastern and Midlands Region – Consultation Report, which forms part of the Strategic Infrastructure Development planning application for the Proposed Project.

¹ As set out in Chapter 2 (The Environmental Impact Assessment Process), the Environmental Impact Statement Scoping Report (Irish Water 2016) was based on a previous iteration of the project. However, feedback received from stakeholders informed future scoping and design development and has been considered in this assessment where relevant to the Proposed Project.

Table 16.4: Landscape and Visual Issues Raised during Scoping Consultation

Consultee	Comment	Relevant Section of the EIAR
Fáilte Ireland (2016)	Written response included: <ul style="list-style-type: none"> ‘Particular attention needs to be paid to effects on views from existing purpose-built tourism facilities, especially hotels, as well as views from touring routes and walking trails. Land-use – will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately alter the character and use of the tourism resources in the surrounding area?’ 	The visual impact of the Proposed Project has been considered from a range of receptors and particular attention has been paid to identifying tourist receptors and selecting VRPs from any tourist attractions inside the LVIA study area of the Proposed Project. The sensitivity of these VRPs has been determined with cognisance of their importance and value to tourists. See Table 16.21 in Section 16.4.6 and Appendix A16.2 where selected VRPs represent a number of tourism, amenity and heritage locations and receptor sensitivity accounts for the values associated with such locations.
Fáilte Ireland (2016)	Written response included: <ul style="list-style-type: none"> ‘Particular attention needs to be paid to effects on views from existing purpose-built tourism facilities, especially hotels, as well as views from touring routes and walking trails. Impact of Proposed Project on natural environment – in some cases unspoilt and important to tourism.’ 	
Fáilte Ireland (2023)	Written response included: <ul style="list-style-type: none"> ‘Tourism and the environment – Particular attention needs to be given to effects on views from existing purpose-built tourism facilities, as well as views from touring routes, walking trails, scenic viewing points, greenways etc. It is important to avoid any effects that may negatively impact local attractions and experiences. Consideration should be given to ‘EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects (2023) as well as additional guidance and policy set out in their response. The EIAR should include an assessment using comparable examples to see if an Interpretative/Visitors’ Centre at the WTP site is a merited and could be considered a worthwhile attraction. Full consideration should be given to the assessment of impacts (and opportunities) of the proposed scheme on any existing or proposed active travel / Greenways projects that may be encountered over the full length of the proposed scheme. In relation to Lough Derg and Parteen Basin, it is considered that water based (participatory) activities and the impact of the proposed development upon them should be robustly assessed.’ 	
Tipperary County Council	Consultation was undertaken in relation to the architectural approach for the Infrastructure Sites (RWI&PS and WTP) in County Tipperary. Following this, Tipperary County Council sought to review the VRP locations for the visual impact assessment of Infrastructure Sites within County Tipperary. These selected locations were agreed to be satisfactory.	See Table 16.21 in Section 16.4.6, Appendix A16.2 and Section 16.5.1.
Offaly County Council	Consultation was undertaken in relation to the architectural approach for the relevant Infrastructure Sites (BPT) within County Offaly.	See Section 16.5.1.
South Dublin County Council	Consultation was undertaken in relation to the architectural approach for the relevant Infrastructure Sites (TPR) within County Dublin.	

16.2.6 Appraisal Method for the Assessment of Impacts

16.2.6.1 Landscape Impact Assessment

34. The assessment of landscape impacts was undertaken in accordance with the GLVIA (LI and IEMA 2013), from which the methodology is derived and described in this section. The appraisal method for assessing the likely significant landscape effects resulting from the Proposed Project considered the following criteria:

- Landscape sensitivity
- Magnitude of impacts
- Significance of landscape effects.

35. The sensitivity of the landscape to change is the degree to which a particular Landscape Character Area (LCA) receptor or feature can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics. Landscape sensitivity was classified using the criteria set out in Table 16.5, which have been derived from a combination of the GLVIA and professional judgement.

Table 16.5: Landscape Sensitivity Categories

Landscape Sensitivity	Description
Very high	Areas where the landscape character exhibits a very low capacity for change in the form of development. Examples are high-value landscapes, protected at an international or national level (e.g. World Heritage Site/National Park), where the principal management objectives are likely to be protection of the existing character.
High	Areas where the landscape character exhibits a low capacity for change in the form of development. Examples are high-value landscapes, protected at a national or regional level where the principal management objectives are likely to be considered conservation of the existing character.
Medium	Areas where the landscape character exhibits some capacity and scope for development (e.g. landscapes which have a designation of protection at a county level or at non-designated local level) where there is evidence of local value and use.
Low	Areas where the landscape character exhibits a higher capacity for change from development. Typically, this would include lower-value, non-designated landscapes that may also have some elements or features of recognisable quality, where landscape management objectives include enhancement, repair and restoration.
Negligible	Areas of landscape character that include derelict, mining, industrial land or are part of the urban fringe where there would be a reasonable capacity to embrace change or the capacity to include the development proposals. Management objectives in such areas could be focused on change, creation of landscape improvements and/or restoration to realise a higher landscape value.

36. As derived from the GLVIA, the magnitude of a predicted landscape impact is a product of multiple factors including the timing, duration, scale/size of development, and extent or degree of change that would likely be experienced as a result of the Proposed Project. The duration of effects were categorised according to the following five categories:

- Temporary – Lasting for one year or less
- Short term – Lasting one to seven years
- Medium term – Lasting seven to fifteen years
- Long term – Lasting fifteen years to sixty years
- Permanent – Lasting over sixty years.

37. Based on professional judgement, shorter durations push the magnitude judgements towards negligible and longer durations push them towards very high. The magnitude categories are set out in Table 16.6, and have been derived from the GLVIA. The magnitude considers whether there would a direct physical impact resulting from the loss of landscape components and/or a change that extends beyond the Planning Application Boundary that may have an effect on the landscape character of the area.

Table 16.6: Magnitude of Landscape Impacts

Magnitude of Landscape Effect	Description
Very high	Change that would be large in extent and scale with the loss of critically important landscape elements and features that may also involve the introduction of new, uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
High	Change that would be more limited in extent and scale with the loss of important landscape elements and features that may also involve the introduction of new, uncharacteristic elements or features that contribute to an overall change of the landscape in terms of character, value and quality.
Medium	Changes that are modest in extent and scale involving the loss of landscape characteristics or elements that may also involve the introduction of new, uncharacteristic elements or features that would lead to changes in landscape character and quality.

Magnitude of Landscape Effect	Description
Low	Changes affecting small areas of landscape character and quality, together with the loss of some less characteristic landscape elements or the addition of new features or elements.
Negligible	Changes affecting small or very restricted areas of landscape character. This may include the limited loss of some elements or the addition of some new features or elements that are characteristic of the existing landscape or are hardly perceivable.

38. The significance of a landscape effect is based on a function/balance of the sensitivity of the landscape receptor and the magnitude of the impact. The significance of landscape effects, set out in Table 16.7, has been derived from the GLVIA and LVIA best practice. It is an equivalent process, but uses slightly different terminology, to the EPA Guidelines (EPA 2022). In this regard, judgements of 'Profound', 'Profound – Substantial' or 'Substantial' are considered to be broadly equivalent to 'Profound', 'Very significant' and 'Significant' effects, as per EPA Guidelines (EPA 2022). These categories, which are considered to be significant effects in EIA terms, are shaded in Table 16.7 and were flagged in the assessment where they occurred.

Table 16.7: Significance Matrix

Magnitude	Sensitivity of Receptor				
	Very high	High	Medium	Low	Negligible
Very high	Profound	Profound – Substantial	Substantial	Moderate	Slight
High	Profound – Substantial	Substantial	Substantial – Moderate	Moderate – Slight	Slight – Imperceptible
Medium	Substantial	Substantial – Moderate	Moderate	Slight	Imperceptible
Low	Moderate	Moderate – Slight	Slight	Slight – Imperceptible	Imperceptible
Negligible	Slight	Slight – Imperceptible	Imperceptible	Imperceptible	Imperceptible

39. The introduction of a large-scale utility project into a predominantly rural landscape is very unlikely to result in a positive quality of effect. For the sake of brevity it can be considered that all landscape and visual impacts and effects assessed within this chapter are Negative or Neutral in terms of quality unless explicitly stated otherwise.

16.2.6.2 Visual Impact Assessment

40. The assessment of visual impacts was undertaken in accordance with the GLVIA, from which the methodology is derived and described herein. The visual effects of the Proposed Project have been assessed as a function of receptor sensitivity versus magnitude of impact.

16.2.6.3 Visual Sensitivity

41. Unlike landscape sensitivity, visual sensitivity relates to people's experience and perception of changes brought about by new development or other alterations in the landscape. Visual sensitivity is a two-sided analysis of receptor susceptibility (individuals or groups of people) versus the value of the view on offer at a particular location.

16.2.6.4 Susceptibility of Receptors

42. In accordance with the GLVIA, visual receptors most susceptible to changes in views and visual amenity were considered to be:

- Residents at home

- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focused on the landscape and on particular views
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience
- Communities where views contribute to the landscape setting enjoyed by residents in the area
- Travellers on road, rail, or other transport routes where such travel involves scenic routes designated by local or national government, and awareness of views is likely to be heightened.

43. Visual receptors that would be less susceptible to changes in views and visual amenity include:

- People engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape
- People at their place of work whose attention may be focused on their work or activity, not their surroundings, and where the setting is not important to the quality of working life.

16.2.6.5 Value of Views

44. To assess the amenity value of views, a range of criteria that might typically be related to high amenity value have been used including, but not limited to, scenic designations. These are outlined in Table 16.8.

Table 16.8: Criteria Used to Assess Amenity Value of Views

Criteria Used	Description
Recognised scenic value of the view (CDP designations, guidebooks, touring maps, postcards and so forth)	These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because, in the case of CDPs at least, a public consultation process is required
Views from within highly sensitive landscape areas	Highly sensitive landscape designations are usually part of a county's Landscape Character Assessment, which is then incorporated with the CDP and is therefore subject to the public consultation process. Viewers within such areas are likely to be highly attuned to the landscape around them
Intensity of use, popularity	Whilst not reflective of the amenity value of a view, this criterion relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale
Provision of elevated panoramic views	This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas
Sense of remoteness and/or tranquillity	Remote and tranquil viewing locations are more likely to heighten the amenity value of a view and have a lower intensity of development in comparison to dynamic viewing locations such as a busy street scene, for example
Degree of perceived naturalness	Where a view is valued for the sense of naturalness of the surrounding landscape, it is likely to be highly sensitive to visual intrusion by obvious human interventions
Presence of striking or noteworthy features	A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle
Historical, cultural or spiritual value	Such attributes may be evident or sensed at certain viewing locations that attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings
Rarity or uniqueness of the view	This might include the noteworthy representativeness of a certain landscape type and considers whether other similar views might be afforded in the local or the national context
Integrity of the landscape character in view	This criterion considers the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components
Sense of place	This criterion considers whether there is special sense of wholeness and harmony at the viewing location
Sense of awe	This criterion considers whether the view inspires an overwhelming sense of scale or the power of nature.

45. Those locations where highly susceptible receptors or receptor groups are present and are deemed to satisfy many of the view value criteria listed in this section are likely to be judged to have a high visual sensitivity and vice versa. In this instance, key differentials in terms of visual receptor sensitivity relate to the occupation of the visual receptor and whether views of the surrounding landscape are an inherent part of the experience. Static residential receptors are considered generally more susceptible to changes in views over those where views are experienced transiently by those travelling through the landscape, particularly on major transport routes where road infrastructure and traffic volume draw from visual amenity. The sensitivity of visual receptors within the typical and productive rural landscape of the majority of the study area tends to range between Medium and Medium-low, with those of a Medium sensitivity representing visual receptors that avail of more open expansive views across the wider landscape, and where scenic values are considered to be comparatively higher. Visual receptor sensitivity is also heightened at important tourism and heritage sites, where visual receptors are considered to be more sensitive to changes in their view of the landscape. Specific assessment of visual receptor sensitivity is set out in Appendix A16.1 in respect of each of the selected VRPs.

16.2.6.6 Visual Impact Magnitude

46. The magnitude of visual impacts was determined on the basis of two factors: the visual presence of the Proposed Project; and its impact on visual amenity.
47. Visual presence is a somewhat qualitative measure relating to how noticeable or visually dominant a development is within a particular view. This is based on a number of aspects beyond simply scale in relation to distance. Some of these include the extent of the view as well as its complexity. The degree of existing contextual movement experienced, such as might be obtained where a development is viewed as part of/beyond a busy street scene, is also a consideration. The backdrop against which the Proposed Project would be presented and its relationship with other focal points or prominent features within the view was therefore also considered. Visual presence is essentially a measure of the relative visual dominance of a development within the available vista and expressed as such, i.e. minimal, sub-dominant, co-dominant, dominant or highly dominant.
48. The visual amenity aspect of assessing impact magnitude is qualitative and considered such factors as the spatial arrangement of the Proposed Project within the site and in relation to surrounding terrain and land cover. It also examined whether the Proposed Project contributed positively to the existing qualities of the vista or resulted in distracting visual impacts and disharmony.
49. It should be noted that as a result of this approach, a high order visual presence can be moderated by a low level of impact on visual amenity and vice versa. Table 16.9 provides the classification that was used to determine the magnitude of visual impacts.

Table 16.9: Magnitude of Visual Impacts

Magnitude of Visual Impact	Description
Very high	The proposal intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. A high degree of visual disorder or disharmony is also generated, strongly reducing the visual amenity of the scene.
High	The proposal intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual disorder or disharmony is also likely to be generated, appreciably reducing the visual amenity of the scene.
Medium	The proposal represents a moderate intrusion into the available vista, is a readily noticeable element and/or it may generate a degree of visual disorder or disharmony, thereby reducing the visual amenity of the scene. Alternatively, it may represent a balance of higher and lower order estimates in relation to visual presence and visual amenity.
Low	The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene.
Negligible	The proposal would be barely discernible within the available vista and/or it would not detract from, and may even enhance, the visual amenity of the scene.

16.2.6.7 Visual Effect Significance

50. The significance of visual effects is a function of visual receptor sensitivity and visual impact magnitude. This relationship is expressed in the same significance matrix as provided in respect of landscape impacts in Table 16.7.

16.2.7 Construction Flexibility

51. At this stage of the development of the Proposed Project there are a number of points of detail which cannot be finalised. This is due to factors such as unknown site constraints or obstacles that may affect the construction of the permanent infrastructure. Although a high level of ground investigation has been obtained to inform the planning application for the Proposed Project, further site investigations will be undertaken following grant of planning permission. This will inform a confirmed design for construction. This is a standard delivery approach and as a result, for a linear project of this nature, scale and complexity, it is typical that a level of construction flexibility is required. This flexibility in construction is necessary to provide a mechanism to overcome these matters during the later stages of the Proposed Project. The elements which are subject to construction flexibility are summarised in Table 16.10 and this also explains how this flexibility has been accounted for within the assessment reported in this chapter. Chapter 4 (Proposed Project Description) and Chapter 5 (Construction and Commissioning) in Volume 2 of this EIAR provides further detail.
52. The construction works necessary to deliver the permanent design (including the construction flexibility defined in Table 16.10) would take place within the Construction Working Width which defines the extent of the Planning Application Boundary. For the assessment reported in this EIAR this means that the construction works could take place anywhere within the Construction Working Width.
53. The assessment reported in this chapter has taken account of this construction flexibility and assessed all the likely significant effects that could arise. For this assessment, the likely significant effects reported in this chapter would not change regardless of the alignment or location of infrastructure elements within the defined construction flexibility in Table 16.10 (i.e. the difference in effects would be imperceptible for the purpose of the assessment).

Table 16.10: Definition of Construction Flexibility

Design Element	Construction Flexibility	How this has been Applied / Assessed in this Chapter
Pipeline	Treated Water Pipeline and RWRMs horizontal alignment – to allow for construction flexibility to overcome site constraints or obstacles the pipeline could be anywhere within a 20m Pipeline Corridor as defined in Chapter 4 (Proposed Project Description).	Vegetation loss and ground disturbance as well as receptor interaction has been assessed as if it could occur anywhere within the Construction Working Width, regardless of the pipeline alignment within the 20m corridor.
Pipeline	Treated Water Pipeline vertical alignment – to allow construction flexibility to overcome site constraints or obstacles, the vertical alignment of the pipeline could vary between 1.2m and 4.4m to the crown of the pipe. Exceptions would be at proposed trenchless crossing locations (which due to the construction approach would be deeper than 4.4m to crown) and where it has been identified that for hydraulic purposes, the crown of the pipeline would need to be deeper than 4.4m. These have been included in the vertical alignment set out in the Planning Application for the Proposed Project and consequently have been assessed for significant environmental effects as reported in this EIAR. These include e.g. TWB 27100 - 27700 and TWC 2600 - 2750. In these instances, the construction flexibility would be the crown of the pipe not being deeper than that shown in the Planning Application Drawings and not shallower than 1.2m. The excavation needed for the pipeline is assumed to be the largest needed for the lowest vertical parameter set out.	Not applicable to the landscape and visual assessment. The vertical alignment would not affect this assessment.

Design Element	Construction Flexibility	How this has been Applied / Assessed in this Chapter
Valves	The location of valves, and associated pipeline features, that need to be above the pipeline could change if there is a change in the vertical or horizontal alignment of the pipeline, as a result of the construction flexibility defined in the two rows above. The construction flexibility would allow them to move within the 20m Pipeline Corridor. However, the location of these pipeline features would be limited to remaining within the land parcels as identified and assessed within the EIAR (but still remaining within the 20m Pipeline Corridor).	Vegetation loss and ground disturbance as well as receptor interaction has been assessed as if it could occur anywhere within the Construction Working Width. This includes for the placement of valves and associated pipeline features.
Outfall connections	To construct the smaller connection pipes between washout valves and washout outfalls, a small amount of construction flexibility would be required to overcome onsite obstacles or constraints. To allow for this, the connecting pipe could be anywhere within a 10m corridor.	Vegetation loss and ground disturbance as well as receptor interaction has been assessed as if it could occur anywhere within the Construction Working Width, regardless of the pipe alignment within the 10m corridor.
Outfall locations	The outfall headwalls and discharge point would have to move with the alignment of the outfall pipeline, as set out above, and so the discharge point could move within the same 10m construction flexibility. To allow for the headwalls to move 10m either side of the current pipeline alignment, a total construction flexibility width of 20m has been allowed for the headwalls.	Vegetation loss and ground disturbance as well as receptor interaction has been assessed as if it could occur anywhere within the Construction Working Width, regardless of the outfall location.

16.2.7.1 Variation in Construction Methods

54. In addition to the construction flexibility defined in Table 16.10 there may also be the potential for variation in the method of construction to be used to build the Proposed Project. This variation would be necessary to deal with, for example, uncertainties in ground conditions or on-site constraints. Chapter 5 (Construction & Commissioning) includes further detail on these, including the reasoning why different techniques may be required. This could include:
- Use of raft foundations or concrete piled foundations at the WTP
 - Use of auger bore or pipe jacking for trenchless crossings
 - Using trenchless crossing or open excavation for the crossing of low voltage power lines
 - Different construction techniques for working in poor ground include peat materials.
55. The assessment reported in this chapter has been based on any of these construction techniques being adopted.
56. In addition, as set out in Appendix A5.3 (Methods of Working in Peat), four slightly different methods for constructing the pipeline in areas of peat soils have been defined. To allow for variation in ground conditions it has been assumed for the purpose of the assessment reported in this EIAR that either Method 2, 3 or 4 could be used in areas where the depth of peat is greater than 1m. Where the depth of peat is less than 1m, Method 1 is proposed to be used and it is not expected that there would be any deviation from this methodology. The environmental effects from Methods 2, 3, and 4 would be similar. However, Methods 3 and 4 would result in additional permanent infrastructure in the form of stone pillars (Method 3) or piled supports (Method 4) below the pipeline. Consequently, Method 4 would require piling and as such, would have a slighter greater environmental impact. Therefore, the EIAR is based on the application of Method 4 where the depth of peat is greater than 1m. However, in areas where Methods 2, 3, or 4 could be used, the environmental assessment has considered whether these different methods would result in different likely significant effects and therefore the assessment reported in this chapter has identified the likely significant effects from any of the three techniques. For this assessment, the likely significant effects reported in this chapter would not change regardless of the working in peat method used (i.e. the difference between the methods would be imperceptible for the purpose of the assessment).

16.2.8 Difficulties Encountered in Compiling Information

57. No material difficulties were encountered in compiling information for this landscape and visual assessment. The information that has informed the assessment is sufficient to identify and assess the likely significant effects.

16.2.9 Cumulative Effects Assessment

58. As noted in Chapter 2 (The Environmental Impact Assessment Process), intra-project cumulative effects are described within respective topic chapters, while inter-project cumulative effects are described in Chapter 21 (Cumulative Effects & Interactions). The EIA Directive includes the consideration of existing projects within the cumulative effects assessment, and this is addressed through a consideration of the incremental impact of the Proposed Project within the context of the existing baseline as described, and where applicable, the carrying capacity of the environment.

59. There are no environmental effects of note described within other topic chapters that require consideration for the intra-project cumulative effects assessment in the landscape and visual topic chapter. However, landscape and visual effects described within this chapter have the potential to impact other topics, such as community amenity and setting of cultural heritage assets, and therefore have been considered within the intra-project cumulative effects assessments described within other topic chapters, including Chapter 14 (Population), Chapter 15 (Human Health) and Chapter 17 (Cultural Heritage).

16.3 Baseline Environment

60. The Proposed Project passes through portions of counties Clare, Limerick, Tipperary, Offaly, Laois, Kildare and Dublin. Relevant landscape and visual information has been gathered from the CDPs for each of these counties.

16.3.1 Landscape and Visual Policy Context

16.3.1.1 Clare County Development Plan 2023 – 2029 – Landscape Character

61. A Landscape Character Assessment has been prepared for County Clare and this is incorporated into the current Clare County Development Plan 2023 – 2029 (Clare County Council 2023).² This identifies 26 separate Landscape Character Types (LCTs) which share similar natural characteristics. As illustrated in Image 16.1², the 38 kV Uprate Works pass through the LCT 24: River Valley Farmland. The LCTs are then amalgamated into 21 Landscape Character Areas (LCAs) which incorporate natural and anthropogenic considerations and the 38 kV Uprate Works occur within LCA 9: River Shannon Farmland (Image 16.2²). The northern part of the study area for the 38 kV Uprate Works also includes a small portion of LCT 12: Glacial Valley which sits within LCA 8: Slieve Bernagh Uplands.

² <https://www.clarecoco.ie/services/planning/plans/clarecountydevelopmentplan23-2029/>

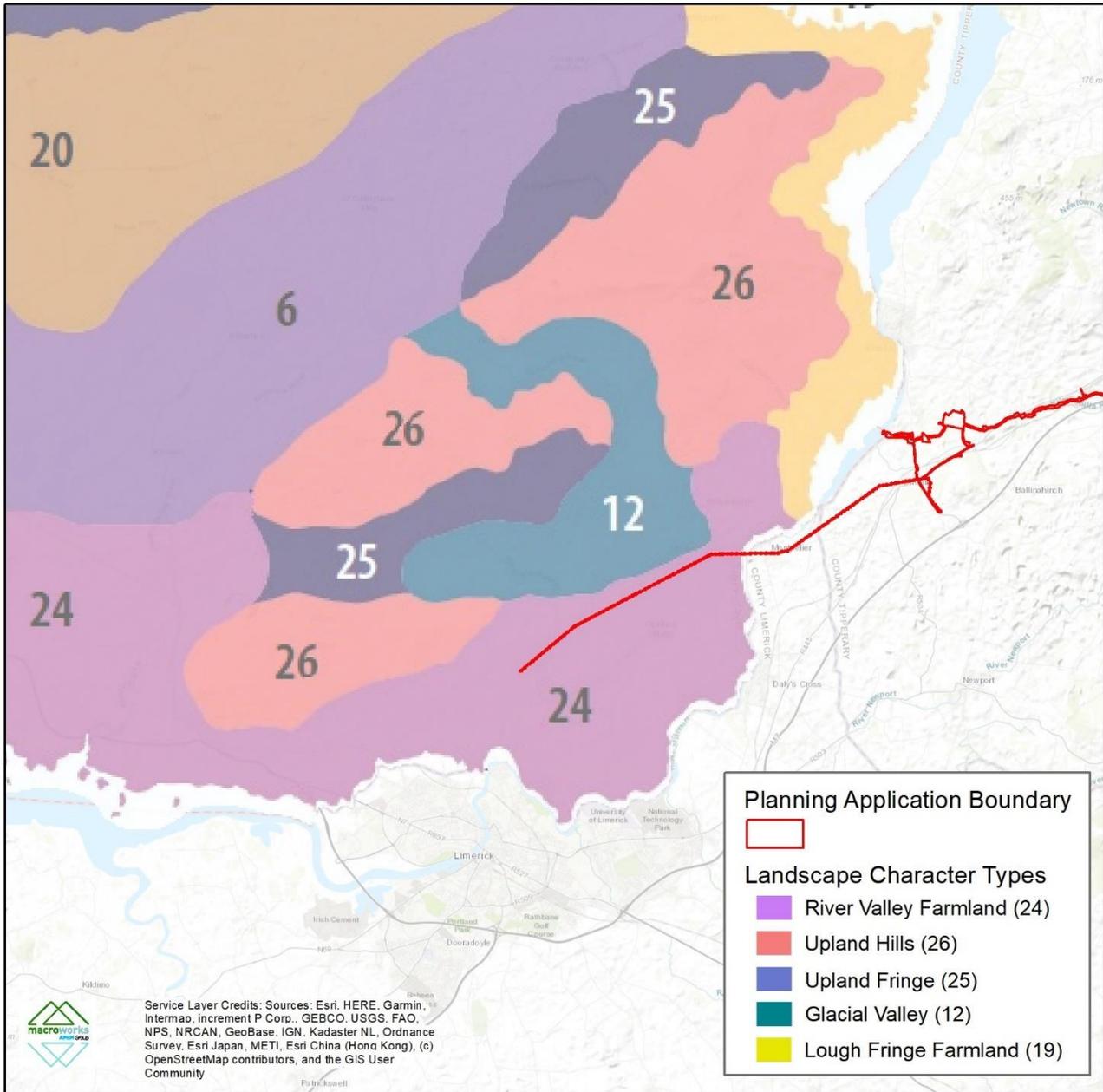


Image 16.1: County Clare Landscape Character Types (Source: Clare County Development Plan 2023 – 2029)

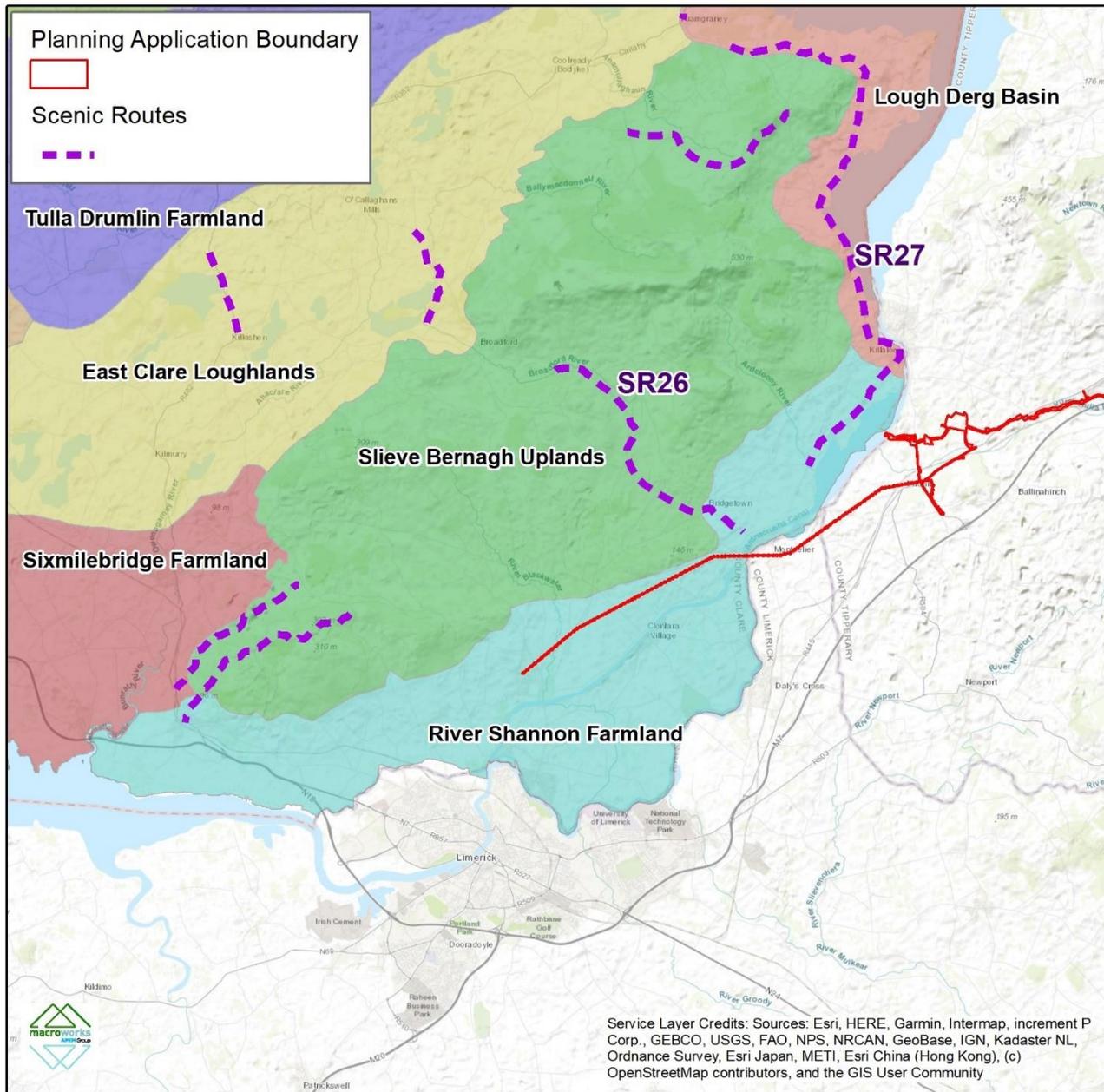


Image 16.2: County Clare LCAs and Scenic Routes SR26 & SR27 (see Section 16.3.1.2) (Source: Clare County Development Plan 2023 – 2029)

62. LCT 24: River Valley Farmland is described as:

'Meandering river and river valley landscape. Streams drain from adjacent higher slopes and drumlin areas and generally area is low-lying. Land cover is largely pasture with natural wetland vegetation and mature riparian trees. Fields are enclosed by a variety of forms, including drainage ditches and post and wire fences in wetter areas, with earth banks and hedgerows elsewhere. Settlement and communications are found on higher land away from seasonally flooding areas. However, the importance of the river for communications is also reflected in a relatively high number of towns (such as Killaloe, O'Briensbridge and Limerick) and villages and stone bridges crossing the streams draining into the river. Views are afforded to the river through gaps in the vegetation and along the river banks.'

63. LCA 9: River Shannon Farmland is a largely rural, agricultural landscape with fields usually enclosed by hedgerows, hedge-banks and trees. According to the Landscape Character Assessment (Environmental Resources Management 2004), the key characteristics of this LCA are as follows:

- *'Lowland farming area with meandering River Shannon providing key focus*
- *Small settlements/villages such as Parteen and Cloonlara*
- *Agricultural, rural landscape with intact features and well maintained*
- *Framed by undulating lowland farmland with Sliabh Bernagh and Broadford Hills in the distance*
- *O'Briensbridge is an Architectural Conservation Area (ACA).'*

64. LCT 12: Glacial Valley is described as:

'Broad U shaped valley, scoured by glaciers with some glacial features, such as drumlins, in the valley floor which is usually dominated by meandering river with loughs. Land cover is a mosaic, in which the broad valley floor supports pasture and woodlands, and steeper slopes are covered by heather moor or large blocks of forestry. Boundaries are also varied, with thick hedges and hedgerow trees, giving a densely wooded appearance to the valley floor, whilst earthbanks, or hedges with fewer trees, are more likely to be found on upper slopes. Valleys are often key communication routes with both major and minor roads, following direction of valley. These routes are often long standing, resulting in concentrations of historical features, and traditional stone bridges are likely to be a feature within this landscape type. The Broadford gap is a good example of a longstanding communications route. The lower areas are more settled, with small farm dwellings and traditional farm outbuildings. Views are afforded along the valley and up to the surrounding uplands.'

65. LCA 8: Slieve Bernagh Uplands is an area of rolling upland hills with broad slopes. According to the Landscape Character Assessment, the key characteristics of this LCA are:

- *'Area of gentle and rolling hills reaching 530m at Sliabh Bernagh*
- *Settlement is scattered, confined to lower fringes*
- *Hedgerows create a wooded feel and are often planted with fuchsia around dwellings*
- *Historically little settlement other than ritual, as evidenced by a number of cairns, barrows and standing stones identified on the eastern slopes. Broadford Gap is an important Bronze Age passing route*
- *Remote and isolated with panoramic views afforded to Lough Derg, lower drumlin farmland and Shannon estuary*
- *Vegetation dominated by heather moorland with plantation forests and semi-natural deciduous woodland on lower slopes and along water courses.'*

66. Using the LCA as a basis, Clare County Council have identified three other types of landscape for the purposes of developing and implementing landscape policy. These include 'Settled Landscapes', 'Working Landscapes' and 'Heritage Landscapes'. The Working Landscapes are divided into the 'Western Corridor Working Landscape' and the 'Shannon Estuary Working Landscape'. Map 14A of the Clare County Development Plan 2023 – 2029, and Map C in Volume 2 of the same, identifies that the Proposed Project passes through the Shannon Estuary Working Landscape and the Settled Landscape. Much of the land between the R463 Regional Road and the shore of Parteen Basin is contained within a Heritage Landscape designation (Image 16.3²). Heritage Landscapes are:

'...those areas within the county where sensitive environmental resources – scenic, ecological and historic – are located.' These are *'...areas where natural and cultural heritage are given priority and where development is not precluded but happens more slowly and carefully'*.

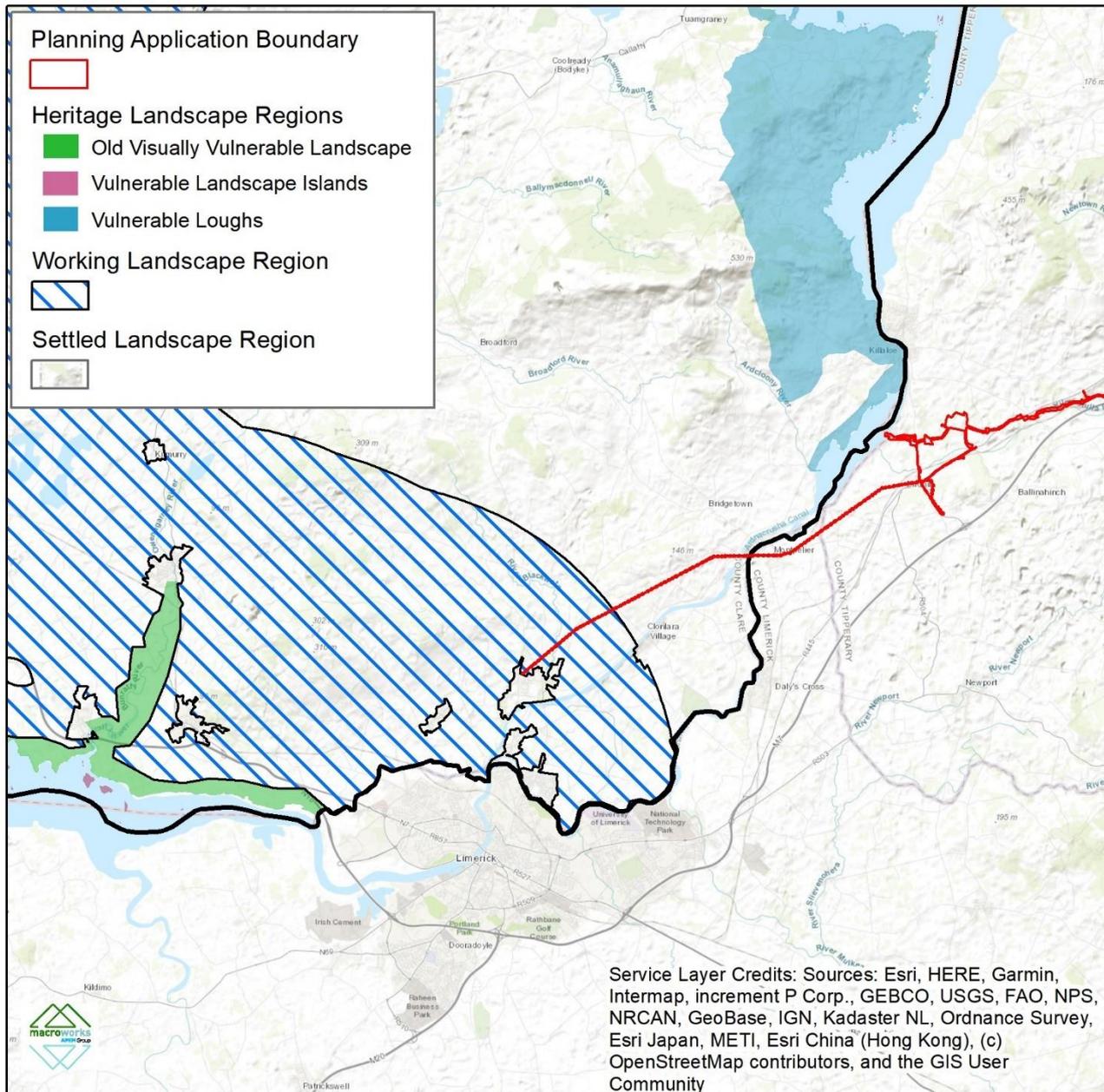


Image 16.3: Other Landscapes Categories in County Clare (Source: Clare County Development Plan 2023 – 2029)

67. The objective CDP14.4 of the Clare County Development Plan 2023 – 2029 relates specifically to the Shannon Estuary Working Landscape and includes the following aims:

- *'To permit development in these areas that will sustain economic activity of regional and national significance – especially through the protection of resources to sustain large-scale energy projects, logistics, large-scale manufacturing and associated infrastructure. All such developments shall be required to conform to relevant management and conservation objectives for designated and protected habitats and species within the estuary*
- *To ensure that selection of appropriate sites in the first instance within this landscape, together with consideration of the details of siting and design, are directed towards reducing visual impact and that residual visual impacts are minimised*
- *To ensure that particular regard be had to avoiding intrusions on scenic routes and on ridges or shorelines*

- *To ensure that developments in these areas be required to demonstrate:*
 - *That sites have been selected to avoid visually prominence wherever feasible*
 - *That site layouts avail of existing topography and vegetation to reduce visibility from scenic routes, walking trails, public amenities and roads*
 - *That design for buildings and structures reduces visual impact through careful choice of form, finish and colours and that any site works seek to reduce visual impact of the development.'*

68. The single objective of the Clare County Development Plan 2023 – 2029 relating specifically to Settled Landscapes is:

- CDP14.2 – *'To permit development in areas designated as "settled landscapes" to sustain and enhance quality of life and residential amenity and promote economic activity subject to:*
 - *Conformity with all other relevant provisions of the Plan and the availability and protection of resources*
 - *Selection of appropriate sites in the first instance within this landscape, together with consideration of the details of siting and design which are directed towards minimising visual impacts*
 - *Regard being given to avoiding intrusion on scenic routes and on ridges or shorelines.*

Developments in these areas will be required to demonstrate:

- *That the site has been selected to avoid visual prominence*
- *That the site layouts avail of existing topography and vegetation to reduce visibility from scenic routes, walking trails, water bodies, public amenities and roads.*
- *That design for buildings and structures reduces visual impact through careful choice of forms, finishes and colours, and that any site works seek to reduce visual impact.'*

69. The single objective of the Clare County Development Plan 2023 – 2029 relating specifically to Heritage Landscapes is:

CDP14.5 – 'To require that all proposed developments in Heritage Landscapes demonstrate that every effort has been made to reduce visual impact. This must be demonstrated for all aspects of the proposal – from site selection through to details of siting and design. All other relevant provisions of the Development Plan and RSES [Regional Spatial and Economic Strategy] must be complied with. All proposed developments in these areas will be required to demonstrate:

- *That sites have been selected to avoid visual prominence*
- *That site layouts avail of existing topography and vegetation to minimise visibility from scenic routes, walking trails, public amenities and roads*
- *That design for buildings and structures minimise height and visual contrast through careful choice of forms, finishes and colour and that any site works seek to reduce the visual impact of the development.'*

16.3.1.2 Clare County Development Plan 2023 – 2029 – Scenic Designations (Scenic Routes)

70. Map 14A of the Clare County Development Plan, and Map C in Volume 2 of the same, identify scenic routes within County Clare. These scenic routes are listed and described in Appendix 5 of the Clare CDP. Image 16.2² shows that a section of one of these routes (SR26) follows the R466 on the outskirts of the settlement of O'Briensbridge and a portion of it falls within the study area of the 38 kV Uprate Works. Another one of these routes (SR27) is situated slightly inland on the western banks of the Parteen Basin, to the west of the RWI&PS. These scenic routes are described in the CDP as:

'Scenic Route 26 – R466 between Broadford and O'Briensbridge.'

'Scenic Route 27 – R463 from O'Briensbridge through Killaloe to outside Ogonnelloe.'

71. Scenic Route SR26 was investigated as part of field work where it was determined that there is no intervisibility between it and the 38 kV Uprate Works. A representative VRP has been selected from Scenic Route SR27 in relation to the RWI&PS and was assessed in the Appendix A16.1.

16.3.1.3 Limerick Development Plan 2022 – 2028 – Landscape Character

72. The Limerick Development Plan 2022 – 2028 (Limerick City and County Council 2022)³ incorporates a Landscape Character Assessment, which divides the county into 10 LCAs. These LCAs are identified on Map 6.1 of the CDP. The 38 kV Uprate Works pass through a part of LCA 06: Shannon Coastal Zone which is identified on Map 6.1 of the CDP as the LCA 'Shannon ICMZ' (Integrated Coastal Management Zone) (Image 16.4). The location of the 38 kV Uprate Works in relation to the LCAs in County Limerick is illustrated in Image 16.4. This LCA 06 is described in the CDP as:

'... a large area of northern 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 agricultural 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 Limerick.'

³ <https://www.limerick.ie/council/services/planning-and-placemaking/development-plan-strategies/limerick-development-plan-0>

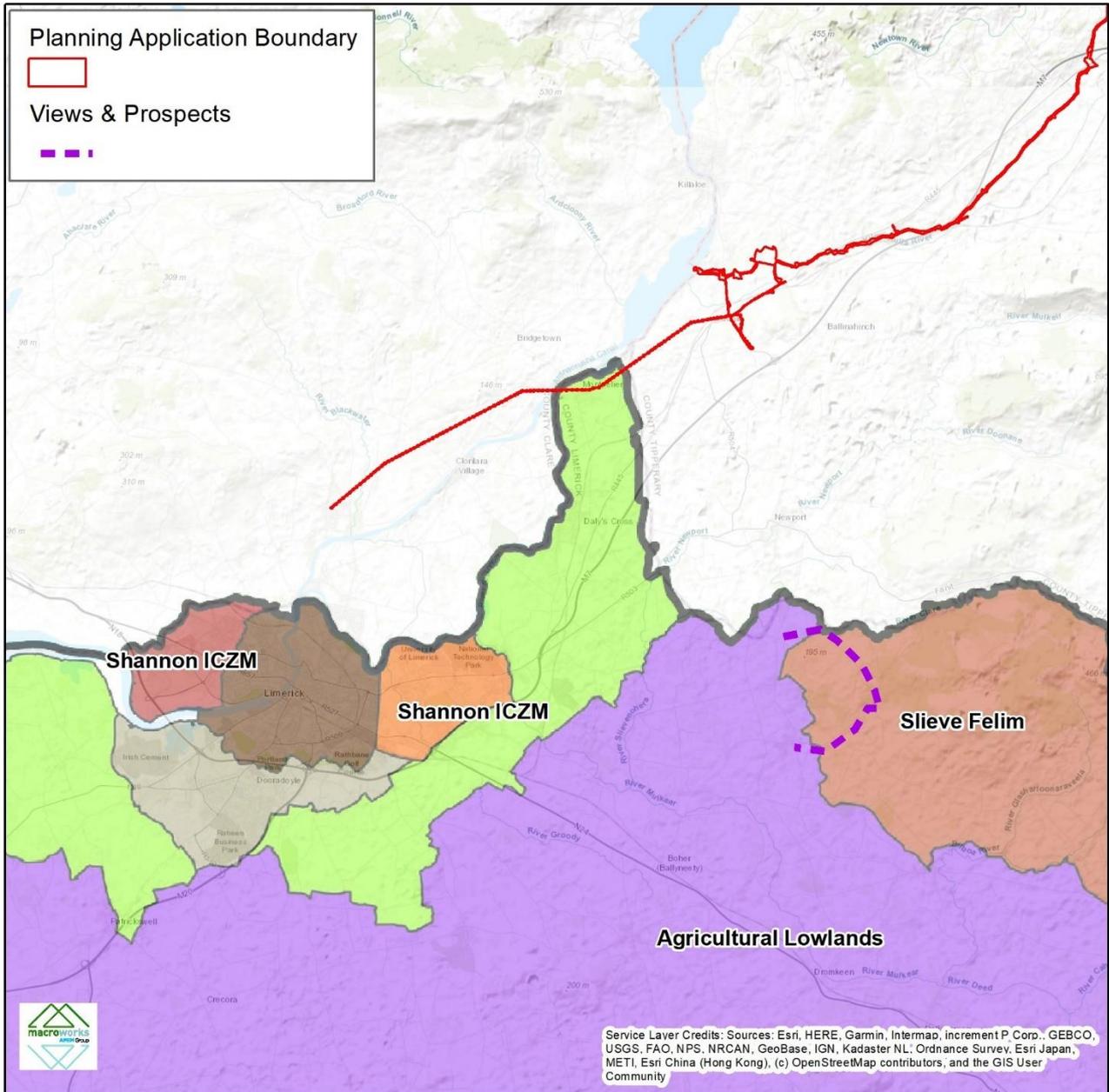


Image 16.4: The LCAs and Scenic Designations in County Limerick (Source: Limerick Development Plan 2022 – 2028)

73. The CDP contains several objectives relating to this LCA, but none are relevant to the 38 kV Uprate Works. There is one policy relating to the landscape character, which is Policy EH P8:

'It is a policy of the Council to promote the distinctiveness and where necessary safeguard the sensitivity of Limerick's landscape types, through the landscape characterisation process in accordance with the 'Draft Guidelines for Landscape and Landscape Assessment' (2000) as issued by the Department of Environment and Local Government, in accordance with the European Landscape Convention (Florence Convention) and with 'A National Landscape Strategy for Ireland – 2015-2025'. The Council shall implement any relevant recommendations contained in the Department of Arts, Heritage and the Gaeltacht's National Landscape Strategy for Ireland, 2015 – 2025.'

16.3.1.4 Limerick Development Plan 2022 – 2028 – Scenic Designations

74. Designated Scenic Views and Prospects in County Limerick are indicated on Map 6.2 of the Limerick CDP. Image 16.4 illustrates that there are no scenic designations within the study area of the Proposed Project which occur within County Limerick.

16.3.1.5 Tipperary County Development Plan 2022 – 2028 – Landscape Character

75. The Tipperary County Development Plan 2022 – 2028 (Tipperary County Council 2022)⁴ is an amalgamation of the South Tipperary County Development Plan 2009 – 2015 and the North Tipperary County Development Plan 2010 – 2016. A Landscape Character Assessment for the entire county was completed in 2016 and has been incorporated into the current Tipperary County Development Plan 2022 – 2028.

76. The Landscape Character Assessment divides the county into four generic landscape archetypes: 'A – The Plains', 'B – The Lakelands', 'C – The Foothills' and 'D – The Uplands'. These landscape archetypes are illustrated in Figure 3.2 in the Landscape Character Assessment (see Image 16.5). The 38 kV Uprate Works, RWI&PS and WTP occur within B – The Lakelands. The Lakelands are described as '*working landscapes containing settlements that enclose and adjoin lake and river areas of national significance for tourism and recreation. This landscape also contains many historic sites.*' Table 2.1 of the Landscape Character Assessment identifies the 'likely drivers of change' in County Tipperary and their likely landscape effects. (Within the 'Lakelands' landscape archetypes, a '*likely driver of change*' called 'Energy – Large Transmission Lines' has been designated as likely to generate 'very high' landscape effects but the 38 kV Uprate Works is not a new development and the equipment is not considered to fall into the category of 'Large Transmission Lines'.) The Pipeline Corridor generally occurs within A – The Plains, which are described as '*working landscapes containing most settlements and services as well as large continuous areas used for pasture, tillage and peat harvesting. This landscape also contains major rivers and many historic sites.*' It should be noted that in the CDP, 'drivers of change' (i.e. infrastructure developments) such as 'Water Services' have been designated as likely to generate 'low' landscape effects within the Lakelands and Plains landscape archetypes.

⁴ <https://www.tipperarycoco.ie/planning-and-building/development-plan-consultation/tipperary-county-development-plan-2022-2028>

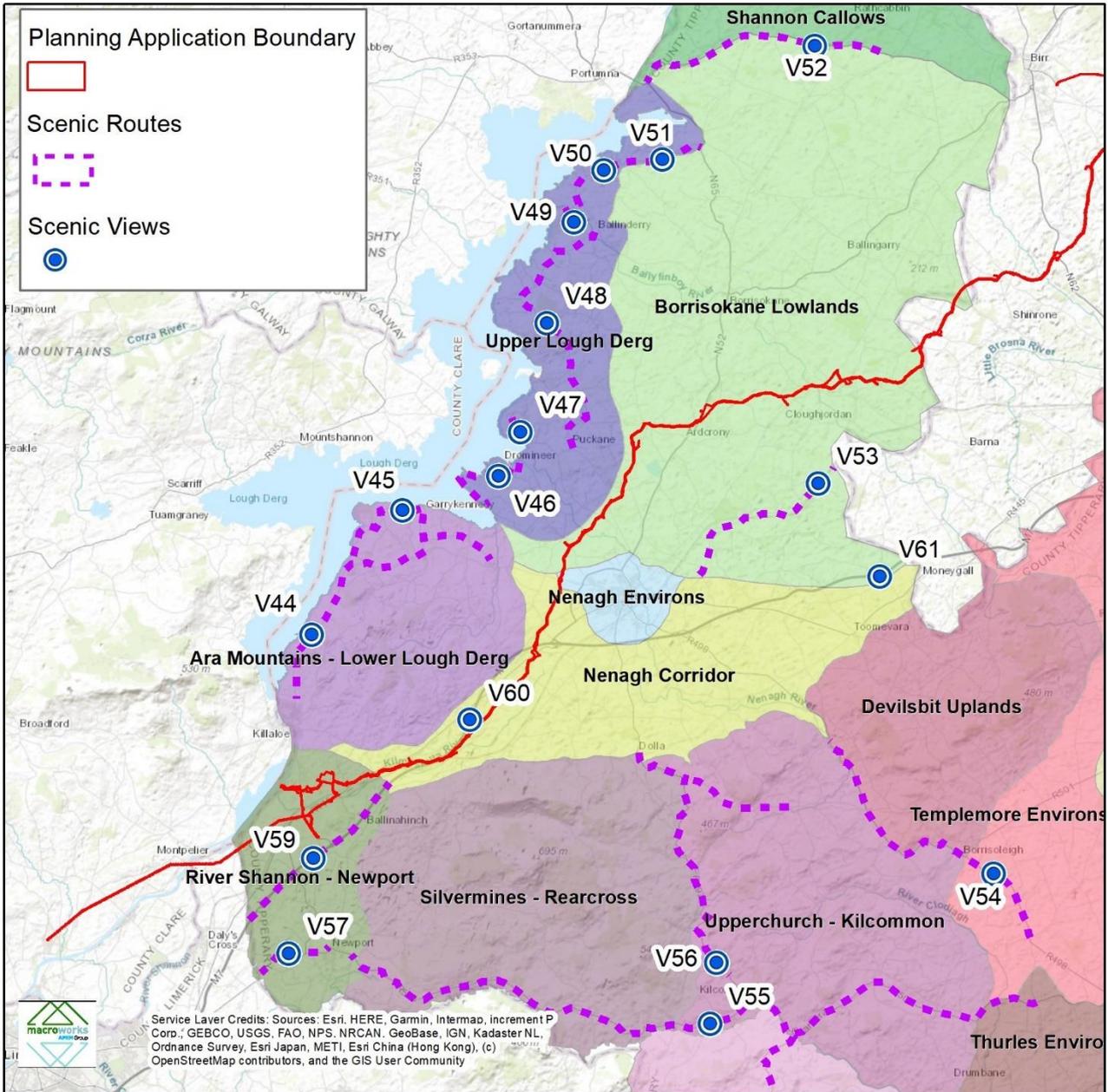


Table 16.11: Relevant Landscape Character Units in County Tipperary⁵

Landscape Character Units				
Landscape Character Type (LCT)	Landscape Character Area (LCA)	Sensitivity	Capacity	Objective
LCT B2: Lakeland Enclosures	LCA 12: River Shannon – Newport	Transitional vulnerability	Low	Control
LCT A1: Lowland Pasture & Arable	LCA 3: Nenagh Corridor	Normal	High	Continue
LCT A2: Peatlands & Wet Mixed Farmland	LCA 7: Borrisokane Lowlands	Transitional sensitivity	Reduced	Enhance

78. Three out of the six Infrastructure Sites associated with the Proposed Project are located within Tipperary including: the RWI&PS, the WTP situated in the townland of Incha Beg north-west of Birdhill, and the BPT located north of Knockanacree Wood near the settlement of Cloughjordan.

79. The 38 kV Uprate Works, RWI&PS and WTP are situated in LCT B2: Lakeland Enclosures, which are described as *'very distinctive and highly valued landscapes'*. The 38 kV Uprate Works, RWI&PS and WTP are also situated in LCA 12: River Shannon – Newport. LCA 12 is described as: *'This is largely a flat open landscape at the southern and western including the Shannon floodplain and associated meadows at the Lough Derg shores as well as raised bogs at Newport. The northerly part comprises an undulating hilly landscape with well-maintained pasture.'* Settlement patterns within this LCA comprise of a mix of *'Extensive low density, rural settlement nucleated settlements are limited to Newport town and Birdhill.'* LCA 12 has been designated as a Class 4 – Transitional Vulnerability landscape with a 'low' capacity to accommodate change. Class 4 landscapes are described as *'areas requiring significant care during design and assessment – including consideration of alternatives – to determine whether development or use can be accommodated without causing significant change of appearance of character.'* A number of objectives and guidelines are provided for each sensitivity class. For landscapes in Class 4 – Transitional Vulnerability the objective is to:

'Control – Control unavoidable new developments or uses unless it can conclusively demonstrate capacity to conform to existing appearance and character. Control the unavoidable intensification or expansion of established patterns of use and settlement to sustain existing appearance and character.'

80. The Pipeline Corridor passes through LCT A1: Lowland Pasture & Arable, which are described as *'the most common type of landscape in Tipperary. It consists mainly of grasslands and tillage enclosed by hedges. These areas also contain areas of woodlands, rivers and settlements – as well as a dense network of roads, utility lines and farm buildings.'* This LCT is further subdivided into six LCAs. The Pipeline Corridor passes through LCA 3: Nenagh Corridor which is described as *'a flat to gently undulating lowland enclosed by the Arra Mountains to the north, by the Silvermines Mountains to the south and by the Devilsbit Mountains to the east.'* LCA 3 has been classed as Class 1 – Normal Sensitivity and has a 'high' capacity to accommodate change. Within the Landscape Character Assessment, it describes Class 1 landscapes as *'Working landscapes with no sensitivities and established patterns of use and settlement.'* The general objective and guidelines for this sensitivity class are:

'Continue – Facilitate development that continues established patterns of use and settlement.'

⁵ Tipperary County Development Plan 2022 – Landscape Character Assessment.

81. The proposed BPT is situated in LCT A2: Peatlands & Wet Mixed Farmland: *'This type of landscape occurs in separate compartments within the plains. There is a lower intensity of farming in these areas – resulting in fewer houses and roads and more areas of natural vegetation.'* Within this LCT, three separate LCAs occur. The proposed BPT is situated in LCA 7: Borrisokane Lowlands which is described as a *'large, generally low lying area'* and *'contains good quality pasture though there are also quite extensive pockets of tillage, largely in the southern part of this LCA. Towards the north, the land cover starts to share characteristics with the Shannon Callows LCA as well as a number of raised bogs.'* LCA 7 has been classified as Class 2 – Transitional Sensitivity and has a 'reduced' capacity to accommodate change. Within the Landscape Character Assessment, it describes Class 2 – Transitional Sensitivity landscapes as *'areas requiring additional care during design and assessment to continue established patterns of use and settlement'*. The general objective and guidelines for this sensitivity class are:

'Enhance – Facilitate development with capacity to continue and enhance established patterns of use and settlement without significant change to appearance or character.'

82. Section 6.2 and Section 6.3 of the Tipperary Landscape Character Assessment incorporate tables relating to the compatibility of LCT with land use types and landscape sensitivity factors. Whilst no specific reference to water services is included within the tables, it is likely that the Proposed Project elements would all fall under 'industrial projects'. Table 6.2 of the Tipperary Landscape Character Assessment illustrates the compatibility between specific LCAs and land use types. LCA 12: River Shannon – Newport encompasses 'low' compatibility (second-lowest of five classes) with industrial projects, whilst LCA 7: Borrisokane Lowlands possess a 'medium' compatibility. Table 6.3 of the Tipperary Landscape Character Assessment relates to the compatibility of land use types and landscape sensitivity factors. The RWI&PS, WTP and BPT are all contained in a mix of agricultural land, mixed forestry and major rivers and water bodies. All three of these principal landscape sensitivity factors have been designated as 'Class 2 – compatible only in certain circumstances'.

83. Within the Tipperary County Development Plan 2022 – 2028, in Section 11.9, is the following landscape specific policy:

'Policy 11 – 16: Facilitate new development which integrates and respects the character, sensitivity and value of the landscape in accordance with the designations of the Landscape Character Assessment, and the schedule of Views and Scenic Routes (or any review thereof). Developments which would have a significant adverse material impact on visual amenities will not be supported.'

84. The Tipperary County Development Plan 2022 – 2028, informed by the previous North and South Tipperary Landscape Character Assessments, has also identified Primary and Secondary Amenity Areas, which are illustrated in Figure 11.1 of the CDP and are described as follows:

'... 'Primary' and 'Secondary' amenity areas, which include, amongst others, Lough Derg and the Glen of Aherlow/Galtee Mountains. These areas are particularly notable by virtue of their scenic and visual quality and offer significant opportunities for tourism development and rural recreational activities. The Council will seek to ensure that a balance is achieved between the protection of sensitive landscapes and the appropriate socio-economic development of these areas. In this respect, development proposals will be required to demonstrate that they integrate and respect the visual quality of the amenity area.'

85. Within the Tipperary County Development Plan 2022 – 2028 one policy relates to amenity areas:

'Policy 11 – 17: Ensure the protection of the visual amenity, landscape quality and character of designated 'Primary' and 'Secondary' amenity areas. Developments which would have a significant adverse material impact on the visual amenities of the area will not be supported. New development shall have regard to the following:

- *Developments should avoid visually prominent locations and be designed to use existing topography to minimise adverse visual impact on the character of primary and secondary amenity areas*
- *Buildings and structures shall integrate with the landscape through careful use of scale, form and finishes*
- *Existing landscape features, including trees, hedgerows and distinctive boundary treatment shall be protected and integrated into the design proposal.'*

86. Though located only a short distance to the south of the Lough Derg related Primary Amenity Area, no aspects of the Proposed Project are contained within Primary or Secondary Amenity Areas (Image 16.7).

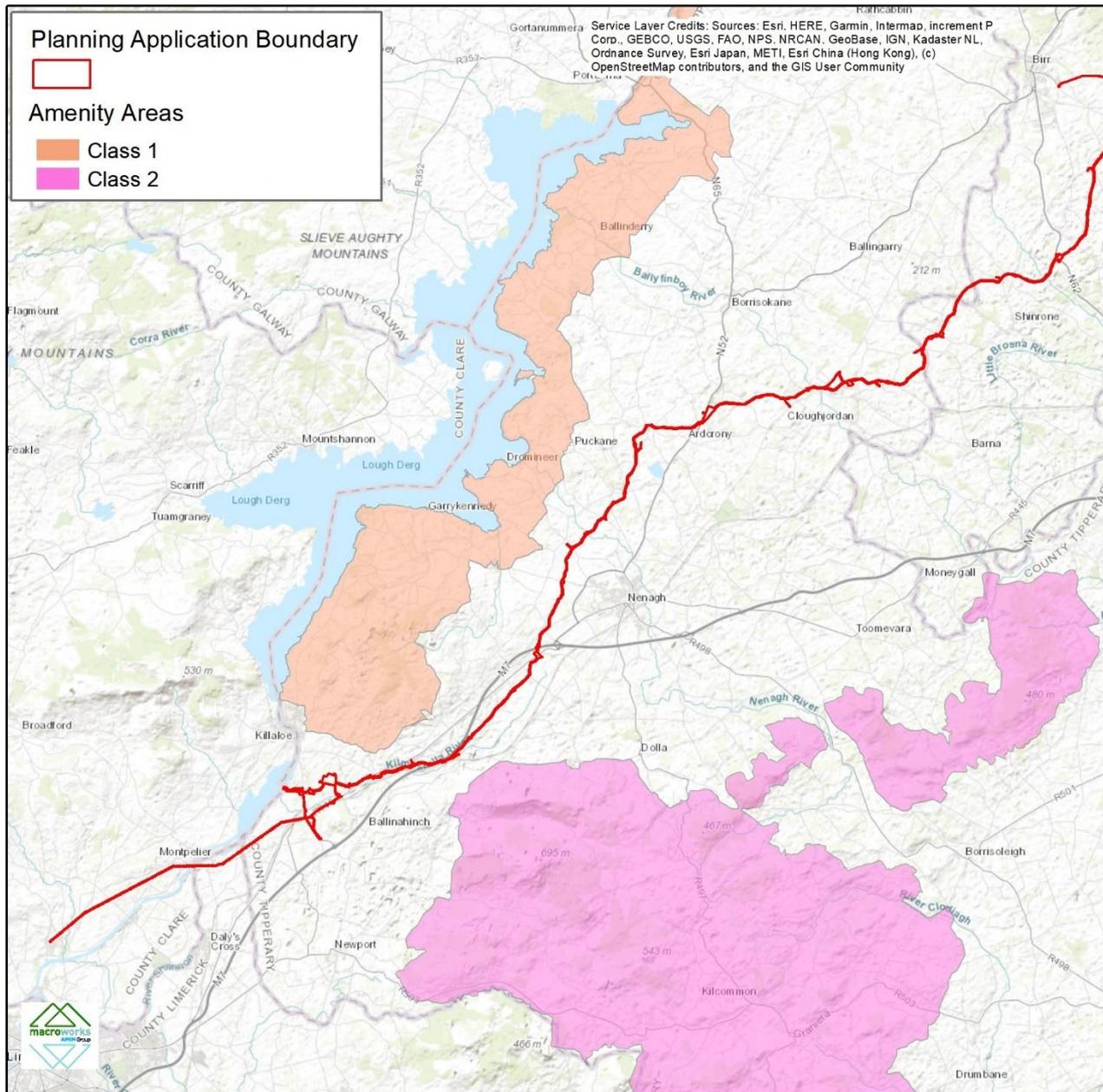


Image 16.7: Planning Application Boundary in Relation to the Nearest Amenity Areas (N.B. Class 1 is Primary Amenity Area and Class 2 is Secondary Amenity Area)

16.3.1.6 Tipperary County Development Plan 2022 – 2028 – Scenic Designations

87. Volume 3 of the Tipperary County Development Plan 2022 – 2028 contains a list of 63 no. designated scenic views from across the entire county and the locations of these are indicated in Figure 11.1 of the CDP. Five scenic designations occur within the study areas of the RWI&PS and WTP. These have been mapped manually and are indicated on Image 16.6; however, due to the scale and distance from these scenic designations to the Proposed Project, and the nature of the landscape in around these scenic designations, none have the potential to incur significant visual effects as a result of the Proposed Project:

- *View 44 – Views west and east of the R494 road from Ballina to Portroe*
- *View 55 – Views north and south on sections of the R503 from Newport to Ballycahill*
- *View 57 – Views along the R503 western approach road to Newport*
- *View 59 – Views of surrounding landscape from M7 including Annaholty and Rosstown*
- *View 60 – Views of landscape from M7 at Gortmore southwest of Nenagh.*

16.3.1.7 Offaly County Development Plan 2021 – 2027 – Sensitivity Classifications

88. Although no Landscape Character Assessment has currently been completed for County Offaly, Chapter 4 – Biodiversity and Landscape in the current Offaly County Development Plan 2021 – 2027 (Offaly County Council 2021)⁶ identifies a number of general landscape units and their associated sensitivity designations in Figure 4.22 (Image 16.8).

⁶ <https://www.offaly.ie/c/county-development-plan/>

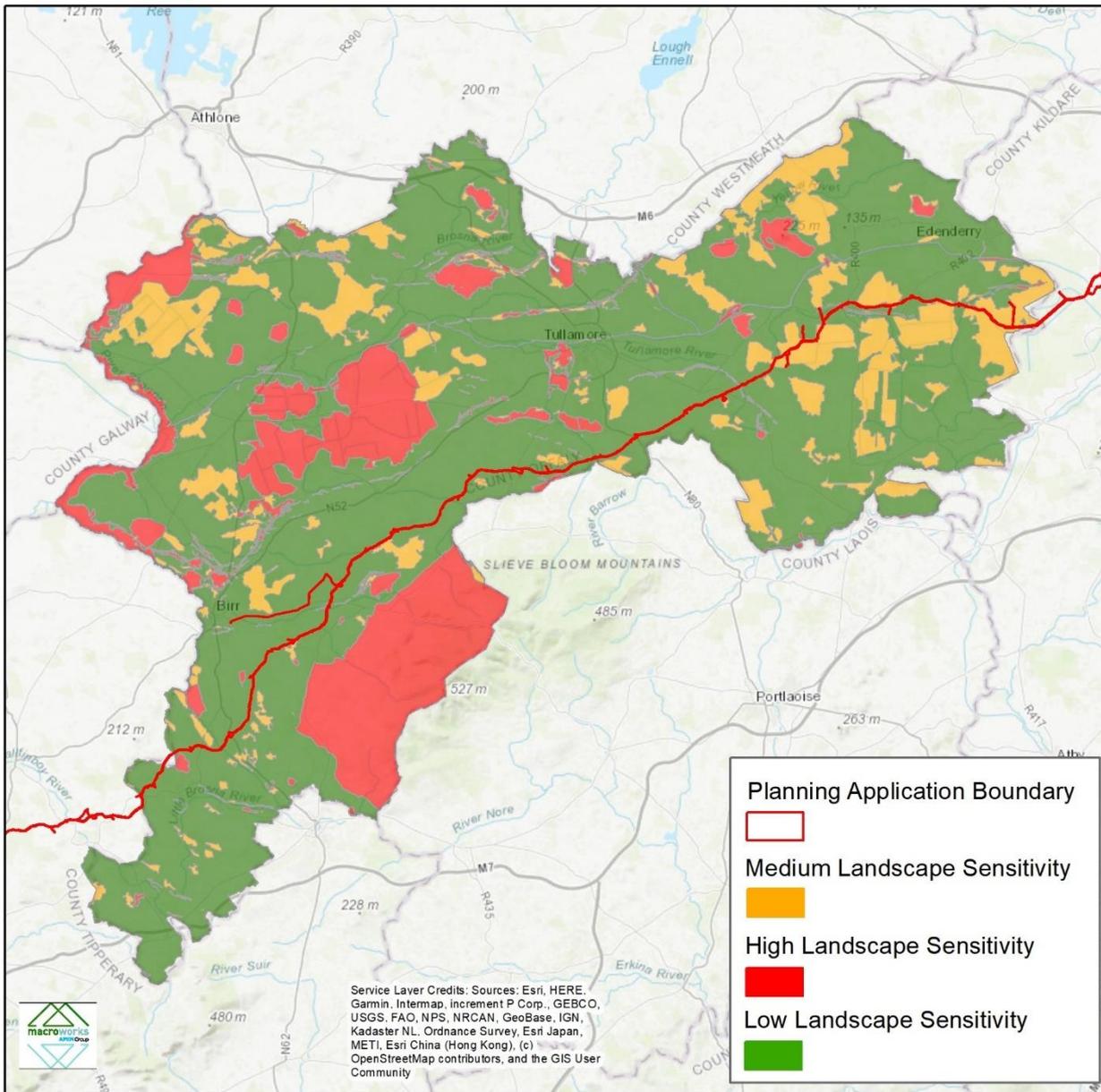


Image 16.8: Extract from the County Offaly Landscape Sensitivity Areas Map in Relation to the Planning Application Boundary

89. Offaly County Development Plan 2021 – 2027 describes the Sensitivity Classifications as follows:

‘Low sensitivity areas are robust landscapes which are tolerant to change, such as the county’s main urban and farming areas, which have the ability to accommodate development.

Moderate sensitivity areas can accommodate development pressure but with limitations in the scale and magnitude. In this category of sensitivity, elements of the landscape can accept some changes while others are more vulnerable to change.

High Sensitivity Areas are vulnerable landscapes with the ability to accommodate limited development pressure. In this category of landscape, landscape elements are highly sensitive to certain types of change. If pressure for development exceeds the landscapes limitations the character of the landscape may change. The following include identified features or areas of natural beauty or interest which have extremely low capacity to absorb new development. Areas included within this class are designated Areas of High Amenity.’

90. Table 16.12 was prepared for this assessment and is a summary of information contained in the CDP. It outlines the landscape units relevant to the Proposed Project and contains a description of their associated sensitivities.

Table 16.12: Relevant Landscape Character Units in County Offaly

Landscape Character Units		
Low Sensitivity Areas	Moderate Sensitivity Areas	High Sensitivity Areas
Rural and agricultural areas	Cutaway bog	Bogland areas, wetlands and the Esker landscape

16.3.1.8 Offaly County Development Plan 2021 – 2027 – Areas of High Amenity

91. The Offaly County Development Plan 2021 – 2027 identifies a number of areas of High Amenity on Figure 4.18. The location of the Proposed Project is illustrated in relation to these High Amenity areas in Image 16.9. These numbered Areas of High Amenity are considered ‘... worthy of special protection / enhancement due to their uniqueness and scenic / amenity value. These designations are additional to statutory national and European designations which may overlap with these AHA [Areas of High Amenity].’ Policy and objectives relating to Areas of High Amenity are outlined within the CDP in Sections 4.16 and 4.17, respectively:

‘BLP-35: It is Council policy to protect and preserve the county’s Areas of High Amenity namely the Slieve Bloom Mountains, Clonmacnoise Heritage Zone, Durrow High Cross, Abbey and surrounding area, the River Shannon, Lough Boora Discovery Park, Grand Canal, Croghan Hill, Raheenmore Bog, Pallas Lake, Clara Bog, Clara eskers, Eiscir Riada and other eskers. Notwithstanding the location of certain settlements, or parts of, for which there are settlement plans (Towns, Villages, Sráids), within the Areas of High Amenity, it is not the intention of this policy to hinder appropriate sustainable levels of development (as set out in the plans and subject to proper planning). Further, it is policy to facilitate the sustainable extension and expansion of existing visitor, tourist related or other rural enterprises within the Areas of High Amenity, where such development is appropriate and where it can be demonstrated that it gives ‘added value’ to the extending activity and to the immediate area which is the subject of the ‘Area of High Amenity’ designation.

BLP-36: It is Council policy, to ensure that issues of scale, siting, design and overall compatibility (including particular regard to environmental sensitivities) with a site’s location within an Area of High Amenity are of paramount importance when assessing any application for planning permission. The merits of each proposal will be examined on a case-by case basis.

BLO-22: It is an objective of the Council to ensure that new development, whether individually or cumulatively, does not impinge in any significant way on the character, integrity and distinctiveness of or the scenic value of the Areas of High Amenity listed in Table 4.17. New development in Areas of High Amenity shall not be permitted if it; Causes unacceptable visual harm; Introduces incongruous landscape elements; and Causes the disturbance or loss of (i) landscape elements that contribute to local distinctiveness; (ii) historic elements that contribute significantly to landscape character and quality such as field or road patterns; (iii) vegetation which is a characteristic of that landscape type and (iv) the visual condition of landscape elements.’

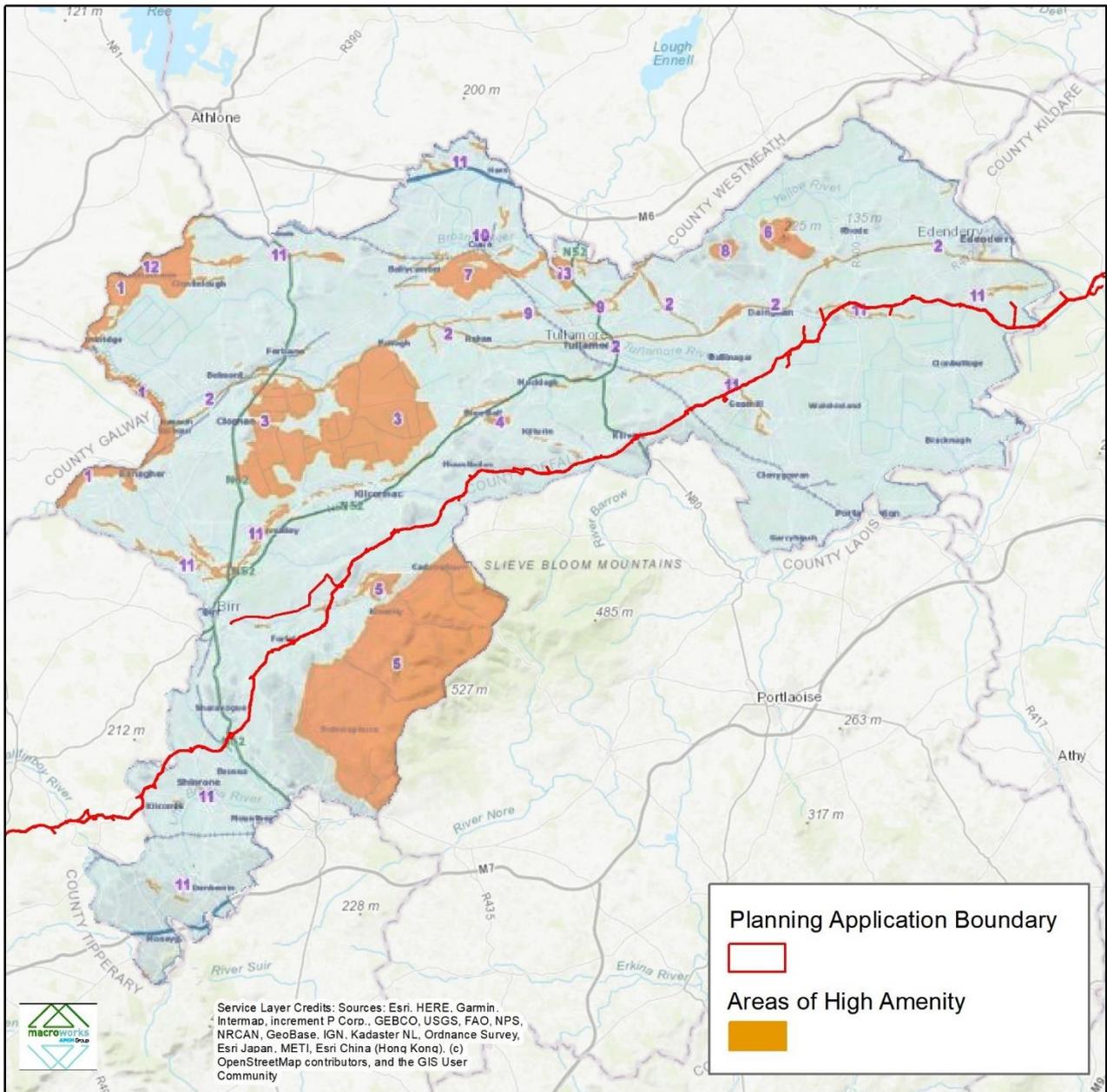


Image 16.9: Extract from the County Offaly Areas of High Amenity Map in Relation to the Planning Application Boundary

16.3.1.9 Offaly County Development Plan 2021 – 2027 – Scenic Designations

92. Table 4.21 of the Offaly County Development Plan 2021 – 2027 (Offaly County Council 2021) lists ‘key scenic views’ and ‘prospects’ within County Offaly. These views are illustrated on Figure 4.24 of the Development Plan (Image 16.10).

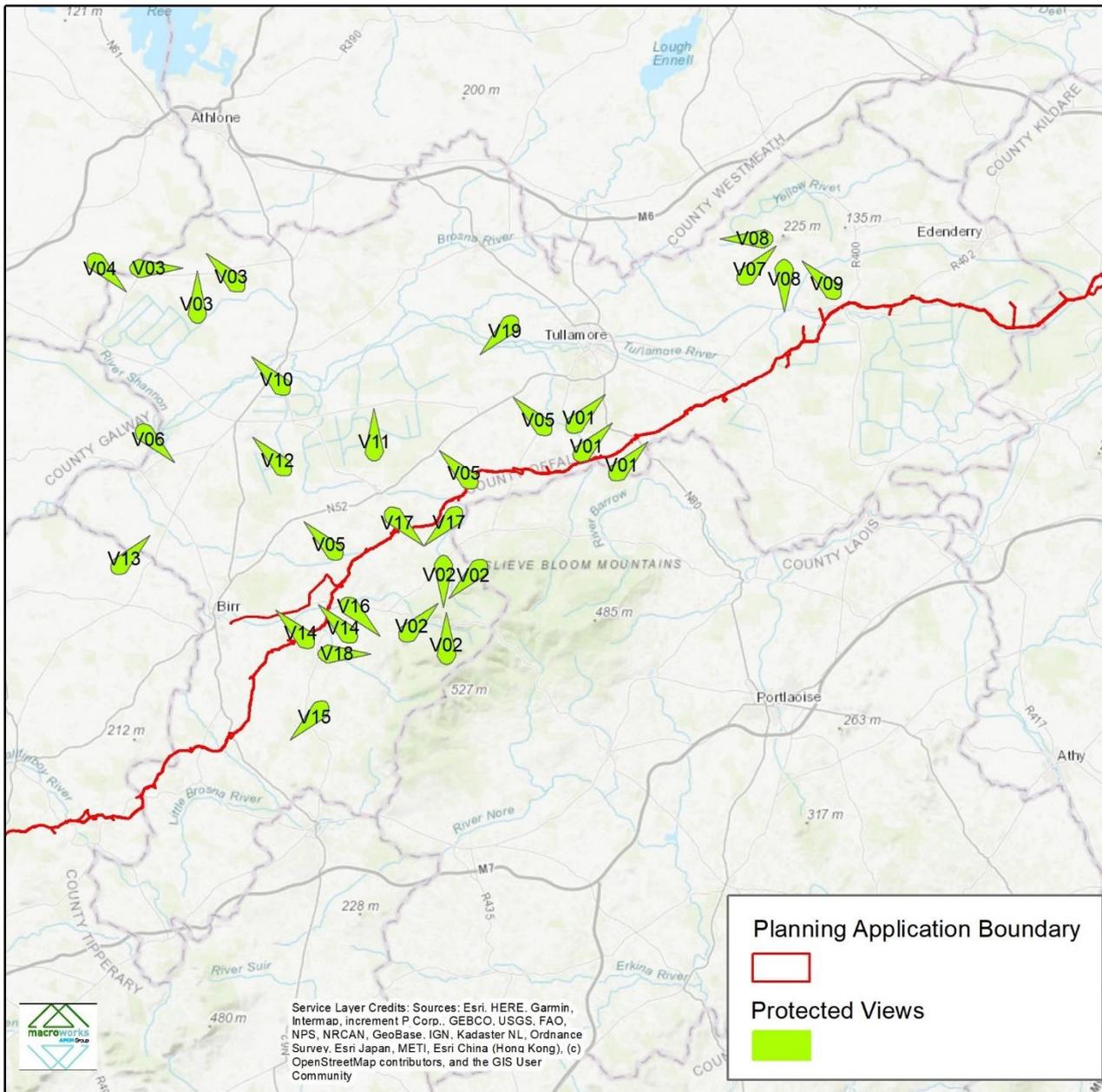


Image 16.10: Extract from the County Offaly Key Scenic Views and Prospects Map in Relation to the Planning Application Boundary

93. Most views and prospects in County Offaly have no potential to be impacted upon due to their distance from the Proposed Project although, due to their relatively close proximity to the Pipeline Corridor and/or occurrence within the study area of the BPS, the following views are considered relevant to the assessment of the Proposed Project and thus were identified for investigation during fieldwork:

- 'V1 – View from: N80 in the townland of Ballynasragh, Pigeonhouse, Killeigh, Derryclure, Derrybeg and Cloncon. View to: South-West Slieve Bloom Mountains and Killeigh Village
- V5 – View from: N52 in the townland of Heath, Bunaterin, Derrydolney, Ballywilliam, Curraghmore, Ballynacard, Bally na Curra. View to: Slieve Bloom Mountains
- V14 – View from: R440 in the townlands of Kyle, Cloghanmore, Streamstown, Ballinree, Killaun. View to: Towards Slieve Bloom Mountains

97. A number of policies are outlined in Sections 13.3 and 13.4 of the Kildare County Development Plan 2023 – 2029, two of which are relevant to the Proposed Project and are as follows:

‘LR P1 – Protect and enhance the county’s landscape, by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the existing local landscape.’

‘LR P2 – Protect High Amenity areas from inappropriate development and reinforce their character, distinctiveness and sense of place.’

98. Table 16.13 outlines all relevant landscape units for the Proposed Project along with their associated sensitivity designations. It should be noted that the landscapes of County Kildare are classified in terms of five separate sensitivity classes ranging from Class 1 – Low sensitivity to Class 5 – Unique sensitivity.

Table 16.13: Relevant Landscape Character Units in County Kildare

Landscape Character Units		
LCA	Sensitivity	Capacity
Western Boglands	High sensitivity (Class 3)	Reduced capacity to accommodate uses
Northern Lowlands	Low sensitivity (Class 1)	Capacity to generally accommodate a wide range of uses
River Liffey	Special sensitivity (Class 4)	Low capacity to accommodate uses

16.3.1.11 Kildare County Development Plan 2023 – 2029 – Scenic Designations

99. Scenic views and routes in County Kildare are separated into: Scenic Routes and Protected Views, Views to and from the County’s Waterways, and Views to and from Hills. These are illustrated on Map V1-13.3 in the CDP (Image 16.13).

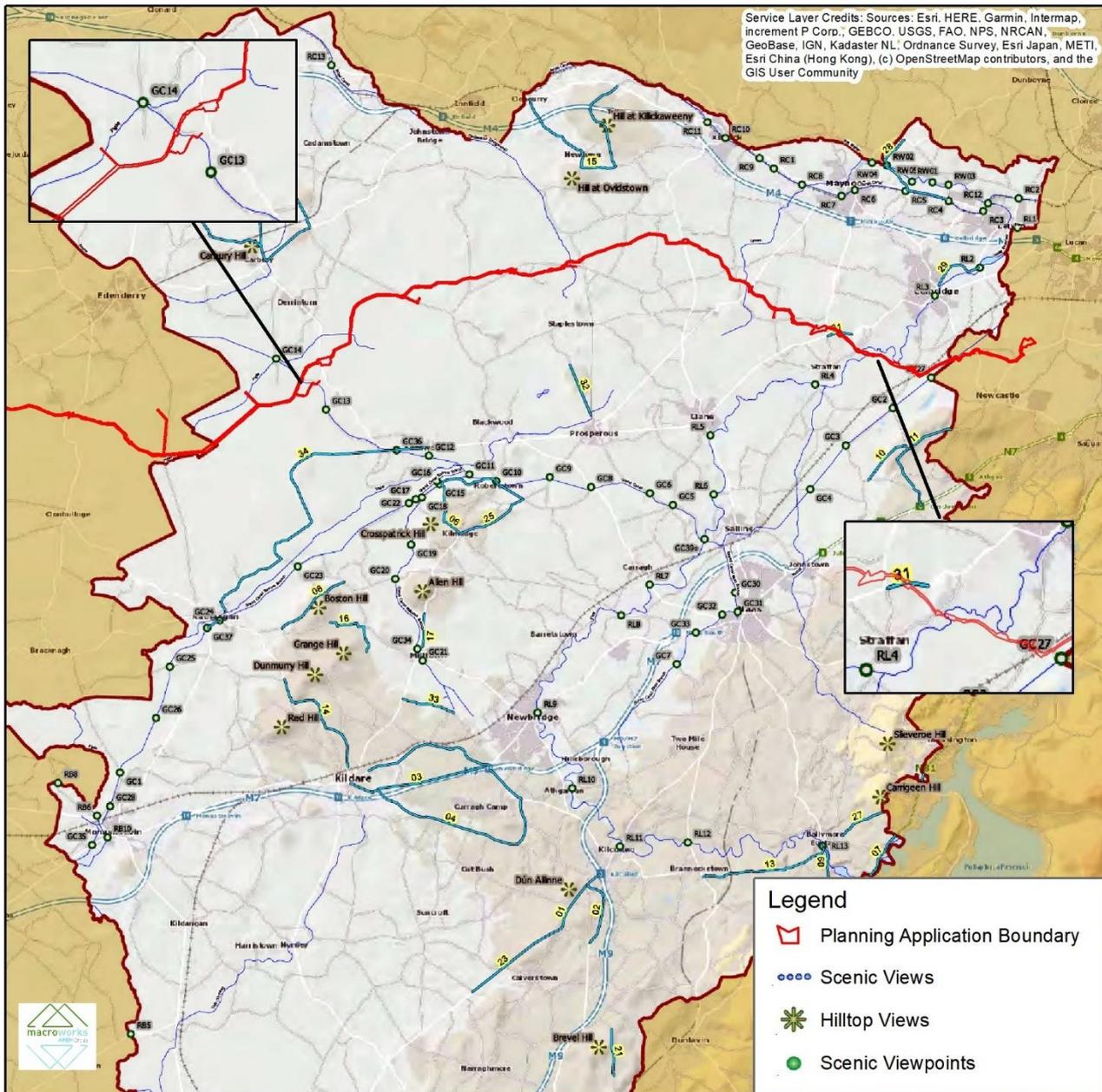


Image 16.13: County Kildare Map of Scenic Designations in Relation to the Planning Application Boundary

100. The following scenic designations occur within the study area of the Pipeline Corridor but neither have the potential to be significantly visually impacted on as a result of the Proposed Project:

- ‘Scenic Route 31 – Description: Views towards Lyons Hill, Liffey Valley, Clonaghils and Oughterard, along the R403 from Barberstown crossroads to Saint Patrick’s Hill. Location: Barberstown lower and Barberstown
- GC27

16.3.1.12 South Dublin County Development Plan 2022 – 2028

101. Within the South Dublin County Development Plan 2022 – 2028 (South Dublin County Council 2022)⁸, a number of general landscape policies are outlined in Section 3.4.3 Landscapes and include:

‘NCBH14 Objective 1: To protect and enhance the landscape character of the County by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the landscape, taking full cognisance of the Landscape Character Assessment of South Dublin County (2021).

NCBH14 Objective 2: To ensure that development is assessed against Landscape Character, Landscape Values and Landscape Sensitivity as identified in the Landscape Character Assessment for South Dublin County (2021) in accordance with Government guidance on Landscape Character Assessment and the National Landscape Strategy (2015-2025).

NCBH14 Objective 3: To ensure that development respects and reinforces the distinctiveness and uniqueness of the Landscape Character Types and retains important characteristics such as habitats, landform, vernacular heritage and settlement patterns.’

102. A Landscape Character Assessment for South Dublin County was undertaken and is included in Appendix 9 of the current CDP in which the county is divided into 10 LCTs. The Pipeline Corridor and the TPR are both situated in the LCT ‘Limestone Farmland’ (Image 16.14), described as ‘*gently undulating low-lying*’ lands where the ‘*land use includes tillage and pasture*’ and as having a ‘medium sensitivity’.

⁸ <https://www.sdcc.ie/en/devplan2022/adopted-plan/>

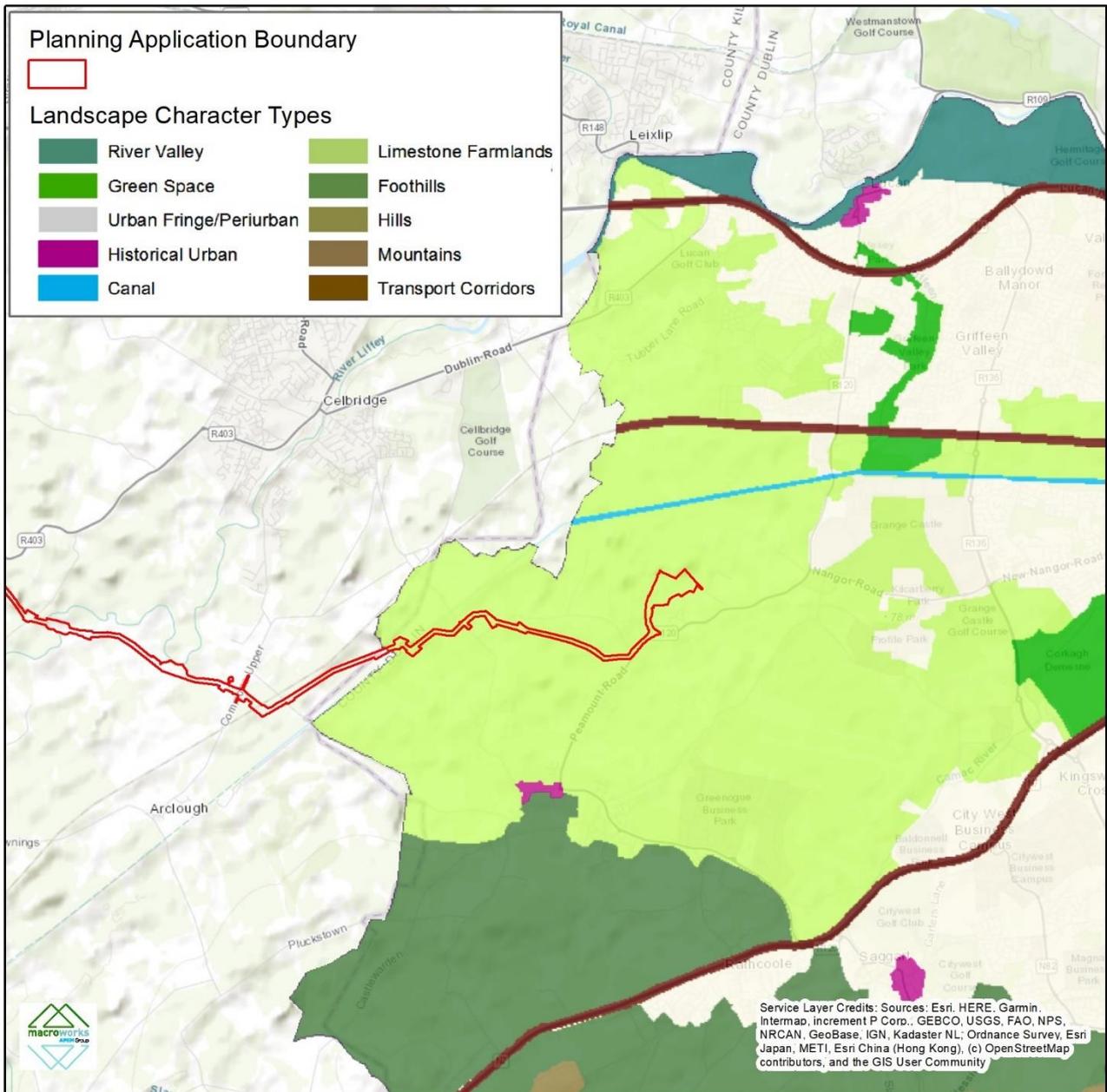


Image 16.14: County Dublin LCAs in Relation to the Planning Application Boundary

103. South County Dublin is also divided into five geographically distinct LCAs with portions of the Pipeline Corridor and TPR located within LCA 2: Newcastle Lowlands (Image 16.15). The Landscape Character Assessment gives a detailed summary of landscape character sensitivity, capacity and mitigation measures. LCA 2: Newcastle Lowlands has been designated as having a ‘medium’ overall landscape sensitivity, and a ‘medium/high’ overall landscape value.

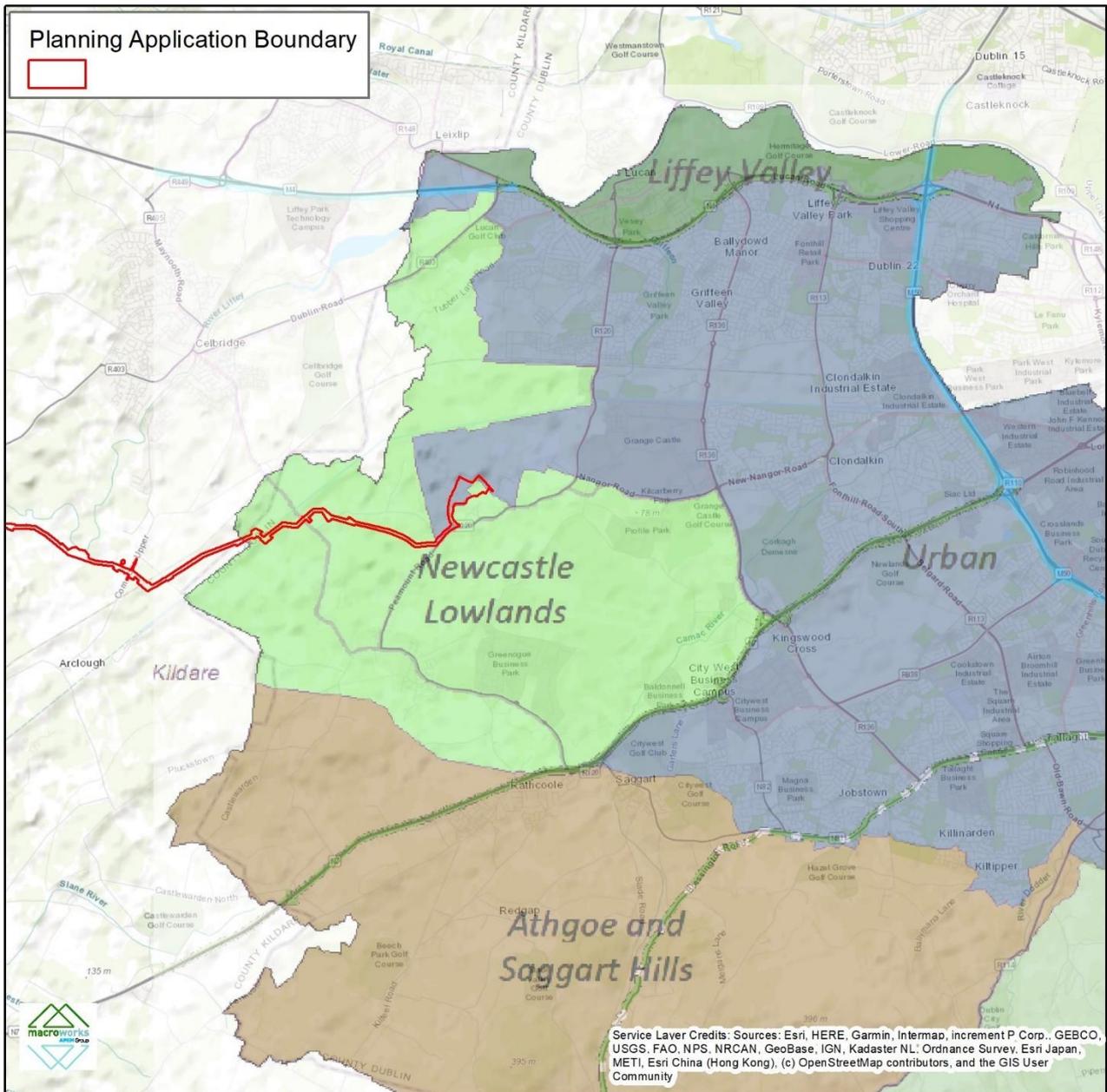


Image 16.15: County Dublin LCAs in Relation to the Planning Application Boundary

16.3.1.13 South Dublin County Development Plan 2022 – 2028 – Scenic Designations

104. Scenic designations in South County Dublin are illustrated on the Development Plan Mapping. The Proposed Project occurs on Map 3 in the CDP (Image 16.16). No scenic designations occur within the study area for the Proposed Project in South County Dublin but the Pipeline Corridor intersects with the Grand Canal National Waymarked Way, as indicated on Image 16.16 by 'Zoning Objective OS'.

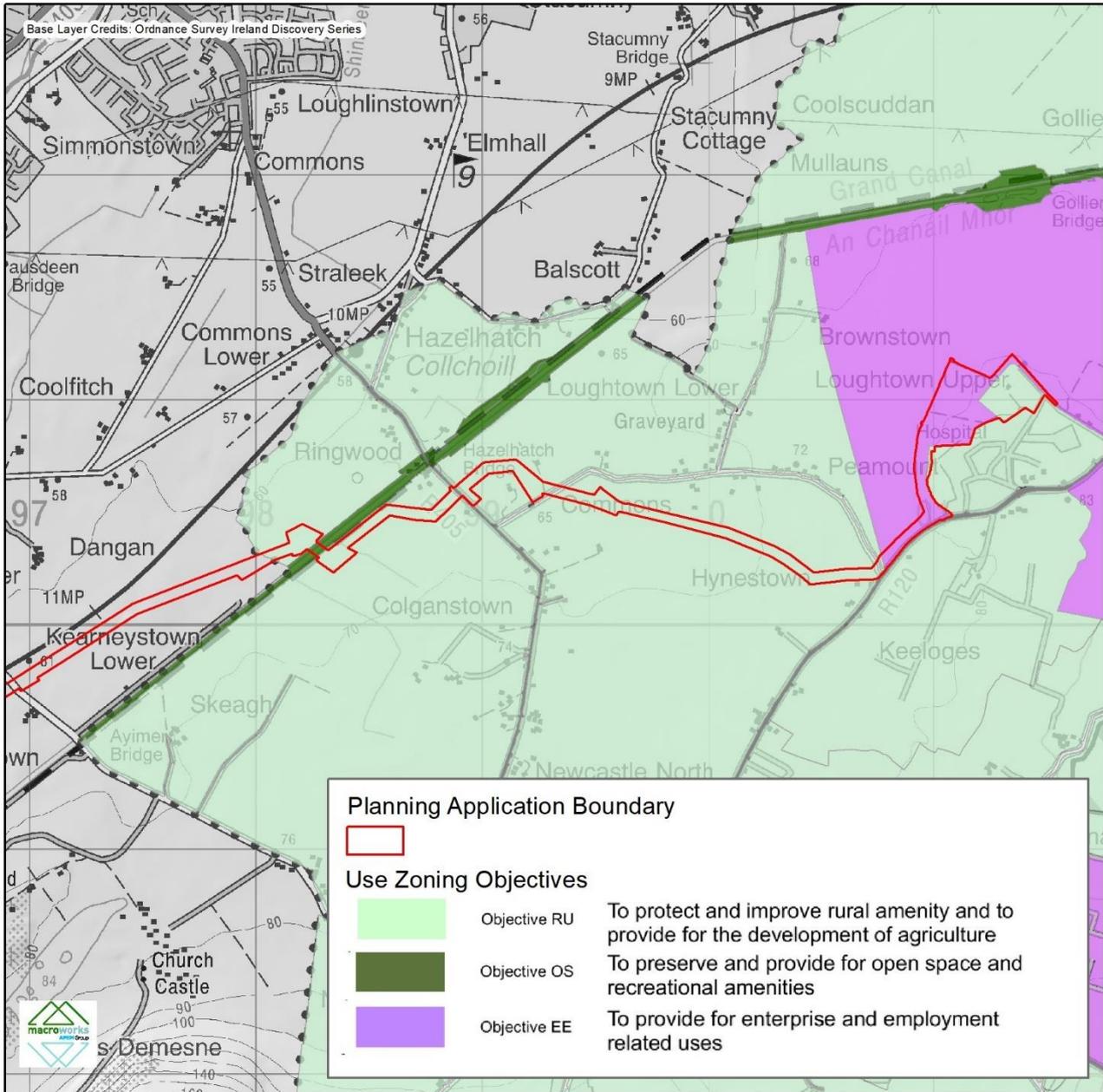


Image 16.16: Extract from the South County Dublin Development Plan Mapping in Relation to the Planning Application Boundary

16.3.2 Landscape Baseline

105. The landscape baseline represents the existing landscape context and is the scenario against which any changes to the landscape brought about by the Proposed Project would be assessed. A description of the landscape context of the Proposed Project and relevant study areas is provided in Section 16.3.2.1 and Section 16.3.2.2 for relevant counties.

16.3.2.1 Landform and Drainage

106. The landform in the immediate surrounds of the Proposed Project varies throughout its length. However, in general, the terrain could be described as flat to mildly undulating.

16.3.2.1.1 County Clare

107. The 38 kV Uprate Works commence at poleset 6b 1km to the north of the Ardnacrusha Generating Station. At a macro level, the 38 kV Uprate Works are proposed in low-lying lands adjacent to the River Shannon, flanked by uplands to the west. Landform is slightly elevated to the west of the settlement of O'Briensbridge. The remaining areas are undulating but more low-lying. The largest watercourse is the River Shannon, which flows from north to south. The Black River merges with the River Shannon at the Parteen Weir. The Headrace for the Ardnacrusha Generating Station begins near O'Briensbridge, channelling water to the south-west. The Blackwater River flows beneath the Headrace via a culvert close to Ardnacrusha.

16.3.2.1.2 County Limerick

108. Landform is slightly elevated to the south of the settlement of Birdhill. Two small watercourses flow north into the River Shannon. The eastern most of the two, Fairyhall, demarcates the county border with Tipperary.

16.3.2.1.3 County Tipperary

109. The area to the south of the Parteen Basin is low-lying and contains the Kilmastulla River. The Pipeline Corridor begins near the Tipperary–Clare border at the Parteen Basin (Photograph 16.1) just south of Lough Derg. The proposed RWI&PS is situated on the eastern bank of the Parteen Basin adjacent to (but offset from) the existing engineered embankment (Fort Henry) at the water's edge. The route of the Pipeline Corridor heads in an easterly direction and the terrain begins to gently rise and become more rolling in character (Photograph 16.2).

110. The proposed WTP adjoins an existing conifer plantation to the east of the RWI&PS and the R494 Regional Road. Moving further eastward, the Pipeline Corridor skirts through an area of relatively flat low terrain, which is flanked to the south by the Silvermines Mountains and to the north/north-west by a crest of hills and ridges known as the Arra Mountains. The Pipeline Corridor continues in a north-easterly direction through lands near Carrigatogher (Photograph 16.3) before curving away from the Kilmastulla River, towards the settlement of Nenagh and then through a considerable expanse of low rolling terrain to the west of Nenagh (Photograph 16.4). North of Lough Ourna and Ardcroney, the Pipeline Corridor veers further to the east; however, in general, the landform stays the same and is contained in broad low rolling hills and ridges (Photograph 16.5). The Pipeline Corridor then passes north of Cloughjordan through a farmed crest of low hills where the proposed BPT is situated on a local elevated hill at Knockanacree (Photograph 16.6).



Photograph 16.1: Engineered Embankment (Fort Henry) Along the Eastern Bank of the Parteen Basin



Photograph 16.2: Rolling Farmland East of the Parteen Basin Looking Towards WTP Site



Photograph 16.3: Location of Proposed Project (in Foreground) South of the M7 at Carrigatogher, County Tipperary



Photograph 16.4: Location of Proposed Project at Kilcolman, County Tipperary



Photograph 16.5: Location of Proposed Project North of Ardcroney, County Tipperary



Photograph 16.6: Farmland Plateau North of Cloughjordan at Knockanacree – the Site of the BPT

16.3.2.1.4 County Offaly

111. Extending in a north-easterly direction, the Proposed Project proceeds past the Tipperary–Offaly border and crosses the Little Brosna River north of Shinrone. Continuing on in a north-easterly direction, the Proposed Project meanders between Birr and Kinnitty where it also crosses the Camcor River before passing Kilcormac to the south (Photograph 16.7). As the Pipeline Corridor swerves around to the north/north-west of the Slieve Bloom Mountains in the north-eastern extents of Offaly, the terrain begins to open up and is generally contained in extensive areas of flat peatland. Here the Pipeline Corridor also crosses streams and rivers including the Clodiagh River and the Tullamore River. The Pipeline Corridor maintains its easterly course and crosses the Figile River south of Edenderry.



Photograph 16.7: Location of Proposed Project South of Kilcormac, County Offaly

16.3.2.1.5 County Kildare

112. To the east of the Offaly–Kildare border, the Proposed Project intersects the Grand Canal corridor where it then continues in an easterly direction across the open flat Kildare Plains. As the route reaches the easternmost extents of Kildare, the Proposed Project crosses the River Liffey north-west of the settlement of Straffan.

16.3.2.1.6 South County Dublin

113. Beyond the River Liffey, the Proposed Project progresses in an easterly direction towards the Kildare–Dublin border where it crosses the Grand Canal corridor once again. The Pipeline Corridor terminates east of the Grand Canal at the TPR near Peamount, which is situated adjacent to an area of open farmland. Here the terrain slopes gently in a northerly direction towards the Grand Canal.

16.3.2.2 Vegetation and Land Use

114. The majority of the Proposed Project passes through networks of agricultural fields and hedgerows. It also crosses substantial areas of cutaway peatland and associated reverting peatland scrub and peatland fringe forestry as it travels through County Offaly and County Kildare.

16.3.2.2.1 County Clare

115. The most notable areas of broadleaved woodland occur adjacent to the settlement of Ardnacrusha. The construction of the Parteen Weir, the Headrace and Tailrace for the hydro-electric Generating Station at Ardnacrusha all represent a considerable modification to the landform, land use and field patterns.

16.3.2.2.2 County Limerick

116. The majority of the lands within this small part of County Limerick are largely utilised for farming although there is a commercial facility and quarry situated to the south of the built-up area of O'Briensbridge.

16.3.2.2.3 County Tipperary

117. The RWI&PS is situated where a block of mixed species forestry (mixed broadleaved/conifer woodland, oak–ash–hazel woodland and conifer plantation) meets the eastern shoreline of the Parteen Basin (Photograph 16.8). The Pipeline Corridor progresses in an easterly direction and passes through a mix of agricultural fields and borders geometric blocks of coniferous forest. The WTP is in a broad area of mixed quality farmland and forestry (Photograph 16.9). Field patterns within the site of the WTP are small and irregularly shaped, bounded by mature hedgerows. Immediately to the south of the site is a forestry plantation. Within the first 20km of the Proposed Project, the Pipeline Corridor intersects the M7 motorway corridor twice, before it veers off in a north/north-easterly direction past Nenagh.



Photograph 16.8: Edge of Riparian Woodland at RWI&PS Site



Photograph 16.9: Marshy Agricultural Grassland at the WTP Site

118. As the Proposed Project continues in a north-easterly direction north of Nenagh, the land use comprises small pastoral fields defined by a mix of low clipped hedgerows and mature tree-lined hedgerows. Here the Pipeline Corridor also flanks a number of demesne landscape and intersects small sections of riparian vegetation that are associated with small streams and rivers. Just south of the settlement of Ardcroney lies Lough Ourna. The Pipeline Corridor passes Lough Ourna to the west and to the north of Ardcroney. Then the Proposed Project weaves to the east and passes just north of the settlement of Cloughjordan on an easterly course. Here a section of mature mixed woodland known as Knockanacree Wood borders the Proposed Project to the south. This is also where the BPT is situated. The BPT is situated in a rolling agricultural field that also encompasses sections of low scrubby vegetation and is bound by mature tree-lined hedgerows.

16.3.2.2.4 County Offaly

119. As the Proposed Project extends further in a north-easterly direction, the land-use mix includes large sections of peatland including cutover and cutaway bog, both domestic and industrial, some of which currently contain bog woodland. However, in general, the Pipeline Corridor maintains its route through open agricultural farmland avoiding peatlands and small sections of coniferous forest plantations. In the north-western extents of Offaly, the Pipeline Corridor proceeds through agricultural farmland and is flanked by vast open cutaway bog. East of the settlement of Tullamore, the Pipeline Corridor traverses through a large section of open industrial cutaway bog that also contains the Mount Lucas wind farm. Further on, the Pipeline Corridor intersects a number of large areas of industrial cutaway bog situated along the Offaly–Kildare border.

16.3.2.2.5 County Kildare

120. The Proposed Project then skirts through the north-western portions of Kildare where the land-use mix generally comprises extensive open peatland and agricultural farmland. The Proposed Project is also flanked by large blocks of conifer forest that occur around the outer periphery of many of these peatland areas. Throughout the north and north-eastern portions of Kildare, the Pipeline Corridor maintains its easterly course, where the land-use mix comprises agricultural farmland and demesne landscapes. Here the field boundaries are predominately mature and strong, providing distinct transitions between land-use types. The Pipeline Corridor meanders through the north-western portions of Kildare and intersects the River Liffey corridor, north-west of Straffan. Continuing in an easterly direction, the land-use mix begins to change as the Pipeline Corridor reaches the Kildare–Dublin border. Whilst the predominant land uses remain the same and comprise large open agricultural fields, the number of small rural settlements and clusters of dwellings begins to increase as the Proposed Project moves into the south-western extents of County Dublin.

16.3.2.2.6 South County Dublin

121. After the Kildare–Dublin border, the Proposed Project intersects the Grand Canal corridor before traversing across moderate to large-scale agricultural fields, until it meets the TPR at Peamount. The TPR is situated in an area of rural hinterland to the west of Newcastle Golf Centre and to the north of Peamount Hospital. Some other notable land uses within the study area of the TPR include Casement Aerodrome, large areas of industrial land use to the north-east and south of the TPR, and a modest degree of urban land cover associated with the settlement of Newcastle south of the Peamount Hospital.

16.3.3 Visual Baseline

122. Although closely linked to the landscape baseline, the visual baseline is more relevant to population-based receptors from which the Proposed Project may be visible. These include centres of population and houses; transport routes; tourism and recreational amenities; and Heritage and Designed Landscapes. These were investigated during field work to determine which ones have the potential to be afforded views of notable visual changes as a result of the Proposed Project. Those with the greatest potential to experience the most significant visual effects were selected as representative VRPs in accordance with best practice guidance and methodology.

16.3.3.1 Centres of Population and Houses

123. In general, the Proposed Project avoids centres of population and, where practicable, notable clusters of dwellings. However, in some instances the Proposed Project passes in relative proximity to small population nodes.

16.3.3.1.1 County Clare

124. The main settlements, in proximity to the 38 kV Uprate Works in County Clare, are Ardnacrusha and Cloonlara. Killaloe is the nearest large settlement to the Proposed Project.

16.3.3.1.2 County Limerick

125. The southern portion of the settlement of O'Briensbridge occurs in the northern tip of County Limerick.

16.3.3.1.3 County Tipperary

126. The main centres of population in respect of both the RWI&PS and WTP, located at the westernmost extents of the Proposed Project, are Ballina and Killaloe. Both settlements are situated approximately 2.5km to the north and north-west of these respective Infrastructure Sites on opposite banks of Lough Derg. The small settlement of Birdhill is also situated on the R445 Regional Road approximately 1.5km from the RWI&PS and approximately 2.6km south-west of the WTP.

127. In terms of major settlements, the Proposed Project passes just over 1km to the west of the N52 ring road that encircles Nenagh in County Tipperary. Beyond Nenagh, the Proposed Project passes to the east of Ballycommon (Figure 4.13) and north of Ardcroney (Figure 4.16). The Proposed Project then veers in an easterly direction passing just under 2km north of Cloughjordan (Figure 4.18) in County Tipperary. The proposed BPT is similarly situated, approximately 1.8km to the north of Cloughjordan, adjacent to Knockanacree Wood.

16.3.3.1.4 County Offaly

128. As the Proposed Project reaches County Offaly, it passes approximately 2.5km north of Shinrone (Figure 4.21) and continues in a north-easterly direction, where it is bound on either side by the settlements of Birr and Kinnitty (Figure 4.26 and Figure 4.27). Birr is situated just over 4km north-west of the Proposed Project at its nearest point, whilst Kinnitty is located just under 4km to the east of the Proposed Project. The Pipeline Corridor maintains its north-easterly course traversing just under 3km to the south of Kilcormac (Figure 4.32). As the Pipeline Corridor weaves around the north of the Slieve Bloom Mountains, it passes small crossroad settlements and linear clusters of dwellings, beyond which it skirts less than 0.5km to the south of the small settlement of Killeigh (Figure 4.38). In the north-westernmost extents of Offaly, the proposed route passes 1km north of Geashill (Figure 4.40), just under 3km south of Daingean and around 7.5km south of Edenderry.

16.3.3.1.5 *County Kildare*

129. Where the Proposed Project enters County Kildare, the local and regional roads tend to be bound by a higher density of residential dwellings. In general, the Proposed Project avoids major settlements in Kildare; however, the route passes adjacent to a number of small crossroad settlements and densely populated townlands including: Rathmore, Ballagh Wood, Johninstown and Barberstown. Prior to the Proposed Project intersecting with the River Liffey (WCX073 Figure 4.58), the pipeline route passes just over 1km to the north-west of Straffan. Just before the Proposed Project crosses the Kildare–Dublin border, the Pipeline Corridor passes approximately 2km to the south of the settlement of Celbridge and less than 0.5km south-west of Hazelhatch (Figure 4.58 and Figure 4.59).

16.3.3.1.6 *South County Dublin*

130. Prior to reaching the TPR, the Pipeline Corridor passes just under 2km north-west of the settlement of Newcastle at its nearest point. The settlement of Newcastle is also situated about 2.5km south-west of the termination point.

16.3.3.2 *Transport Routes*

131. The largest road in relation to the 38 kV Uprate Works is the M7 Dublin–Limerick motorway, a short section of which passes through the eastern portion of the study area. The following regional roads also occur within the study area of the 38 kV Uprate Works: R445, R463, R464, R465, R466, R471, R494, R504 and R525. The Dublin–Limerick railway line cuts through the study area of the 38 kV Uprate Works, parallel to the R445 Regional Road.

132. Table 16.14 outlines all the locations where the Pipeline Corridor intersects and/or is adjacent to roads. Table 16.14 presents this information in approximately 5km sections of the Pipeline Corridor from west to east. Further details on all crossings are provided in Chapter 4 (Proposed Project Description).

Table 16.14: Transport Routes Relative to Pipeline Corridor

5km Sections	Number of Road Crossings	Crossing ID
RWRMs		
RW – 0 to RW – 2000	2	RDX001, RDX120
Treated Water Pipeline from the WTP to the BPT		
TW – 0 to TW – 5000	5	RDX002, RDX003, RDX004, RDX005, RDX006
TW – 5000 to TW – 10000	5	RDX007, RDX008, RDX009, RDX010, RDX011
TW – 10000 to TW – 15000	7	RDX012, RDX013, RDX014, RDX015, RDX016, RDX017, RDX129
TW – 15000 to TW – 20000	4	RDX018, RDX019, RDX020, RDX021
TW – 20000 to TW – 25000	4	RDX022, RDX023, RDX024, RDX122
TW – 25000 to TW – 30000	4	RDX025, RDX026, RDX116, RDX128
TW – 30000 to TW – 35000	5	RDX027, RDX028, RDX029, RDX030, RDX031
TW – 35000 to TW – 36800	1	RDX032
Treated Water Pipeline from the BPT to the TPR		
TWA – 0 to TWA – 5000	4	RDX033, RDX034, RDX035, RDX036
TWA – 5000 to TWA – 10000	4	RDX037, RDX038, RDX039, RDX040
TWA – 10000 to TWA – 15000	4	RDX041, RDX042, RDX043, RDX044
TWA – 15000 to TWA – 20000	4	RDX045, RDX046, RDX123, RDX124
TWA – 20000 to TWA – 25000	5	RDX047, RDX048, RDX049, RDX050, RDX051
TWA – 25000 to TWA – 28000	2	RDX052, RDX053
TWB – 0 to TWB – 5000	6	RDX054, RDX055, RDX131, RDX132, RDX133, RDX134
TWB – 5000 to TWB – 10000	5	RDX056, RDX057, RDX058, RDX059, RDX060
TWB – 10000 to TWB – 15000	3	RDX061, RDX062, RDX063
TWB – 15000 to TWB – 20000	5	RDX064, RDX065, RDX066, RDX067, RDX068
TWB – 20000 to TWB – 25000	1	RDX069
TWB – 25000 to TWB – 28100	1	RDX070
TWC – 0 to TWC – 5000	4	RDX071, RDX072, RDX073, RDX074
TWC – 5000 to TWC – 10000	5	RDX075, RDX076, RDX077, RDX078, RDX130
TWC – 10000 to TWC – 15000	3	RDX079, RDX080, RDX081
TWC – 15000 to TWC – 20000	3	RDX082, RDX083, RDX084
TWC – 20000 to TWC – 24800	1	RDX085
TWD – 0 to TWD – 5000	2	RDX086, RDX087
TWD – 5000 to TWD – 10000	1	RDX088
TWD – 10000 to TWD – 15000	0	N/A
TWD – 15000 to TWD – 20000	2	RDX090, RDX091
TWD – 20000 to TWD – 25000	3	RDX092, RDX093, RDX125
TWD – 25000 to TWD – 30000	6	RDX094, RDX095, RDX096, RDX097, RDX126, RDX127
TWD – 30000 to TWD – 34000	2	RDX098, RDX099
TWE – 0 to TWE – 5000	4	RDX100, RDX101, RDX102, RDX103
TWE – 5000 to TWE – 10000	5	RDX104, RDX105, RDX106, RDX107, RDX108
TWE – 10000 to TWE – 15000	3	RDX109, RDX110, RDX112
TWE – 15000 to TWE – 17500	3	RDX113, RDX114, RDX115

16.3.3.3 Public Amenities and Facilities

133. Tourist receptors within the study areas of the Proposed Project are identified in Chapter 14 (Population) and are outlined in Table 16.15. In general, the Pipeline Corridor does not coincide with any major public amenities and facilities. However, in certain instances the Pipeline Corridor intersects with designated walking routes or cycle routes.

134. The only designated walking routes that pass within the study area of any of the Infrastructure Sites are the Ormond Way – National Waymarked Way (part of the Beara Breifne Way) which passes a short distance to the east of the BPT (Image 16.17) and the Grand Canal National Waymarked Way which passes the TPR approximately 700m to the north at the closest point as indicated on Image 16.16 by 'Zoning Objective OS'. Knocknacree Woods is of particular interest as it is located adjacent to the BPT and contains scenic lookout points (Image 16.18). Furthermore, the Proposed Project flanks demesne landscapes throughout its entire path although, in the majority of cases, these are not publicly accessible and therefore are not relevant to this appraisal.

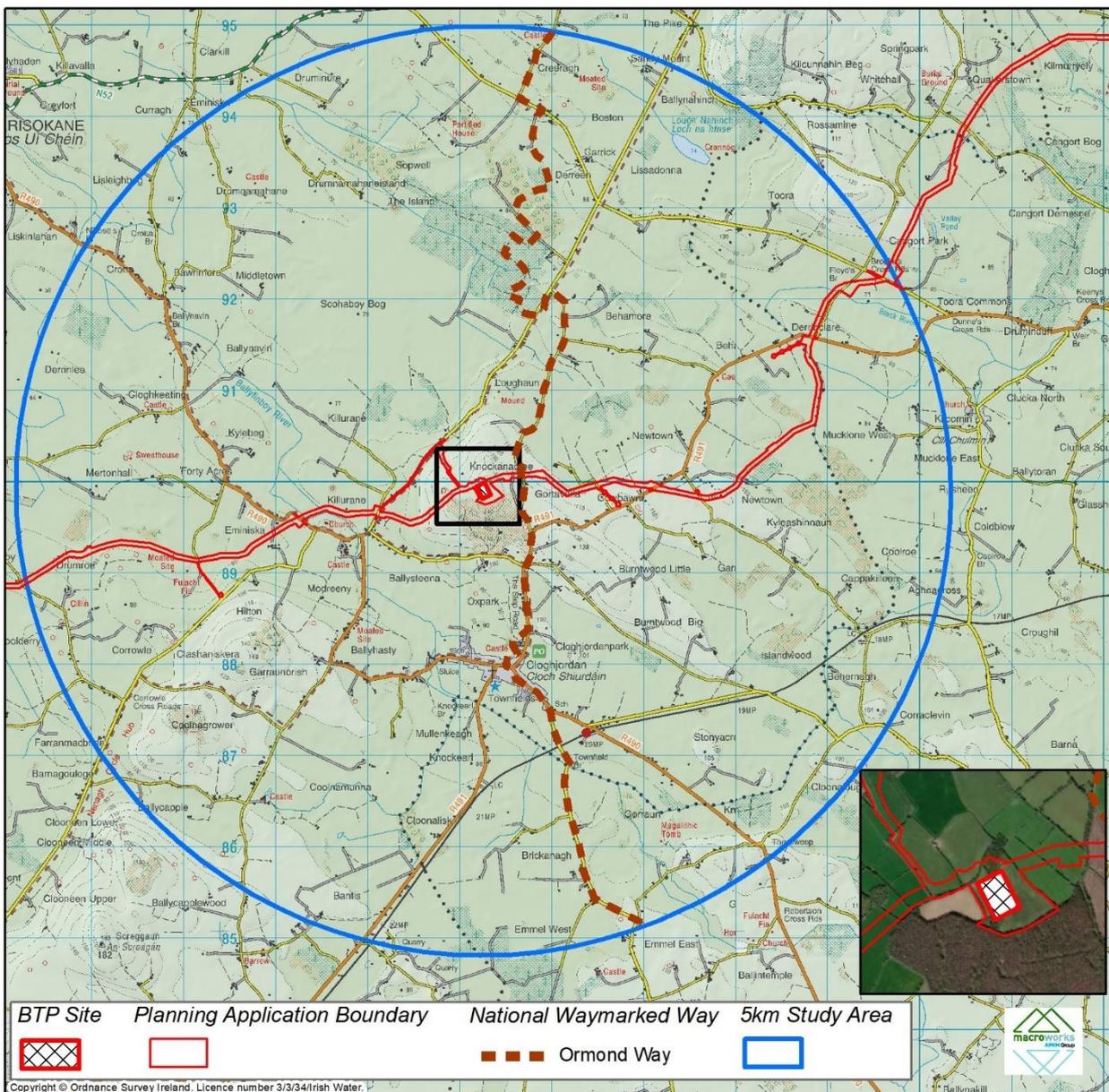


Image 16.17: The Study Area for the BPT in Relation to the Ormond Way

Table 16.15: LVIA Related Public Amenities and Facilities Relative to Pipeline Corridor

County	LVIA Related Public Amenities and Facilities (Refer to Figure 14.1 to Figure 14.63 of the EIAR for the locations of Key Receptors)
County Clare	The 38 kV Uprate Works are located in the vicinity of: a local forest trail at Ardnacrusha (1km south); intersects with the Lough Derg Way – National Waymarked Way, a National Looped Walk – ‘O’Briensbridge – Errinagh Bridge’ (which overlaps with the O’Brien’s Bridge Blue Looped Trail) and the O’Briensbridge Green Looped Trail located adjacent to the River Shannon and Headrace (300m north); and the Pollagh Trail situated south of the Parteen Basin (intersects). The River Shannon hosts various water-based recreational activities.
County Limerick	None identified.
County Tipperary	The Pipeline Corridor intersects a number of local and regional roads that encompass the Nenagh Cycle Hub Loop on road cycling trails. All of the looped cycle ways begin and conclude in Nenagh and stem out from the northern portions of the settlement.
	Knockanacree Woods is a 100-acre, Coillte-owned woodland which comprises several woodland walks and trails and is situated less than 200m to the south of the Pipeline Corridor and proposed BPT.
	The settlement of Cloughjordan contains the Cloughjordan Eco-Village, Thomas McDonagh Heritage Centre and a number of tourist accommodation providers.
	The Pipeline Corridor intersects the Ormond Way, a National Waymarked (walking) Trail which is part of the Beara – Breifne Way. (A representative VRP has been selected from this walking route and has been assessed for potential visual impacts as a result of the BPT in Appendix A16.1.)
County Offaly	The Pipeline Corridor intersects the Offaly Way, a National Waymarked (walking) Trail.
County Kildare/ County Dublin	The Pipeline Corridor intersects the Grand Canal Way at two separate points: first adjacent to the Offaly–Meath border and then again at the Kildare–Dublin border. The Grand Canal is also less than 500m from the TPR.
	13th century castle within the grounds of Barberstown Castle Hotel (a luxury hotel complex with accompanying manicured gardens).

Knockanacree Woods Trail Map

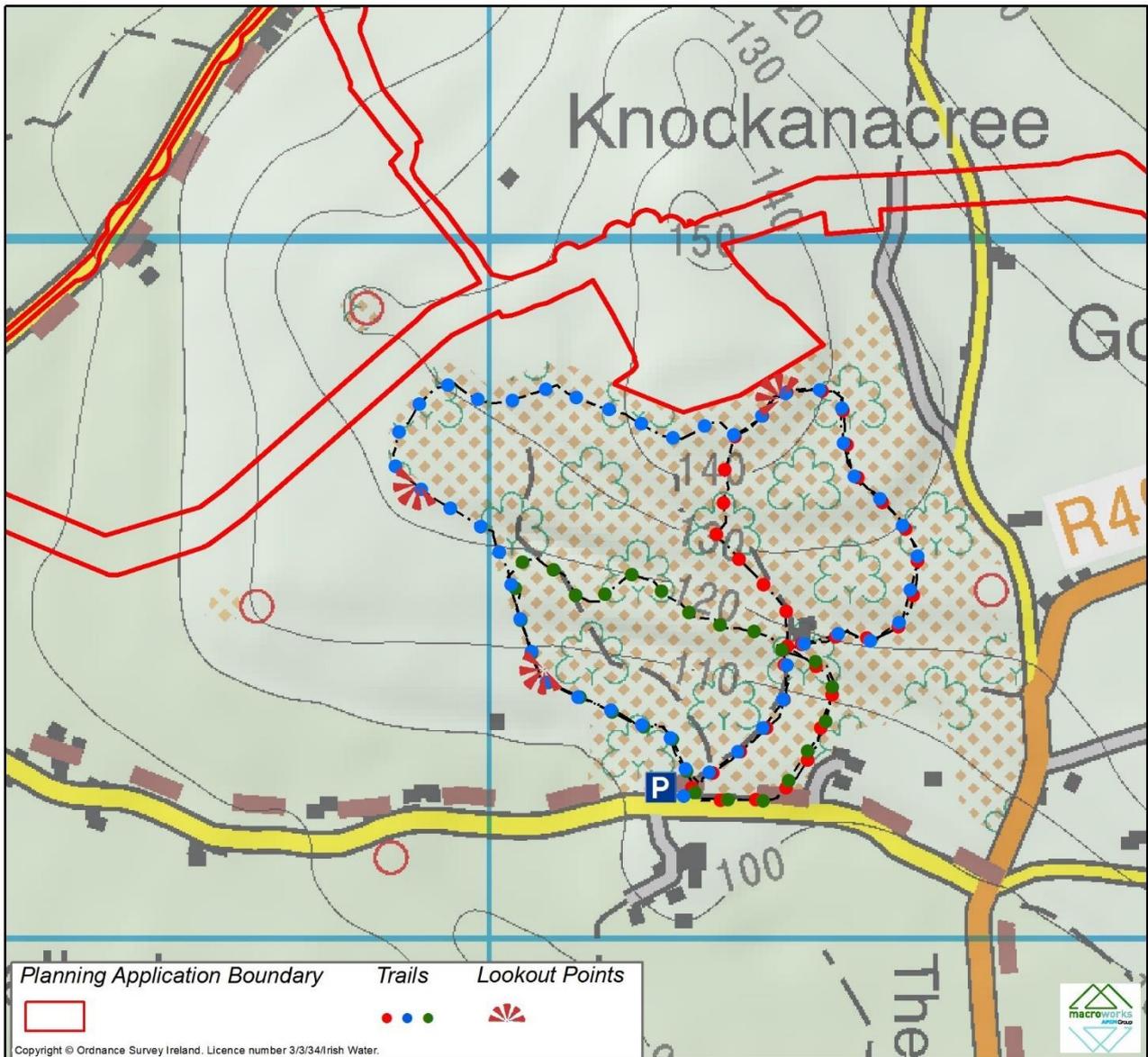


Image 16.18: Walking Trails and Scenic Lookout Points Shown in Coillte’s Knockanacree Woods Trail Map in Relation to the BPT

16.3.3.4 Demesnes and Designed Landscapes

135. Demesnes and designed landscapes are highlighted in Chapter 17 (Cultural Heritage). As indicated on Figure 17.1 to Figure 17.59 the Planning Application Boundary of the Proposed Project includes portions of the following:

- Cranna House (TW – 7000)
- Tullamore House (TW – 15300)
- Richmond House (TW – 17500)
- Ballyanny House (TW – 20150)
- Fort William (TW – 33159)

- Modreeny House (TW – 33500)
- Cangort Park (TWA – 7100)
- Corolanty (TWA – 10650)
- Streamstown House demesne (TWA – 27300)
- Money House demesne (TWB – 4850)
- Derrinboy House (TWB – 6800)
- Rathrobin House demesne (TWB – 16150)
- Annaghmore House demesne (TWB – 19750)
- Finter Lodge demesne (TWC – 1700)
- Mount Lucas House demesne (TWC – 18000)
- Springfield House demesne (TWC – 19300)
- Newpark (TWD – 29250)
- Killadoon demesne (TWE – 11300)
- Peamount House demesne (TPR).

16.3.4 Future Baseline

136. Most of the study areas are likely to remain predominantly agricultural and are likely to continue to experience increases in development pressure for renewable energy and electrical infrastructure projects (for example, solar farms, windfarm, grid-related development). In addition, new one-off dwellings and small-scale residential development are likely to continue being constructed. The change intensity is anticipated to be slightly greater in peri-urban areas. For these reasons, the character of the study areas and their immediate surroundings is likely to gradually transition and evolve in the coming decades, regardless of whether the Proposed Project proceeds. These changes are anticipated to correlate with population growth and expansion of material assets, but any increase would not be sufficient to materially alter the assessment presented in this chapter.

16.4 Assessment of Effects

137. The following sections present an assessment of the potential significant landscape and visual effects associated with the Construction and Operational Phases of the Proposed Project. The assessment is based on the appraisal methods that have been presented in Section 16.2. Effects are divided by the aspect of the Proposed Project being considered during each phase.

138. The existing landscape varies along the extent of the study area for the Proposed Project. Thus, the effect on the landscape is considered separately for each major infrastructural element, while the Pipeline Corridor, including Line Valves, Washout Valves, Air Valves and the FCV, Construction Compounds and Pipe Storage Depots, has been considered in sections divided at approximately 5km intervals along the length of the Proposed Project.

139. The assessment in this section accounts for embedded mitigation that has been incorporated into the design (e.g. avoiding sensitive features through the siting of the Proposed Project during the optioneering stages, architectural design of buildings at the Infrastructure Sites (in conjunction with a landscape architect's input) to improve the visual appeal, and reinstatement of land after works are complete) but represents a pre-mitigation assessment in the sense that proposed landscape planting would not have established. Measures have been proposed in Section 16.5, including landscape planting, to reduce or mitigate the landscape and visual effects, and the residual effects once landscape planting has established are reported in Section 16.6.

16.4.1 Do Nothing Scenario

140. The Do Nothing Scenario is the scenario in which the Proposed Project does not go ahead and no development occurs. Under this scenario, there would be no landscape and visual impacts as there would be no Construction or Operational Phases, and, as a result, there would be no change to the current landscape.

16.4.2 Landscape Impact Assessment

141. The likely significant landscape effects were assessed separately from the visual effects.

16.4.3 Construction Phase Landscape Effects

142. Construction Compounds and Pipe Storage Depots are only required for the Construction Phase of the Proposed Project. Construction Compounds for the 38 kV Uprate Works and five of the six the Infrastructure Sites (RWI&PS, WTP, BPT, BPS, and TPR) have been assessed in conjunction with the respective Infrastructure Sites whereas the remaining Construction Compounds, Pipe Storage Depots, Line Valves, Washout Valves, Air Valves and the FCV have been assessed in conjunction with the approximately 5km section of the Pipeline Corridor in which they occur. The six Infrastructure Sites have been evaluated as separate items whereas all remaining elements – Construction Compounds, Pipe Storage Depots, Line Valves, Washout Valves, Air Valves – are considered in 5km increments along the route.

16.4.3.1 Landscape Sensitivity

143. While influenced by the value and sensitivity judgements for particular LCAs in the County Landscape Character Assessments, independent landscape sensitivity judgements are provided based on the more universal criteria identified in Table 16.5. These are derived from the GLVIA. This approach is consistent with best practice and also accounts for the inconsistency that commonly occurs in assigning landscape sensitivity to similar or adjoining landscape units between counties. Furthermore, the receiving landscape for the Proposed Project is considered at a finer grain than that of a county-wide Landscape Character Assessment.

16.4.3.1.1 Landscape Sensitivity – 38 kV Uprate Works

144. Landscape quality relates to the physical state of the landscape and its individual elements. The landscape of the study area varies in terms of condition and quality. The study area is strongly influenced by the changes brought about by the construction of the Ardnacrusha Generating Station over 90 years ago. The construction of the Headrace required substantial alteration to the topography via the creation of substantial embankments to contain and channel the water for the electricity generating station. The placement of the Parteen Weir on the River Shannon had the effect of flooding the lands upstream and produced a new water body. These interventions are prominent artificial modifications to the landscape. The presence of a disused railway line, north of Birdhill, suggests changing influences on this landscape and simultaneously a degree of neglect. Quarries located to the south of O'Briensbridge and in the eastern end of the study area are also notable physical alterations to the landform. Other parts of this study area have a good degree of integrity and have productive agricultural value.

145. Mature treelines located in the surrounds of the rural portions of the study area give the impression that it is a stable and established landscape. The River Shannon is a defining element in the landscape, affording an amenity value and a sense of the naturalistic. The Shannonside Business Park and the commercial facility in Coolready are indicators of an intensification of production within the study area. Furthermore, there is extensive road infrastructure in the study area, including a high proportion of regional roads and the M7 motorway. Overhead lines (OHLs) are characteristic in the vicinity of the Ardnacrusha Generating Station. Overall, this is a working rural hinterland with strong productive values.

146. The uplands to the north of Cloonlara, in County Clare, have a recognised scenic quality and provide a sense of perspective and a visual reference from within the study area. The elevated area in of Birdhill affords views over the surrounding landscape, particularly the north towards Lough Derg. The River Shannon, the Headrace and Tailrace also add to the scenic amenity within the study area. The settlement of O'Briensbridge and environs provides picturesque views of the River Shannon.
147. The presence of a designated scenic route, SR26, in County Clare indicates a level of recognised scenic value from the R466 Regional Road just to the north of the O'Briensbridge Cross. The short section of this scenic route that occurs within the study area lies almost 1km from the 38 kV Uprate Works. It is a low-lying area, largely enclosed by vegetation and does not share any inter-visibility with the rest of the study area. Instead, the focus appears to be towards the uplands to the north-west. Other parts of the study area have a 'pleasant' pastoral aesthetic but are not highly valued in terms of scenic quality. This is reflected in the fact that there are no designated views in these areas.
148. Overall, the study area is not considered to be rare, although there are some pockets of more distinctive landscape settings, such as the River Shannon and the area around the Headrace and Tailrace.
149. There are no known landscape-related conservation interests within the study area.
150. The Lough Derg Way (National Waymarked Way) walking route is valued at both a local amenity level and a strategic national level. There are several other walking routes near the Headrace and the River Shannon, which are signposted and well used. The Pollagh Trail and the lake adjoining O'Briensbridge Cross are amenity areas affording outdoor recreational opportunities at a local level. Near the settlement of Ardnacrusa there is a forest walking trail. Locals and visitors alike can enjoy the amenity in the environs of O'Briensbridge and Birdhill.
151. There is a sense of well-established tranquillity associated with the River Shannon, the Headrace and Tailrace. However, this is principally a working rural hinterland setting, one located just over 3km from the centre of Limerick city. The study area is relatively densely populated and contains important transport infrastructure as well as hosting industrial and commercial facilities.
152. It is considered that this is a highly modified, diverse and productive rural hinterland setting, but with relatively high integrity in some parts which contributes to the rural subsistence and amenity of both visitors and the surrounding rural population. Notwithstanding the susceptible scenic or naturalistic values associated with the River Shannon and environs, overall this is a landscape with robust productive and ever-evolving landscape values. On balance, for these reasons, the landscape sensitivity is deemed to be medium – low.

16.4.3.1.2 Landscape Sensitivity – RWI&PS

153. The proposed RWI&PS, on the eastern banks of the Parteen Basin, is contained within the 'Lakelands' generalised landscape type and the more specific 'LCT B2: Lakeland Enclosures' landscape type. This, in turn, is contained within the geographically specific 'River Shannon – Newport' LCA, which is designated as having Class 4 – Transitional Vulnerability in the Tipperary CDP ('Class 5 – Vulnerable' being the highest in the range). Due to its location on a naturalistic, albeit modified, water body, there is considerable scenic value for this landscape and this is also reflected in the scenic route designations in the Clare CDP relating to views across the Parteen Basin from its western shores in County Clare.
154. Notwithstanding the landscape sensitivity and scenic designations associated with the RWI&PS and its wider study area, the sister settlements of Killaloe and Ballina on opposite sides of the River Shannon are a significant draw for visitors, recreationalists and tourists. Scenic amenity and the pursuit of outdoor and particularly water-based activities relating to Lough Derg and immersion in this landscape setting are the basis for this attraction.

155. Adding to the sense of place and the scenic amenity of the Parteen Basin landscape is the more distant containment to the north provided by the Arra Mountains, to the west by the Slieve Bearnagh range and to the south by Keeper Hill and the Silvermines Mountains. Connected by a narrow channel a short distance to the north of the Parteen Basin is the iconic Lough Derg, which divides County Clare from County Tipperary.
156. Immediately to the south of the RWI&PS, the landscape setting becomes more heavily influenced by man-made infrastructure and, in particular, an engineered embankment (Fort Henry) that retains the entire eastern side of the Parteen Basin down to the Parteen Weir, where the River Shannon shares some of its flow with the Ardnacrusha Headrace that feeds the Ardnacrusha Generating Station. Also, within the study area to the south of the RWI&PS is the former N7 National Route (now R445 Regional Road) passing through the settlement of Birdhill with the new M7 motorway further beyond. The Dublin–Limerick railway line also runs between the RWI&PS site and Birdhill.
157. Given the balance of the naturalistic and human factors outlined in this section and recognising that the proposed RWI&PS lies in the transitional zone between many of these, the landscape sensitivity of the RWI&PS landscape setting is deemed to be high – medium, which is also consistent with the ‘Transitional Vulnerability’ designation in the Tipperary CDP for this LCA.

16.4.3.1.3 Landscape Sensitivity – WTP

158. The proposed WTP, although close to the RWI&PS, and contained within the same ‘LCT B2: Lakeland Enclosures’ landscape type and ‘River Shannon – Newport’ LCA as identified in the Tipperary CDP, has a distinctly different landscape setting. This landscape is more akin to the ‘Lowlands’ landscape type and the ‘Borrisokane Lowlands’ LCA that lies immediately adjacent to the east. Nonetheless, the applicable sensitivity designation is Class 2 – Transitional Vulnerability as with the RWI&PS site.
159. The proposed WTP site is strongly contained by dense hedgerow vegetation within a relatively tight field pattern of pastoral farmland and marginal, marshy grassland. Kilmastulla River is flanked by the occasional pocket of riparian vegetation as it flows to the south of the site from the east before feeding into the Parteen Basin. There is also a sizeable conifer plantation immediately to the south of the WTP. The immediate context is sparsely populated, which lends a sense of rural tranquillity that quickly reduces on approach to the regional roads to the north, south and west. The main Dublin to Limerick railway line intersects the R445 Regional Road to the south of the conifer plantation that adjoins the site. There is a history of extractive industry at the Lackenavea (Dunalley) quarry which is situated just to the south of the R445. There is also an industrial presence to the west of the site in the form of Fort Henry Business Park and the Shannonside Business Park.
160. As with the RWI&PS study area, with which there is a high degree of overlap, the wider WTP study area does contain some iconic and highly scenic landscape features including the Parteen Basin and Lough Derg. The WTP site is also enclosed at a macro level by the Arra Mountains and the Slieve Bearnagh range (north and west respectively) and to the south by Keeper Hill and the Silvermines Mountains. All of these features add to the sense of place for the wider study area, but the WTP site context is a much more typical productive rural lowland landscape. There is a broad range of infrastructural elements in the central portion of the study area contributing to a relatively stronger presence of industrial activities in an otherwise typical rural context.
161. On the basis of the reasons outlined in this section, the sensitivity of the landscape encompassing the proposed WTP is deemed to be medium – low.

16.4.3.1.4 *Landscape Sensitivity – BPT*

162. The proposed BPT site is contained on a small and undulating plateau near the top of a modest hill at Knockanacree, a short distance to the north of the settlement of Cloughjordan in County Tipperary. It is contained within the general 'Plains' LCT in the Tipperary Landscape Character Assessment and, more specifically, the 'LCT A2: Peatlands & Wet Mixed Farmland' landscape type. This, in turn, is contained in LCA 7: Borrisokane Lowlands, which is assigned Class 2 – Transitional Vulnerability landscape sensitivity.
163. In general, it is a fairly typical rolling farmland landscape with a strong degree of integrity and few fallow or unused areas. There is some degree of rural tranquillity, even close to Cloughjordan, but overall landscape value relates to productive land use and sustenance of a land-based rural economy. Nonetheless, there is some recreational value associated with forest trails within Coillte's Knockanacree Wood, adjacent to the south of the proposed BPT site and along the Ormond Way – National Waymarked Trail (part of the Beara – Breifne Way) to the east of the proposed BPT. There is also some scenic amenity afforded from elevated locations such as the Knockanacree Hill where broad views across the surrounding lowland pastoral landscape are afforded. In terms of association, Cloughjordan has become well known for the eco-village, which has been developed there from 1999 and provides an example of sustainable rural/residential living.
164. On balance of the reasons outlined in this section, the landscape sensitivity of the BPT site and its environs is considered to be medium.

16.4.3.1.5 *Landscape Sensitivity – BPS*

165. The majority of the study area is composed of landscapes identified in the Offaly County Development Plan 2021 – 2027 as 'low sensitivity areas' comprising rural and agricultural areas. There are some pockets of 'medium sensitivity areas' scattered across the study area that are associated with discrete landscape features. The terrain is gently rolling and drains into the Camcor River, which meanders through the southern half of the study area in an east–west orientation. In the eastern and south-eastern portions of the study area, there are bogland areas, wetlands and the eskers identified as 'high sensitivity areas' with the largest pocket located at Knockbarron, north of Kinnitty. The majority of the south-eastern segment of the study area is designated as Areas of High Amenity. The Birr Cycle Hub Loop is a recreational amenity in the area with trails along several roads within the study areas. There are four views and prospects of special amenity value or special interest within the study area, which suggest a degree of scenic value at a county level. Furthermore, the study area is dissected by a key scenic amenity route that occurs along the R440 Regional Road as it passes from west to east. This road, along with the R421 Regional Road, and several local roads, converge on the settlement of Kinnitty, which is located at the eastern edge of the study area. Approximately 1.5km east of the BPS site is a Coillte woodland that contains the Kinnitty – Knockbarron Loop National Loop Walk. Thomastown Park House and Money House Demesne occur in the northern half of the study area, approximately 3km from the BPS site.
166. Although there is a degree of recreational and visual amenity within the study area, overall, it represents a typical, productive landscape in the midlands of Ireland that is not highly distinctive or rare. The study area is primarily contained in pastoral farmland and is heavily influenced by numerous human features such as linear transport routes and the nearby large settlement of Birr. On balance, for the reasons outlined above, the landscape of the study area is generally considered to be of medium sensitivity.

16.4.3.1.6 Landscape Sensitivity – TPR

167. The proposed TPR site is contained within a peri-urban setting in the south-western outskirts of Dublin City. In terms of South Dublin CDP designations, the site is within the 'Limestone Farmland' landscape type and the more geographically specific LCA 2: Newcastle Lowlands. This has been designated as having a medium overall landscape sensitivity and a medium – high landscape value. Much of this value is likely to relate to the rural counterpoint it offers to the majority of built-up urban land use within the southern and western suburbs of the city. Indeed, it represents the rural buffer/transition between the city and the Dublin Mountains which rise further to the west.
168. There is some recreational and scenic amenity associated with the Grand Canal corridor a short distance to the north and west of the TPR site, but this is fairly contained within the canal corridor itself. Newcastle Golf Centre also occurs to the east of the TPR site. The somewhat eclectic mix of hinterland land uses surrounding the site include Peamount Hospital, Casement Aerodrome, residential development associated with the settlement of Newcastle and the intensively developed Grange Castle and Greenogue Business Parks. There are also substantial areas of 'Enterprise and Employment' zoned lands surrounding the TPR that have been subject of a number of planning applications in recent years. This is a dynamic area of peri-urban utilitarian land use that is likely to change considerably in terms of the scale and intensity of built development in the coming decade.
169. Due to the range of peri-urban land uses within this hinterland landscape, but also as an acknowledgment of its value as the rural fringe to a major city, the landscape sensitivity of the proposed TPR site and its immediate environs is deemed to be medium.

16.4.3.1.7 Landscape Sensitivity – Pipeline Corridor

170. Table 16.16 presents the sensitivity of the Pipeline Corridor, broken down into 5km sections. The sections are divided and categorised in terms of chainage (distance along the Pipeline Corridor from the Raw Water Intake) as well as the relevant section of the Pipeline Corridor. These abbreviations include Raw Water (RW); Treated Water (TW); and Treated Water A-E (TWA-TWE).

Table 16.16: Landscape Sensitivity Pipeline Corridor

Chainage (m)	CDP Landscape Character Areas (LCAs)	CDP Sensitivity	Comments	Sensitivity
RW – 0 to RW – 2000	LCA 12: River Shannon – Newport (Tipperary)	Transitional vulnerability	Considerable scenic value at the Parteen Basin.	High – Medium
TW – 0 to TW – 5000	LCA 12: River Shannon – Newport (Tipperary) (Chainage TW – 0 to Chainage TW – 1250) LCA 3: Nenagh Corridor (Tipperary) (Chainage TW – 1250 to Chainage TW – 5000)	Transitional vulnerability–Normal	A combination of marginal agricultural farmland and forestry.	Medium – Low
TW – 5000 to TW – 10000	LCA 3 :Nenagh Corridor (Tipperary)	Normal	Typical lowland agricultural farmland influenced by R445 and M7 transport corridors.	Medium – Low
TW – 10000 to TW – 15000	LCA 3: Nenagh Corridor (Tipperary)	Normal	Typical lowland agricultural farmland influenced by R445 and M7 transport corridors.	Medium – Low
TW – 15000 to TW – 20000	LCA 3: Nenagh Corridor (Tipperary) (Chainage TW – 15000 to Chainage TW – 16750) LCA 7: Borrisokane Lowlands (Tipperary) (Chainage TW – 16750 to Chainage TW – 20000)	Normal–Transitional Sensitivity	Typical lowland agricultural farmland influenced by N52,R494 and R495 transport corridors and the Nenagh River. Sections of Nenagh Hub Cycle Loop along local and regional roads intersected by the Construction Working Width. The Planning Application Boundary includes a portion of the historic demesne landscape: Tullamore House (c. TW – 15500).	Medium – Low (Chainage TW – 15000 to Chainage TW – 15400 and Chainage TW – 15600 to Chainage TW – 20000) Medium (Chainage TW – 15400 to Chainage TW – 15600)
TW – 20000 to TW – 25000	LCA 7: Borrisokane Lowlands (Tipperary)	Transitional Sensitivity	Typical lowland agricultural farmland influenced by R493 transport corridor. Sections of Nenagh Hub Cycle Loop along local and regional roads intersected by Construction Working Width.	Medium – Low
TW – 25000 to TW – 30000	LCA 7: Borrisokane Lowlands (Tipperary)	Transitional Sensitivity	Typical lowland agricultural farmland influenced by N52 transport corridors.	Medium – Low
TW – 30000 to TW – 35000	LCA 7: Borrisokane Lowlands (Tipperary)	Transitional Sensitivity	Typical lowland agricultural farmland influenced by N52 and R490 transport corridors. Sections of the Nenagh Hub Cycle Loop situated along local and regional roads in the vicinity of the Construction Working Width.	Medium – Low

Chainage (m)	CDP Landscape Character Areas (LCAs)	CDP Sensitivity	Comments	Sensitivity
TW – 35000 to TW – 36800	LCA 7: Borrisokane Lowlands (Tipperary)	Transitional Sensitivity	Typical lowland agricultural farmland influenced by R490 transport corridor. Sections of the Nenagh Hub Cycle Loop situated along local and regional roads intersect with the Construction Working Width. Coillte owned Knockanacree Woods situated at Chainage TW – 36400 to Chainage TW – 36800 and encompasses woodland walks and some local scenic designations (Image 16.18). A portion of Scohaboy Bog Natural Heritage Area occurs in the northern portion of this section.	Medium
TWA – 0 to TWA – 5000	LCA 7: Borrisokane Lowlands (Tipperary)	Transitional Sensitivity	Typical lowland agricultural farmland influenced by R491 transport corridor. Sections of the Nenagh Hub Cycle Loop situated along local and regional roads intersect with the Construction Working Width. Coillte owned Knockanacree Woods situated at Chainage TWA – 0 to Chainage TWA – 500 and encompasses woodland walks and some local scenic designations (Image 16.18). Ormond Way, a National Waymarked (walking) Trail passes the woodland a short distance to the east.	Medium (Chainage TWA – 0 to Chainage TWA – 2500) Medium – Low (Chainage TWA – 2500 to Chainage TWA – 5000)
TWA – 5000 to TWA – 10000	Rural and Agricultural Area (Offaly) (TWA – 5000 to TWA – 7900) LCA 7: Borrisokane Lowlands (Tipperary) (TWA – 7900 to TWA – 9000) Rural and Agricultural Area (Offaly) (TWA – 9000 to TWA – 10000)	Low Sensitivity Area (TWA – 5000 to TWA – 7900) Transitional Sensitivity (TWA – 7900 to TWA – 9000) Low Sensitivity Area (TWA – 9000 to TWA – 10000)	Typical lowland agricultural farmland influenced by R491 transport corridor. A portion of raised bog (exploited) designated a Moderate Sensitivity Area (Offaly) is located adjacent to Chainage TWA – 5100. A portion of Cangort Bog Natural Heritage Area contains bog woodland and is designated a High Sensitivity Area (Offaly); it is located adjacent to Chainage TWA – 8300 to TWA – 10000.	Medium – Low (Chainage TWA – 5000 to Chainage TWA – 8300) Medium (Chainage TWA – 8300 to TWA – 10000)
TWA – 10000 to TWA – 15000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland influenced by the R492 and N62 transport corridors. Portions of three raised bogs (exploited) designated as Moderate Sensitivity Areas (Offaly) are located in this section. The Birr Cycle Hub Loop passes through the Construction Working Width.	Medium – Low
TWA – 15000 to TWA – 20000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. Portions of three raised bogs (exploited) designated as Moderate Sensitivity Areas (Offaly) are located in this section adjacent to TWA – 14700 to TWA – 18200. A portion of raised bog (intact) which is designated a High Sensitivity Area (Offaly) and an Oak-ash-hazel woodland/Mixed broadleaved/conifer woodland are located adjacent to Chainage TWA – 18400 to TWA – 19400. The Birr Cycle Hub Loop passes through the Construction Working Width.	Medium – Low (Chainage TWA – 15000 to TWA – 18400) Medium (Chainage TWA – 18400 to TWA – 20000)
TWA – 20000 to TWA – 25000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. Portions of three raised bogs (exploited) designated as Moderate Sensitivity Areas (Offaly) are located in this section adjacent to TWA – 22600 to TWA – 23700. The Birr Cycle Hub Loop passes through the Construction Working Width.	Medium – Low

Chainage (m)	CDP Landscape Character Areas (LCAs)	CDP Sensitivity	Comments	Sensitivity
TWA – 25000 to TWA – 28000	Rural and Agricultural Area (Offaly) The Esker Landscape (Offaly)	Low Sensitivity Area (Chainage TWA – 25000 to TWA – 27200) High Sensitivity Area (Chainage TWA – 27200 to TWA – 27300)	Typical lowland agricultural farmland. The Birr Cycle Hub Loop passes through. Between Chainage TWA – 27200 and TWA – 28000 there are eskers, the Key Amenity Route 'R440 Birr to Kinnitty to County Boundary towards Mountrath' and the designated scenic view number 14 'R440 in the townlands of Kyle, Cloghanmore, Streamstown, Ballinree, Killaun'.	Medium – Low (Chainage TWA – 25000 to TWA – 27200) Medium (Chainage TWA – 27200 to TWA – 28000)
TWB – 0 to TWB – 5000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. The Planning Application Boundary includes a portion of the historic demesne landscape: Money House Demesne (c. TWB – 4800).	Medium – Low
TWB – 5000 to TWB – 10000	Rural and Agricultural Area (Offaly) Cutaway Bog (Offaly)	Low Sensitivity Area (Chainage TWB – 5000 to TWB – 6900) Moderate Sensitivity Area (Chainage TWB – 6900 to TWB – 10000)	Typical lowland agricultural farmland. A portion of raised bog (exploited) designated as Moderate Sensitivity Area (Offaly) is located in this section adjacent to TWB – 5000 to TWB – 6900. The Birr Cycle Hub Loop passes through the Construction Working Width at TWB – 9300.	Medium – Low
TWB – 10000 to TWB – 15000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. Ormond Way, a National Waymarked (walking) Trail traverses the Pipeline Corridor along a local road at Chainage TWB – 11800.	Medium – Low
TWB – 15000 to TWB – 20000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. A portion of raised bog (exploited) designated as Moderate Sensitivity Area (Offaly) is located in this section adjacent to TWB – 15000 to TWB – 15800. Influenced by R421 transport corridor which is a designated Carrying Capacity & Key Amenity Route 'R421 Tullamore to Kinnitty'. Mixed broadleaved/conifer woodland/Wet pedunculate oak–ash woodland are located adjacent to Chainage TWB – 15400 to TWB – 16100. Wet pedunculate oak–ash woodland and (Mixed) broadleaved woodland adjacent to TWB – 19100 to TWB – 19600.	Medium – Low (Chainage TWB – 15000 to TWB – 18100) Medium (Chainage TWB – 18100 to TWB – 20000)
TWB – 20000 to TWB – 25000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. A portion of raised bog (exploited) designated as Moderate Sensitivity Area (Offaly) and portions of eskers of High Sensitivity Area (Offaly) are located in this section. Includes (Mixed) broadleaved woodland and Bog woodland.	Medium
TWB – 25000 to TWB – 28100	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland. A portion of raised bog (exploited) designated as Moderate Sensitivity Area (Offaly) adjacent to TWB – 25000 to TWB – 27300.	Medium – Low
TWC – 0 to TWC – 5000	Rural and Agricultural Area (Offaly)	Low Sensitivity Area	Typical lowland agricultural farmland influenced by the N80 road corridor.	Medium – Low

Chainage (m)	CDP Landscape Character Areas (LCAs)	CDP Sensitivity	Comments	Sensitivity
TWC – 5000 to TWC – 10000	Rural and Agricultural Area (Offaly) The Esker Landscape (Offaly)	Low Sensitivity Area (Chainage TWC – 5000 to TWC – 8900) High Sensitivity Area (Chainage TWC – 8900 to TWC – 9000)	Typical lowland agricultural farmland influenced by the R420 road corridor. A portion of raised bog (exploited) designated as Moderate Sensitivity Area (Offaly) adjacent to TWC – 7100 to TWC – 7700 and TWC – 8800 to TWC – 8900. Pipeline passes through an esker designated as High Sensitivity Area and an Area of High Amenity (Offaly) adjacent to TWC – 8900 to TWC – 9000.	Medium – Low (Chainage TWC – 5000 to TWC – 8900) Medium (Chainage TWC – 8900 to TWC – 9000)
TWC – 10000 to TWC – 15000	Rural and Agricultural Area (Offaly) Cutaway Bog (Offaly)	Low Sensitivity Area (TWC – 10000 to TWC – 11900) Moderate Sensitivity Area (TWC – 11900 to TWC – 15000)	Mixture of typical lowland agricultural farmland (TWC – 10000 to TWC – 11900) and raised bog (exploited) (TWC – 11900 to TWC – 15000).	Medium – Low
TWC – 15000 to TWC – 20000	Cutaway Bog (Offaly) Rural and Agricultural Area (Offaly) The Esker Landscape (Offaly)	Moderate Sensitivity Area (TWC – 15000 to TWC – 17100) Low Sensitivity Area (TWC – 17100 to TWC – 19100) High Sensitivity Area (TWC – 19100 to TWC – 19300) Low Sensitivity Area (TWC – 19300 to TWC – 20000)	Mixture of typical lowland agricultural farmland and raised bog (exploited) influenced by the R402 and R400 road corridors. Mount Lucas walking trail traverses the pipeline at TWC – 17600 and routes within the raised bog that contains a windfarm. The Planning Application Boundary includes portions of the historic demesnes of Mount Lucas House Demesne (c. TWC – 18700) and Springfield House Demesne (c. TWC – 19700). A Bord na Móna depot is located adjacent to the Construction Working Width (TWC – 18000 to TWC – 18600). There is a balance between lower and greater sensitivity in this area.	Medium – Low
TWC – 20000 to TWC – 24800	Cutaway Bog (Offaly) Rural and Agricultural Area (Offaly) The Esker Landscape (Offaly)	Moderate Sensitivity Area Low Sensitivity Area High Sensitivity Area	Mixture of typical lowland agricultural farmland, raised bog (exploited) and eskers, influenced by the R402 road corridor. There is a balance between lower and greater sensitivity in this area.	Medium – Low
TWD – 0 to TWD – 5000	Cutaway Bog (Offaly) Rural and Agricultural Area (Offaly)	Moderate Sensitivity Area Low Sensitivity Area	Mixture of typical lowland agricultural farmland and raised bog (exploited) influenced by the R401 road corridor.	Medium – Low
TWD – 5000 to TWD – 10000	Cutaway Bog (Offaly) Rural and Agricultural Area (Offaly)	Moderate Sensitivity Area Low Sensitivity Area	Mixture of typical lowland agricultural farmland and raised bog (exploited).	Medium – Low
TWD – 10000 to TWD – 15000	Western Boglands (Kildare)	High Sensitivity	Predominantly raised bog (exploited).	Medium – Low
TWD – 15000 to TWD – 20000	Western Boglands (Kildare)	High Sensitivity	Typical lowland agricultural farmland. Grand Canal Way passes through this landscape and traverses the Planning Application Boundary at TWD – 15100. Influenced by R403 road corridor. Bog woodland and oak-ash-hazel woodland TWD – 18600 to TWD – 19700.	Medium – Low
TWD – 20000 to TWD – 25000	Western Boglands (Kildare)	High Sensitivity	Mixture of typical lowland agricultural farmland and raised bog (exploited). A portion of bog woodland located at c. TWD – 20900.	Medium – Low

Chainage (m)	CDP Landscape Character Areas (LCAs)	CDP Sensitivity	Comments	Sensitivity
TWD – 25000 to TWD – 30000	Western Boglands (Kildare) Northern Lowlands (Kildare)	High Sensitivity (TWD – 25000 to TWD – 29400) Low Sensitivity (TWD – 29400 to TWD – 30000)	Mixture of typical lowland agricultural farmland and raised bog (exploited). The Planning Application Boundary includes a portion of the historic demesne called Newpark c. TWD – 29500.	Medium – Low
TWD – 30000 to TWD – 34000	Northern Lowlands (Kildare)	Low Sensitivity	Typical lowland agricultural farmland.	Medium – Low
TWE – 0 to TWE – 5000	Northern Lowlands (Kildare)	Low Sensitivity	Typical lowland agricultural farmland. Influenced by R407 and R408 road corridors.	Medium – Low
TWE – 5000 to TWE – 10000	Northern Lowlands (Kildare) River Liffey (Kildare)	Low Sensitivity (TWE – 5000 to TWE – 9000) Special Sensitivity (TWE – 9000 to TWE – 10000)	Predominantly typical lowland agricultural farmland. Influenced by R406 and R403 road corridors and the broad River Liffey Valley. The Construction Working Width traverses the designated scenic route no. 34 along the R403 'Views to Lyons Hill, Liffey Valley and Oughterard' at TWE – 8400.	Medium – Low (TWE – 5000 to TWE – 9000) Medium (TWE – 9000 to TWE – 10000)
TWE – 10000 to TWE – 15000	River Liffey (Kildare) (TWE – 10000 to TWE – 11600) Northern Lowlands (Kildare) (TWE – 11600 to TWE – 13900) LCA 2: Newcastle Lowlands (Dublin) (TWE – 13900 to TWE – 15000)	Special Sensitivity (TWE – 10000 to TWE – 11600) Low Sensitivity (TWE – 11600 to TWE – 13900) Medium Sensitivity (TWE – 13900 to TWE – 15000)	Predominantly typical lowland agricultural farmland including the broad River Liffey Valley and influenced by the national railway line, the Grand Canal and the Grand Canal Way National Waymarked Way. Aylmer Bridge spans the canal and is a designated scenic view. Lyons Estate demesne. There is a balance between lower and greater sensitivity in this area.	Medium
TWE – 15000 to TWE – 17500	LCA 2: Newcastle Lowlands (Dublin)	Medium Sensitivity	Lowland agricultural farmland influenced by the R405 and R120 road corridors with intermittent pockets of industrial landscapes, influenced by the Grand Canal and the Peamount Hospital. There is some scenic value associated the Grand Canal.	Medium – Low

171. As can be seen from Table 16.16, landscape sensitivity is almost entirely contained within the range of medium to medium – low. The only exception is the initial 1.9km from the RWI&PS heading east, which runs through the ‘River Shannon – Newport’ LCA, which is designated as having ‘Transitional Vulnerability’ in the Tipperary CDP. There is considerable naturalistic landscape and scenic value in the area immediately north-east of the Parteen Basin, which is heavily wooded and forms part of the former Fort Henry demesne landscape in the townland of Garrynatineel.
172. The majority of the Proposed Project runs through typical lowland farmland, peat bogs and the transitional scrubby landscape that lies between them. This reflects that the final proposed alignment of the Pipeline Corridor was chosen following numerous iterations to avoid sensitive landscape features and areas in conjunction with other environmental constraints identified during the site selection process. In the case of the cultural heritage constraints, there was generally consensus with landscape constraints, particularly in relation to avoiding historic/designed landscapes. The main point of difference in determining whether a landscape was of medium or medium – low sensitivity related to the integrity and uniformity of the rural setting and whether this is likely to be valued for its tranquil and traditional ‘pastoral’ qualities, or influenced by considerable man-made infrastructure and/or diverse and disparate land uses.

16.4.3.2 Magnitude of Construction Phase Landscape Impacts

16.4.3.2.1 Magnitude of Construction Phase Impacts – 38 kV Uprate Works

Over-Ground Infrastructure

173. Many of the existing OHL support poles would be retained and reused for the 38 kV Uprate Works. However, components would need to be removed and replaced on most of them. New overhead conductors would also need to be hung along the entire length of the over-ground portions of the 38 kV Uprate Works. These works would involve an increase in construction-related activity in the study area; however, although the works would involve the use of some specialist plant equipment, they would not be invasive in any meaningful way in terms of effects on the landscape. Access would largely be via established maintenance access routes and works activities would not be dissimilar in nature to ongoing regular maintenance regimes of the existing OHL infrastructure.
174. Some existing polesets would need to be removed entirely and replaced, on a like-for-like basis. There are also a small number of instances where towers/polesets would need to be repositioned slightly, i.e. new infrastructure erected in new locations in close proximity to that which is to be removed. Additionally, a small number of polesets would be replaced with larger or more modern towers that would have a slightly larger footprint and would require the construction of appropriate foundations. Furthermore, there are several instances where previously undisturbed ground along the route of the existing OHLs would be broken for the installation of new interpoles which are required to support the weight of the new conductors. These situations would result in a slightly higher degree of construction activity in their respective locations than where components are being upgraded, but these would be temporary in duration and would have a negligible impact.

Underground Infrastructure

175. In the western portion of the study area, 10 existing polesets would be retired and removed to the west of the R494 Regional Road in the townlands of Gortybrigane and Lackenavea (Egremont). The open-cut trenching would be within the easement of the existing OHL and would accommodate the proposed twin 38 kV underground cable which is to replace these OHLs. Open-cut trenching work would involve the movement of machinery and relatively shallow excavation. Underground joint bays would be required typically every 600m to 800m where separate cable lengths are joined together. Joint bays for 38 kV cables are typically 4.5m x 2.0m and 1m in depth and would be completely reinstated/backfilled during reinstatement works.

176. Open-cut trenching and joint bay construction works would involve localised vegetation removal but, where practicable, felling of healthy mature trees would be avoided. Opportunities to retain trees would be explored at detailed design. Removal of vegetation may open up views that were previously screened. While in some instances removed vegetation would be replanted, there may be occasions where this is not practical resulting in a permanent but highly localised scenario and therefore, in accordance with worst case scenario approach, it was assumed that all vegetation along the route of the underground cable would be removed. Works would be temporary in duration and would have a low – negligible impact.

Birdhill 38 kV Substation

177. The 38 kV Uprate Works includes the construction of a new 38 kV Gas Insulated Switchgear (GIS) Modular Building in an area of scrubland within the existing chain-link fence immediately north of the existing hardcore road at the site of the existing Birdhill Substation. The existing substation boundary palisade fencing would be extended to encompass the proposed 38 kV GIS Modular Building. Construction work would involve the following: site clearance works including removal of a section of existing fencing and existing poles; one approximately 28m² and approximately 4.8m high, 38 kV GIS Modular Building; provision of new electrical plant and equipment, including new poles and three new 4m high lighting standards; site development works, including provision of internal access roads and new internal 2.6m-high palisade fencing to increase the footprint of the electrical compound; and provision of all required site services (including drainage).

178. Physical landscape impacts would occur during the Construction Phase at the Birdhill 38 kV Substation. This would result from a small disturbance to the land cover for the proposed 38 kV GIS Modular Building footprint. Works would begin with the erection of site perimeter fencing (temporary construction fencing) and the stripping of topsoil. In addition to the permanent, physical disturbance within the fenced-off area during construction, there would also be temporary effects on the landscape character of the application site and its immediate surrounding landscape. This would occur due to the construction activities, which would involve the frequent movement of heavy vehicles to and from the site and within the site. There is potential for Construction Phase works to temporarily impact on landscape character. This would result from the movement of heavy machinery as well as the temporary storage of construction materials. Such effects are likely to be most noticeable in the immediate vicinity (<200m) of the proposed substation. These are all typical Construction Phase activities for a facility of this scale, but they represent an increase of activity experienced along the two adjacent regional roads and immediately around this site, compared to baseline levels. Works would be temporary in duration and would have a low – negligible impact.

38 kV Uprate Works Impact Summary

179. Terrestrial habitats and key ecological receptors (including treelines, hedgerows, woodland and other vegetation) relevant to the 38 kV Uprate Works are highlighted in Chapter 8 (Biodiversity). The area of permanent loss of vegetation as a result of the 38 kV Uprate Works is deemed to be minimal in terms of the Construction Phase landscape impact assessment. Construction Phase activities represent only a small increase to the baseline levels of activity experienced in the study area, so these would not result in any meaningful impact on landscape character. Construction works are more likely to be noticeable in the immediate vicinity (<200m) of the open-cut trenching works for the proposed underground cable section in the eastern portion of the study area and may also be noticed by drivers traveling on the R494. The remaining construction work would take place on privately owned farmland away from roads and other public areas. Importantly, Construction Phase impacts would be temporary in terms of duration (less than or equal to one year duration).

180. On the basis of the factors discussed in this section, it is considered that the magnitude of Construction Phase landscape impacts would generally be negligible, while for the open-cut trenching work it would be slightly higher. Consequently, the overall magnitude of impact from the 38 kV Uprate Works during the Construction Phase is deemed to be low – negligible.

16.4.3.2.2 *Magnitude of Construction Phase Impacts – RWI&PS*

181. The Construction Phase impacts for the RWI&PS would involve both terrestrial and aquatic activities with those most noticeable, in landscape impact terms, being confined to the eastern shore of the Parteen Basin within the southern end of a mixed species riparian woodland. Physical effects would include removal of:

- Area of conifer plantation at RWI&PS site = 1.74 hectares
- Area of mixed broad leaf/conifer woodland at RWI&PS site = 0.56 hectares
- Treelines at the RWI&PS site = 217m.

182. There would also be land disturbance in the form of excavation and storage of topsoil and subsoil to facilitate the construction of the main Pumping Station building (fronting the shoreline) and the proposed substation, car park, new access road and the two Microfiltration Buildings that lie further back from the shoreline. Excavation and consequential site re-contouring would also account for the substantial underground pipe network passing through the RWI&PS site. There would also be temporary construction/excavated material storage within the site as well as a temporary Construction Compound. In addition to vegetation clearance and land disturbance, there would be near-constant movement of earth-moving machinery, Heavy Goods Vehicles (HGVs) and construction workers during daylight hours (07:00 and 19:00 from Monday to Friday and 08:00 and 16:30 on Saturdays) for the RWI&PS construction works. The RWI&PS would be enclosed by a 2.4m-high paladin site security fence, which would be further enclosed by 1.2m high stockproof exterior site boundary fence.

183. In terms of landscape character, the Construction Phase works would have a noticeable effect on the tranquillity of the Parteen Basin and would represent the introduction of a higher intensity of built development within this lakeside context. Although the Parteen Basin is essentially a man-made feature, it generally presents as a naturalistic water body, with the main exception being the extensive engineered embankment immediately to the south of the proposed RWI&PS site. Thus, there is some correlation between these infrastructural elements, albeit they serve separate purposes.

184. The construction working period is anticipated to be five years, representing a 'short-term' effect (between one to seven years). Portions of the RWI&PS site would be reinstated with, and managed as, grassland once construction working areas are no longer required around the permanent buildings and hardstand areas.

185. Although Construction Phase effects for the RWI&PS would be intensive and substantive, this is balanced by the 'short-term' duration and the fact that parts of the site would be reinstated. On balance, the magnitude of Construction Phase landscape impact is deemed to be high – medium, but 'short term'.

16.4.3.2.3 *Magnitude of Construction Phase Impacts – WTP*

186. The proposed WTP is a large-scale industrial development and the Construction Phase impacts would reflect this in terms of extent and scale as well as the required intensity of site activity. There would be extensive land-cover clearance, with physical effects including removal of:

- Hedgerows at the WTP site = 2,663m
- Treelines at the WTP site = 1,166m
- Wet grassland at the WTP site – 24.1 hectares.

187. During the Construction Phase, there would be near-continuous movement during daylight hours of excavation machinery, tower cranes and construction workers. HGVs would be moving within the site as well as travelling to and from the site via an entrance road connecting from the south-eastern corner of the site to the R445 Regional Road. There would be general stockpiling of excavated earth material and

building materials. In this instance, there would also be welfare facilities and site management offices provided on-site for the duration of construction activities. The WTP would be enclosed by a 2.4m-high palisade site security fence. The majority of the construction activity is likely to be undertaken within approximately 36 months, but, including all landscape planting and other ancillary works, it would take five years in total, representing a 'short-term' effect (as it is between one to seven years).

188. As the site is contained within the heart of a tranquil and sparsely populated area, the intensity and scale of construction activity would be a distinct departure from baseline levels of activity in a locality where there is currently a low degree of built development. The existing ground level within the site (in relation to Ordnance Datum (OD)) ranges between 40.0mOD and 58.0mOD. The site would be reprofiled and would receive infill material producing proposed ground levels that range between 45.0mOD and 55.5mOD. The maximum height of the buildings/structures within the WTP would not exceed 64.4mOD (Water Treatment Module Buildings, which would be 15.6m above finished ground level). However, the fact that the site is substantially enclosed within this sparsely populated agricultural basin means that, although the physical effects on the prevailing landscape fabric would be substantial, the perceived effects on the rural landscape character would be largely contained to the site and its immediate environs.
189. For the reasons outlined in this section, the magnitude of Construction Phase landscape impact is considered to be high, albeit this level of impact is likely to be contained within the central WTP study area (<1km from the site boundary). Thereafter, 1km to 10km from site boundary, the Construction Phase impact on landscape character is likely to range from medium to negligible with increasing distance.

16.4.3.2.4 Magnitude of Construction Phase Impacts – BPT

190. The proposed BPT is a relatively modest scale infrastructure site in the context of the Proposed Project and many of the components would be buried below ground. However, this would still result in a considerable degree of excavation and recontouring of the site, which sits in the saddle of Knockanacree Hill. Approximately 6m in total of hedgerow would be removed. The main BPT Control Building would be approximately 20m x 40m x 7.5m high and its construction would require the use of a tower crane amongst the general array of site excavators and HGVs delivering building materials to the site. The BPT would be enclosed by a 2.4-high palisade site security fence.
191. During the Construction Phase of the BPT, which is expected to take less than five years to complete, the level of construction-related activity on the site as well as on the proposed access road to it would be considerably greater than baseline levels in this relatively quiet rural setting, which currently has a low-level intensity of built development (notwithstanding the communications antenna adjacent to the site). There may be temporary views of construction activity as well as the emerging Control Building from Knockanacree Woods, and the access road from the L1064 local road to the north-west of the BPT; however, given the plateau nature of this site, much of the ground-based construction activity and stockpiling is likely to be screened by the brow of the hill and surrounding forestry. This means the physical effects on the landscape fabric would be greater than the perceived impacts on rural landscape character despite the seemingly prominent hilltop location.
192. Following the completion of the Construction Phase, the main permanent above-ground structures would be the BPT Control Building, the tops of tanks, the access road and vehicle-turning areas. The attenuation pond would involve new localised excavation. Much of the pipework infrastructure would be buried and grassland can be restored to those parts of the site not required for the Operational Phase.
193. Given the modest scale of the construction works required to install the BPT, the magnitude of Construction Phase landscape impacts is deemed to be medium within the immediate vicinity of the site. The duration would be temporary. Beyond approximately 1km of the site, the magnitude of impact is likely to range from low to negligible with increasing distance out to the 5km extent of the BPT study area.

16.4.3.2.5 Magnitude of Construction Phase Impacts – BPS

194. The BPS would be constructed within relatively low-lying arable fields adjacent to the L3003 local road. Some of the roadside hedgerows would be removed to facilitate access into the site, but the riparian vegetation adjoining the watercourse along the eastern perimeter would be retained; however, the internal hedgerow that traverses the site would be completely removed (approximately 319m in total of hedgerow would be removed). The landform would be altered to form a level platform as a foundation for the proposed structures within the BPS site, which include: a 60m x 36m BPS Building, a 9.3m x 14.8m 38 kV electricity substation, two transformers, internal access tracks, a surge vessel plinth and an attenuation pond. The BPS would be enclosed by a 2.4m-high palisade site security fence, which in turn would be surrounded by a 1.2m high stock proof site boundary fence. Within the site there would be stockpiles of construction materials and construction activity including the regular movement of workers, cranes and other various machinery. The Construction Phase of the BPS is expected to take less than five years to complete. Apart from distant elevated locations, visibility of the construction activity at the BPS would be limited to the immediate low-lying valley context within 1km of the site boundary. Therefore, perceived impacts on rural landscape would be largely limited to this area. The magnitude of Construction Phase landscape impacts for the BPS is deemed to be medium.

16.4.3.2.6 Magnitude of Construction Phase Impacts – FCV

195. Access to the FCV site is through an existing gateway, however, in order to facilitate sight lines there will be considerable removal of mature treelines on both side of the gate totalling 330m. Only the pasture within the site will be cleared to facilitate the FCV facility. This comprises of small scale structures, the main component of which, the FCV itself, will be substantially buried below ground. There will be a modest degree of excavation required to construct it. The Construction Phase works will involve the movement of heavy machinery within the site and travelling to and from it as well as workers and the temporary stockpiling of excavated material and construction materials. These contribute to both physical effects on the greenfield site of the FCV and the rural landscape character in the immediate surrounds. Such effects will be temporary in duration and of a High-medium magnitude in the localised context.

16.4.3.2.7 Magnitude of Construction Phase Impacts – TPR

196. The TPR is a moderate scale facility that would be located within a dynamic peri-urban setting where large-scale construction work is a familiar occurrence, particularly within the surrounding industrial and business park sites to the east and south. The site itself is currently in agricultural production and there would be considerable land disturbance and excavation required to facilitate the TPR storage cells, associated pipework and ancillary development. Approximately 985m in total of hedgerow would be removed.

197. During construction, which is expected to take less than five years to complete, there would be regular movement of workers and machinery. There would be tower cranes and stockpiles of stripped earth and construction materials. The intensity of construction activity, as outlined in Chapter 5 (Construction & Commissioning), would be much greater than for the immediate baseline setting of agricultural productivity and Peamount Hospital, but it would be temporary/short-term in duration. Peripheral working areas would revert to managed grassland and hedgerow planting once they are no longer required for construction activities, but the majority of the site would remain as built development. The TPR would be enclosed by a 2.4m-high palisade site security fence.

198. Overall, the magnitude of Construction Phase landscape impacts for the TPR is deemed to be high-medium.

16.4.3.2.8 Magnitude of Construction Phase Impacts – Pipeline Corridor

199. Given that the pipeline would be buried underground and the landscape above would be almost entirely reinstated with very minor above-ground surface expression of the corridor, the vast majority of landscape and visual effects in respect of this element of the Proposed Project relates to the Construction Phase.
200. The Construction Phase for the Pipeline Corridor would consist of a generally 50m-wide Construction Working Width, which would be demarked by temporary fencing in advance of the construction crews' arrival (see typical cross section of the temporary Construction Working Width shown in Image 5.4 in Chapter 5: Construction & Commissioning). Topsoil and subsoil would be stripped and stockpiled separately for later reinstatement above the pipeline. Hedgerows and vegetation would be removed within the Construction Working Width. Pipeline sections and construction materials would be transported to the Construction Working Width by HGVs via the Haul Roads to access/egress points, then along the Construction Working Width via Temporary Construction Roads. Construction Compounds and Pipe Storage Depots would operate in the short term and are required to facilitate the construction of the Pipeline Corridor.
201. There would be an underground electrical cable laid in a trench dug into the pavement of the roads linking the Birdhill Substation to the RWI&PS and WTP. In addition to physical landscape disturbance, the constant movement of construction machinery, HGVs and workers' transportation would contribute to an intensity of activity that is generally unfamiliar in the rural landscape which the Proposed Project passes through. Together, these impacts would detract from the more tranquil rural landscape character that generally occurs along the Pipeline Corridor study area. While the impacts described previously in this section would be common to all sections of the Pipeline Corridor during the Construction Phase, specific impacts relating to disturbance of vegetation structures (hedgerows, treelines and woodlands) as well as watercourse crossings (linear water features), water body crossings (areas of water) and Heritage Landscape settings are identified in Table 16.17. There would be near full reinstatement of land cover and vegetation. These specific impacts have been considered in combination with the more generalised impacts already described when assessing the magnitude of landscape impacts from the Proposed Project works during the Construction Phase. The durations of these impacts are also considered.

Table 16.17: Landscape Magnitude of Impacts – Pipeline Corridor⁹

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																	Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact		
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves				Construction Compound (CC)	Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
Raw Water Rising Mains (RWRMs)																						
RW – 0 to RW – 2000	72	30218	5931	-	43015	-	-	-	-	3	4	-	2	3	2	-	4	CC0 CC1	-	Construction of RWI&PS access road off the R494 (Ballina Rd.). Localised temporary road excavation works along the route of the underground electrical connection to the substation at Birdhill.	Temporary / short-term (generally less than two years) – Pipeline Corridor and underground electrical connection. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	High-medium
Treated Water Pipeline from the WTP to the BPT																						
TW – 0 to TW – 5000	5155	8401	2761	-	4565	-	-	-	2	12	16	3	5	-	9	11	-	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	High-medium

⁹PSD: Pipe Storage Depot

CC: Construction Compound

WCX: Watercourse Crossing – watercourse with Environmental Protection Agency segment code

WBX: Watercourse Crossing – smaller watercourse or stream

WBP: Watercourse Crossing – ditch which has been noted as having some water during field survey

WCW: Watercourse Washout Location – Permanent outfall locations

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TW – 5000 to TW – 10000	1717	-	-	-	619	-	-	-	3	-	9	1	5	-	2	7	9	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TW – 10000 to TW – 15000	1614	-	-	-	3963	-	Yes	5	2	27	3	7	-	1	8	8	-	PSD1	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium	
TW – 15000 to TW – 20000	1479	99	-	-	-	-	-	-	4	3	14	3	4	-	1	8	11	-	-	Pipeline impacts historic demesne at Tullamore House (c. TW – 15300).	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TW – 20000 to TW – 25000	1532	40	-	-	-	-	-	-	1	1	2	-	4	-	3	4	8	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TW – 25000 to TW – 30000	1005	-	-	-	-	-	-	-	1	-	-	1	4	-	1	4	9	CC2	-	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TW – 30000 to TW – 35000	1571	-	-	-	-	-	1560	Yes	3	2	4	2	5	-	1	7	7	-	-	Pipeline impacts historic demesne at Money House Demesne (c. TW – 33500).	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TW – 35000 to TW – 37000	1659	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3	CC3	-	BPT access road off a local road in Knockanacree. BPT power connection.	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
Treated Water Pipeline from the BPT to the TPR																						
TWA – 0 to TWA – 5000	2369	1082	-	-	-	-	-	Yes	2	1	1	1	4	-	3	7	8	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWA – 5000 to TWA – 10000	2067	29	-	-	-	-	-	Yes	3	3	3	3	4	-	-	4	9	-	PSD2	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWA – 10000 to TWA – 15000	2273	-	-	-	-	-	-	Yes	1	3	1	1	4	-	2	6	11	-	PSD3	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWA – 15000 to TWA – 20000	1546	12182	-	-	-	-	-	Yes	1	2	7	-	4	-	2	6	9	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWA – 20000 to TWA – 25000	1601	-	-	-	-	-	-	Yes	2	4	11	1	5	-	1	6	7	-	PSD4	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWA – 25000 to TWA – 28000	339	3	-	-	-	-	-	Yes	3	3	11	1	2	-	1	5	7	-	-	BPS power connection.	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWB – 0 to TWB – 5000	1965	-	-	-	-	-	1478	Yes	3	7	2	-	6	-	1	5	7	CC4	-	BPS power connection.	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	High-medium
TWB – 5000 to TWB – 10000	1421	0	-	-	12017	-	-	Yes	2	3	22	-	5	-	2	7	10	-	PSD5	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWB – 10000 to TWB – 15000	1749	-	6448	-	-	-	-	Yes	2	3	11	2	3	-	1	6	8	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWB – 15000 to TWB – 20000	1771	0	23	-	-	-	-	Yes	-	4	9	-	5	-	2	7	11	CC5	-	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWB – 20000 to TWB – 25000	702	-	-	-	-	-	-	Yes	1	6	9	1	1	-	1	7	9	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWB – 25000 to TWB – 28500	669	-	-	-	-	-	-	Yes	-	-	3	-	1	-	1	3	5	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWC – 0 to TWC – 5000	1370	1199	1296	-	-	-	-	-	3	5	2	1	4	1	2	7	9	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWC – 5000 to TWC – 10000	1507	2178	-	-	50150	-	1595	Yes	3	2	9	-	5	-	2	8	9	-	PSD6	Removal of broadleaved vegetation within the Areas of High Amenity between TWC – 8900 and TWC – 9000.	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWC – 10000 to TWC – 15000	416	869	-	-	-	-	-	Yes	-	6	14	-	3	-	3	10	11	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWC – 15000 to TWC – 20000	876	12042	-	-	-	-	-	Yes	3	3	13	1	3	-	1	6	9	-	-	Pipeline impacts historic demesne at Mount Lucas House Demesne (c. TWC – 18000) and Springfield House Demesne (c. TWC – 19400).	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWC – 20000 to TWC – 25000	498	3986	-	-	11402	-	-	Yes	6	6	21	1	1	-	2	11	12	-	PSD8	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																				Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact
Chainage (m)	Removal of Hedgerows Approx. Length in m	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)	Pipe Storage Depot (PSD)			
		(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)	Immature Woodland (WS2)			WCX	WBX	WBP	WCW										
TWD – 0 to TWD – 5000	52	-	9826	1791	21400	2188	-	Yes	2	6	13	1	2	-	1	9	11	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWD – 5000 to TWD – 10000	-	-	-	-	3310	5183	-	Yes	4	1	16	1	1	-	1	12	13	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWD – 10000 to TWD – 15000	37	-	-	-	630	10760	-	Yes	1	2	3	3	-	-	1	5	6	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWD – 15000 to TWD – 20000	371	-	1905	-	1412	8202	-	Yes	1	2	13	1	2	-	2	9	11	CC6	-	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWD – 20000 to TWD – 25000	132	5888	-	-	-	-	-	Yes	1	1	12	-	3	-	2	11	13	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWD – 25000 to TWD – 30000	610	3074	11784	-	11075	-	-	Yes	4	2	13	3	6	-	1	6	10	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWD – 30000 to TWD – 34000	766	-	-	-	5340	-	-	-	1	2	14	1	2	-	-	4	6	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWE – 0 to TWE – 5000	1331	-	989	-	-	-	-	-	4	1	13	2	4	-	1	6	6	-	PSD9	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWE – 5000 to TWE – 10000	1090	-	-	-	-	-	46	-	4	2	15	1	5	-	2	8	10	-	PSD10	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Pipe Storage. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

Chainage (m)	Nature and Extent of Landscape Effects (in addition to general effects described in Section 16.4.3.2.8)																		Additional Notes	Duration and Nature of Landscape Effects	Magnitude of Landscape Impact	
	Removal of Hedgerows	m ² of Forestry					m ² of Habitats to be Retained	Peatland (yes / no)	Watercourse Crossings		Permanent Washout Locations		Number of Road Crossings	Number of Rail Crossings	Number of Line Valves	Number of Washout Valves	Number of Air Valves	Construction Compound (CC)				Pipe Storage Depot (PSD)
		Approx. Length in m	(Mixed) Broadleaved Woodland (WD1)	Mixed Broadleaved/ Conifer Woodland (WD2)	(Mixed) Conifer Woodland (WD3)	Conifer Plantation (WD4)			Immature Woodland (WS2)	WCX	WBX	WBP										
TWE – 10000 to TWE – 15000	716	2792	1238	-	-	-	1601	-	2	2	15	1	3	1	2	7	10	-	-	-	Temporary / short-term (generally less than two years). Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium
TWE – 15000 to TWE – 17500	1266	-	-	-	-	-	-	-	-	-	8	-	3	-	-	1	4	CC7	-	-	Temporary / short-term (generally less than two years) – Pipeline Corridor. Short-term – Construction Compounds. Permanent loss of mature trees within hedgerows and treelines within the 20m wide Permanent Wayleave.	Medium

202. As can be seen from Table 16.17, the nature of the Construction Phase impacts is relatively consistent along the Pipeline Corridor in that a 50m-wide Construction Working Width would be used throughout with regularly spaced Construction Compounds and Pipe Storage Depots located within and adjacent to this corridor. The trenching works would be standard except where micro-tunnelling is required beneath major watercourses and transport routes. In such cases, land disturbance effects would be reduced for the section in question, albeit the duration of construction at either end of the tunnelled section would be slightly prolonged compared to the progress of trenching.
203. Notwithstanding the general uniformity in the nature of Construction Phase activity (as described in Chapter 5: Construction & Commissioning) and land disturbance, the predominant medium magnitude of Construction Phase impacts in this instance reflects a balance between the intensity/scale of such activities and the duration of the same. In this respect, it is acknowledged that within the Construction Working Width there would be a high intensity of construction activity involving the movement of heavy vehicles, excavation machinery and workers. There would be temporary storage of excavated material in the form of bare-earth berms, and the temporary storage of construction materials and pipe materials immediately prior to placement. The full width of the Construction Working Width would be utilised for such activities and material storage as well as to provide temporary access tracks for HGVs. It should be noted that workers' vehicles and welfare facilities would generally be located at Construction Compounds and Pipe Storage Depots.
204. There are eight proposed Construction Compounds across the Proposed Project (CC0 – CC7). Four (CC1, CC2, CC5 and CC6) are 'principal' Construction Compounds along the Pipeline Corridor and including the WTP. The other four are 'satellite' Construction Compounds at the RWI&PS (CC0), the BPT (CC3), the BPS (CC4) and the TPR (CC7). The principal compound at the WTP would be approximately 30ha in size. Aside from the Construction Compounds at the Infrastructure Sites, the principal Construction Compounds would be in the order of 12-16ha in area. The four Satellite Construction Compounds at the other permanent Infrastructure Sites (excluding the FCV) would require land during construction ranging between approximately 3ha and 12ha. A typical Construction Compound would consist of offices and welfare facilities, access and internal roads, storage areas/tanks and bunded refuelling areas. Construction Phase works would also include the establishment of nine Pipe Storage Depots which would support the larger Construction Compounds. Chapter 5 (Construction & Commissioning) gives more details on the Construction Compounds, Pipe Storage Depots and includes indicative layouts for them.
205. To facilitate the underground electrical connection to the electrical substation at Birdhill, localised temporary road excavation works would occur along the R494 Regional Road from RW – 710 to the roundabout at the intersection with the R445 Regional Road, and from this intersection along the R445 Regional Road to the intersection with the WTP access road. These works would be temporary in nature and the road surface would be restored (these works were examined as part of the assessment of the Construction Phase impact magnitude for the Pipeline Corridor at section RW – 0 to RW – 2000). There would be a power connection required for the BPS and the BPT. For the BPS this would be predominantly underground and for the BPT this would be predominantly in the form of an OHL. Excavation works would be required for the FCV, and once completed, the top of the subterranean structure would be similar to the original topographical height. The physical footprint of the power connections and the FCV would be minimal and construction activity related to these would be very localised.
206. In terms of duration of construction activities, it is anticipated that construction crews would work concurrently on separate sections (four separate contracts) of the Proposed Project, eventually connecting the sections together. Work would predominantly take place outside of winter months (December to February) in order to avoid waterlogged soils and restricted daylight working hours. Thus, Construction Phase impacts would be temporary or short term and transient. Furthermore, reinstatement

works would take place shortly after the completion of each section of the Pipeline Corridor in the form of backfilling of excavated material, removal of temporary access tracks and re-sowing of grassland species.

207. The 20m wide Permanent Wayleave is land within the Construction Working Width where Uisce Éireann retain rights of access for maintenance of the pipeline, and where certain restrictions apply to development and tree planting. The 20m wide Permanent Wayleave is normally positioned centred on the pipeline. However, the former land-cover elements would be almost entirely reinstated above the Pipeline Corridor following construction and, thus, there is a high degree of reversibility of effects. Following construction, replanting would be carried out with low-growing native woody species of local provenance in accordance with Uisce Éireann Biodiversity Guidance.

16.4.3.3 Significance of Construction Phase Landscape Effects

208. Based on the significance matrix (Table 16.7), the significance of Construction Phase landscape effects (pre-mitigation) is provided in Table 16.18 (38 kV Uprate Works, RWI&PS, WTP, BPT, BPS, FCV and TPR) and Table 16.19 (RWRMs and Treated Water Pipeline). In the absence of mitigation measures, there is no potential for significant effects. Post-mitigation (residual) effects are detailed in Section 16.6.

Table 16.18: Landscape Effect Significance 38 kV Uprate Works, RWI&PS, WTP, BPT, BPS, FCV and TPR – Construction Phase

Infrastructure Site	Sensitivity	Magnitude of Landscape Impact	Pre-Mitigation Significance of Landscape Effect (derived from Table 16.7)	Quality of Landscape Effect
38 kV Uprate Works	Medium – Low	Low – Negligible	Slight – Imperceptible (Not significant)	Negative – Neutral
RWI&PS	High – Medium	High – Medium	Substantial – Moderate (Not significant)	Negative
WTP	Medium – Low	High	Moderate (Not significant)	Negative
BPT	Medium	Medium	Moderate (Not significant)	Negative
BPS	Medium	Medium	Moderate (Not significant)	Negative
FCV	Medium – Low	High-medium	Moderate (Not significant)	Negative
TPR	Medium	High-medium	Moderate (Not significant)	Negative

Table 16.19: Landscape Effect Significance RWRMs & Treated Water Pipeline – Construction Phase

Chainage (m)	Sensitivity (from Section 16.4.3.1: Landscape Sensitivity)	Magnitude of Landscape Impact	Pre-Mitigation Significance of Landscape Effect (derived from Table 16.7)	Quality of Landscape Effect
RW – 0 to RW – 2000	High – Medium	High-medium	Substantial-moderate (Not significant)	Negative
TW – 0 to TW – 5000	Medium – Low	High-medium	Moderate (Not significant)	Negative
TW – 5000 to TW – 10000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TW – 10000 to TW – 15000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TW – 15000 to TW – 20000	Medium – Low (Chainage TW – 15000 – Chainage TW – 15400 and Chainage TW – 15600 – Chainage TW – 20000) Medium (Chainage TW – 15400 – Chainage TW – 15600)	Medium	Moderate – Slight (Chainage TW – 15000 – Chainage TW – 15400 and Chainage TW – 15600 – Chainage TW – 20000) (Not significant) Moderate (Chainage TW – 15400 – Chainage TW – 15600) (Not significant)	Negative

Chainage (m)	Sensitivity (from Section 16.4.3.1: Landscape Sensitivity)	Magnitude of Landscape Impact	Pre-Mitigation Significance of Landscape Effect (derived from Table 16.7)	Quality of Landscape Effect
TW – 20000 to TW – 25000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TW – 25000 to TW – 30000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TW – 30000 to TW – 35000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TW – 35000 to TW – 36800	Medium	Medium	Moderate (Not significant)	Negative
TWA – 0 to TWA – 5000	Medium (Chainage TWA – 0 to Chainage TWA – 2500) Medium – Low (Chainage TWA – 2500 to Chainage TWA – 5000)	Medium	Moderate (Chainage TWA – 0 to Chainage TWA – 2500) (Not significant) Moderate – Slight (Chainage TWA – 2500 to Chainage TWA – 5000) (Not significant)	Negative
TWA – 5000 to TWA – 10000	Medium – Low (Chainage TWA – 5000 to Chainage TWA – 8300) Medium (Chainage TWA – 8300 to TWA – 10000)	Medium	Moderate – Slight (Chainage TWA – 5000 to Chainage TWA – 8300) (Not significant) Moderate (Chainage TWA – 8300 to TWA – 10000) (Not significant)	Negative
TWA – 10000 to TWA – 15000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWA – 15000 to TWA – 20000	Medium – Low (Chainage TWA – 15000 to TWA – 18400) Medium (Chainage TWA – 18400 to TWA – 20000)	Medium	Moderate – Slight (Chainage TWA – 15000 to TWA – 18400) (Not significant) Moderate (Chainage TWA – 18400 to TWA – 20000) (Not significant)	Negative
TWA – 20000 to TWA – 25000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWA – 25000 to TWA – 28000	Medium – Low (Chainage TWA – 25000 to TWA – 27200) Medium (Chainage TWA – 27200 to TWA – 28000)	Medium	Moderate – Slight (Chainage TWA – 25000 to TWA – 27200) (Not significant) Moderate (Chainage TWA – 27200 to TWA – 28000) (Not significant)	Negative
TWB – 0 to TWB – 5000	Medium – Low	High-medium	Moderate (Not significant)	Negative
TWB – 5000 to TWB – 10000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWB – 10000 to TWB – 15000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWB – 15000 to TWB – 20000	Medium – Low (Chainage TWB – 15000 to TWB – 18100) Medium (Chainage TWB – 18100 to TWB – 20000)	Medium	Moderate – Slight (Chainage TWB – 15000 to TWB – 18100) (Not significant) Moderate (Chainage TWB – 18100 to TWB – 20000) (Not significant)	Negative
TWB – 20000 to TWB – 25000	Medium	Medium	Moderate (Not significant)	Negative
TWB – 25000 to TWB – 28100	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWC – 0 to TWC – 5000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative

Chainage (m)	Sensitivity (from Section 16.4.3.1: Landscape Sensitivity)	Magnitude of Landscape Impact	Pre-Mitigation Significance of Landscape Effect (derived from Table 16.7)	Quality of Landscape Effect
TWC – 5000 to TWC – 10000	Medium – Low (Chainage TWC – 5000 to TWC – 8900) Medium (Chainage TWC – 8900 to TWC – 9000)	Medium	Moderate – Slight (Chainage TWC – 5000 to TWC – 8900) (Not significant) Moderate (Chainage TWC – 8900 to TWC – 9000) (Not significant)	Negative
TWC – 10000 to TWC – 15000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWC – 15000 to TWC – 20000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWC – 20000 to TWC – 24800	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 0 to TWD – 5000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 5000 to TWD – 10000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 10000 to TWD – 15000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 15000 to TWD – 20000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 20000 to TWD – 25000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 25000 to TWD – 30000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWD – 30000 to TWD – 34000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWE – 0 to TWE – 5000	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
TWE – 5000 to TWE – 10000	Medium – Low (TWE – 5000 to TWE – 9000) Medium (TWE – 9000 to TWE – 10000)	Medium	Moderate – Slight (TWE – 5000 to TWE – 9000) (Not significant) Moderate (TWE – 9000 to TWE – 10000) (Not significant)	Negative
TWE – 10000 to TWE – 15000	Medium	Medium	Moderate (Not significant)	Negative
TWE – 15000 to TWE – 17500	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative

16.4.4 Operational Phase Landscape Effects

16.4.4.1 Magnitude of Operational Phase Landscape Impacts – 38 kV Uprate Works

16.4.4.1.1 Over-Ground Infrastructure

209. The over-ground infrastructure would include installing new equipment on many existing polesets; replacing some existing polesets with new polesets of similar size and type; constructing new polesets/towers; and the hanging of new OHLs along the entire length of the route, none of which are likely to have any impact on the landscape during the Operational Phase. Where polesets/towers have been repositioned, they would only be moved a short distance from where existing ones are located and hence would remain within the same landscape context. No polesets or towers would be introduced into areas not already characterised by existing OHL infrastructure; therefore, there would be no noticeable impact on the landscape character.

210. The 38 kV Uprate Works would also involve the removal of existing polesets and their replacement with larger or more modern metal towers; this represents a small intensification of OHL equipment but only in the immediate surrounding landscape where OHL equipment is already a characteristic element in these areas. Foundations are required for these new towers which would produce a physical alteration to the land cover, but would be extremely localised and reversible and are highly unlikely to have any discernible impact on the landscape. The scale of the changes brought about by the 38 kV Uprate Works would be immaterial when considered in relation to the wider landscape.

16.4.4.1.2 Underground Infrastructure

211. The removal of six existing towers in the western portion of the study area and 12 existing poles/polesets at the eastern portion would have a beneficial impact on the landscape. Trenches and joint bays excavated during the Construction Phase will be predominantly within the road network, the surface of which will be immediately reinstated. Sections through open ground would be backfilled to restore the topography to its natural contour and would be seeded with a suitable grass seed mix and thus, would be indiscernible from the baseline condition. Some vegetation would need to be removed to facilitate the open-cut trenching and laying of cables but replacement planting would be provided where possible. However, within the 20m wide Permanent Wayleave, narrow gaps may remain in some hedgerows which traverse the route of the 38 kV twin circuit underground cable.

16.4.4.1.3 Birdhill 38 kV Substation

212. Following the completion of the Construction Phase for the upgraded Birdhill 38 kV Substation, the main landscape effects remaining to be considered at the Operational Phase relate to permanent changes in landscape character relating to the physical impact on the landscape, the introduction of above-ground elements and any permanent removal of vegetation. The physical impact of the 38 kV GIS Modular Building would be 28 square metres, with the auxiliary elements marginally increasing this figure. The main effect would be a marginal increased sense of industrialisation and intensity of built development within this setting but the receiving area is already characterised by the adjoining roundabout and associated vehicular movement. The existing substation is already a familiar feature in this area so there would not be a sense of ambiguity associated with this extension.

16.4.4.1.4 38 kV Uprate Works Impact Summary

213. Terrestrial habitats and key ecological receptors (including treelines, hedgerows, woodland and other vegetation) relevant to the 38 kV Uprate Works are highlighted in Chapter 8 (Biodiversity). The area of permanent loss of vegetation identified in Chapter 8 (Biodiversity) as a result of the 38 kV Uprate Works is deemed to be minimal in terms of the Operational Phase landscape impact assessment. Although there would be some minimal adverse effects as a consequence of setting the power lines underground, they would be limited to a small number of locations and would be barely perceptible. The impact of the proposed changes to the over-ground infrastructure would be hard to perceive and would occur in a landscape already characterised by OHL equipment. In addition, the removal of superseded OHL equipment would have a positive impact. The physical impact of the upgrades to the existing Birdhill 38 kV Substation are limited and would not alter landscape character. In terms of duration, the Operational Phase landscape impacts would be long-term (lasting fifteen years to sixty years) or permanent (lasting over sixty years). For these reasons, the overall magnitude of Operational Phase landscape impacts is deemed to be negligible.

16.4.4.2 Magnitude of Operational Phase Landscape Impacts – RWI&PS

214. During the Operational Phase, the RWI&PS buildings, structures and the associated car park and access road would remain as permanent above-ground features. Bare ground and material stockpiling associated with the Construction Phase would have been removed or reinstated, and reseeded. The physical landscape effects on the land cover of the site would remain permanent and not readily reversible.
215. In terms of landscape character, the RWI&PS would add to the intensity of built development in this waterside landscape context where there is currently a low degree of built development. Nonetheless, the facility would occupy a transitional position between the naturalistic riparian woodland and former Fort Henry demesne landscape at the north-eastern end of the Parteen Basin and the engineered embankment, plantation forestry and farmland that characterises the south-eastern end down to the Parteen Weir. Thus, it would not appear out of context and instead provides an abrupt pivot or transition piece between these settings. The design of the most prominent building (the Raw Water Pumping Station Building) at the water's edge is a timeless one, reminiscent of boathouses, which can be seen at waterside locations across Ireland. The massing of the Raw Water Pumping Station Building is broken up into three units via a tripartite roof design, accentuated by two recesses in the façade of the west elevation at shoreline which include folding shutter doors in each unit. It is a distinct structure, that incorporates considered and high-quality finishes of natural stone, glass and sinusoidal cladding. It would be unambiguous in terms of its function as an integral piece of water supply infrastructure. This is considered to be an appropriate design response for a permanent and important feature of one of Ireland's most ambitious water infrastructure projects in the last century. The landscape setting of the RWI&PS is one that was modified by the construction of the Parteen Weir and the Parteen Basin to serve the iconic Ardnacrusha Generating Station which exemplifies an engineering intervention that serves the nation. In this context, the RWI&PS can be interpreted as a linked companion national engineering project, serving as both a functional role and acting as a symbol of the entire Proposed Project. In this regard, the mere presence of the RWI&PS is not considered to unduly detract from this particular waterside setting.
216. The Landscape Character Assessment of Tipperary (Tipperary County Council 2022) mirrors the sentiment outlined in this section regarding the appropriateness and, in many ways, unavoidable presence of water-related infrastructure in this waterside environment. This is evident in the various land use/sensitivity matrices and, in particular, Table 2.1 of the Landscape Character Assessment of Tipperary, which identifies the drivers of change in County Tipperary and their likely landscape effects. This table identifies that 'Water Services'-related developments are likely to result in 'Low' landscape effects in the applicable 'Lakeland' landscape archetype. Though not as supportive, Table 6.2 of the Landscape Character Assessment identifies that 'industrial developments' have a 'Low' degree of compatibility in the applicable LCA 12: River Shannon – Newport; albeit this form of development falls under the general heading of 'urbanisation' with which water infrastructure is not necessarily synonymous. Similarly, in Table 6.3 of the same document relating to 'Landscape Sensitivity Factors', of which 'Major Rivers and Water Bodies' is one, the compatibility key identifies that industrial developments are '*compatible only in certain circumstances*'. For the reasons outlined in this section, the Proposed Project is considered to be one of those circumstances.
217. Due to the scale and nature of the RWI&PS aspect of the development, the magnitude of Operational Phase impact is deemed to be medium – low.

16.4.4.3 Magnitude of Operational Phase Landscape Impacts – WTP

218. Once operational, the proposed WTP would represent a major industrial facility that would be contained within an immediate landscape context (approximately 500m – 1000m radius) that is currently characterised by very low levels of built development and the low intensity rural land uses of pastoral farming and forestry. Thus, the change to the physical landscape fabric in its immediate environs would be a substantial one and there would be a noticeable increase in the intensity and scale of built

development within the area. Furthermore, there would be an increase in activity locally from the modest number of workers required to run the facility in comparison with current levels. The most readily noticeable element of the WPT would be the proposed access road gates at the R445 junction but this would be a highly localised change and in the wider context, beginning at the threshold represented by the encompassing local and regional road network, the permanent changes to the landscape fabric and in turn landscape character are less pronounced. This is based on two factors: the proportional diminishment in scale of the WTP within a much broader landscape context; and the emergence of a wider range of industrial, commercial, residential, as well as electrical and transport-related infrastructure associated with the settlements of Birdhill, Ballina/Killaloe, Shannonside Business Park, the M7 motorway and the Parteen Weir.

219. The perceived impact on landscape character would be less marked than its physical effect on the prevailing landscape pattern because the site is strongly contained and buffered by a substantial and well-established forest plantation to the south and by a dense network of hedgerows within the buffering area of farmland in all other directions. It would generally be read as a distant industrial facility wrapped in a matrix of predominantly rural land uses or, put another way, a rural landscape that contains an industrial facility rather than an industrialised landscape.
220. The proposed WTP site is contained within the same landscape unit as the proposed waterside RWI&PS (LCT B2: Lakeland Enclosures and LCA 12: River Shannon – Newport). Therefore, most of the same land use/sensitivity matrices from the Tipperary Landscape Character Assessment apply: that is, a 'Low' likelihood of landscape effects for 'Water Services' in the applicable 'Lakeland' landscape archetype (Table 2.1 in the Tipperary Landscape Character Assessment), but also a 'Low' degree of compatibility for 'industrial developments' in the applicable LCA 12: River Shannon – Newport (Table 6.2). 'Landscape Sensitivity Factors' are identified in Table 6.3 of the Tipperary Landscape Character Assessment and it indicates that it is more likely for projects located within 300m from these 'Sensitivity Factors' to give rise to landscape effects. The proposed WTP site does not fall within 300m of any of the 'Landscape Sensitivity Factors', thus this land-use compatibility matrix does not apply in this instance. It is surmised that the general acceptability of water-related services within this otherwise sensitive landscape unit relates to the fact that such developments are locationally dependent on nearby access to major water bodies and particularly one (the Parteen Basin) that was formed and has an established association with water-based energy production. On the other hand, the proposed WTP would be read as an industrial development and with a much less clear association to its 'Water Services' function than the waterside RWI&PS facility. This provides some potential conflict between the Table 2.1 and Table 6.2 land-use matrices contained in the Landscape Character Assessment for Tipperary, which are both applicable in this instance. It is considered that neither of these matrices, whether they are interpreted as conflicting or otherwise, preclude the proposed WTP development at this site.
221. The design of the WTP facility follows a different approach to that of the RWI&PS. Given the rural context of the WTP, a more diverse approach to scale, massing and finishes is proposed. It is not the intention to mimic rural barn structures, but by referencing their familiar form, the WTP would present in a varied and timeless manner. The assortment of cladding finishes would present a softer form within this landscape setting of forest, field and hedgerow and help to marry the development within its surroundings, particularly when seen from distant elevated vantage points. For these reasons, the proposed WTP presents as a more considered response to its environs than a typical utilitarian industrial facility would. It is distinct in terms of its siting and design, but also deliberately recessive in terms of the selected building form, colour scheme and building finishes.
222. For the reasons outlined in this section, the permanent and not readily reversible WTP facility is considered to have a high – medium magnitude of Operational Phase landscape impact.

16.4.4.4 Magnitude of Operational Phase Landscape Impacts – BPT

223. Once operational, the proposed BPT would represent a modest scale feature, not dissimilar to a large barn or rural shed, within this rural context of farmland and forestry. The BPT represents a permanent feature in the landscape, which would also result in the irreversible modification of a modest area of landform at the top of Knockanacree Hill in order to bury the BPT and create a flat building platform for the Control Building. Any loss of agricultural grassland or sections of hedgerow to facilitate the BPT would be very minor in the context of this landscape and the extent of such common land cover elements.
224. There would be a slightly increased degree of activity in the form of workers' vehicles accessing the site along with occasional maintenance machinery using the new site access road. Owing to the location of the site on top of Knockanacree Hill, the brow of the hill itself would preclude visibility of the main Control Building, which is the main above-ground element of the BPT, from most surrounding locations. This would also occur in relation to general ground-based site activity, leaving the access road as one of the more visible aspects within the immediate vicinity. Such access roads and indeed the barn-like structure of the Control Building are familiar elements in most rural landscapes and it is not considered that the BPT would contribute to marked change in the prevailing rural landscape character especially beyond the immediate context (approximately 200m).
225. In terms of landscape designations, the proposed BPT is contained in LCA 7: Borrisokane Lowlands, which is assigned Class 2 – Transitional Vulnerability landscape sensitivity. According to Table 2.1 of the Tipperary Landscape Character Assessment, 'Water Services' are identified as having a 'Low' likelihood to generate landscape effects. The land use/sensitivity compatibility matrix contained in Table 6.2 of the same document indicates that 'industrial projects' have a 'Medium' degree of compatibility with LCA 7: Borrisokane Lowlands.
226. Overall, it is considered that due to its modest scale and innocuous form the BPT would result in a low magnitude of Operational Phase landscape impact.

16.4.4.5 Magnitude of Operational Phase Landscape Impacts – BPS

227. The BPS would represent a new permanent feature in the landscape involving a physical change to landform and landcover. Alteration to the landform would be limited regarding the footprint, but it would include works below the existing ground level. Removing hedgerows in the site is the most notable alteration of land cover and would alter the field pattern, but this effect would be localised. The perceived impact on landscape character would be limited because the site is in a low valley. The BPS would not be a prominent new feature, and due to vegetative screening, views are anticipated to be limited to transient glimpses from the local road to the south. The design of the BPS structure was inspired by the barrel-vaulted roof design of typical barns. The proposed BPS would present a modest-scale new building, similar to a large barn or rural shed archetype, so familiar with this rural farmland context. The BPS would be in a standard 'low sensitivity area' as per the Offaly CDP, and there would be no material direct impacts on any 'moderate sensitivity areas,' 'high sensitivity areas', or 'areas of high amenity'. It would not be possible to identify the BPS from the 'key scenic amenity route' on the R440 Regional Road that passes to the south of the BPS. The associated 'key scenic view/prospect', V17, is located on this road; however, it is orientated towards the Slieve Bloom Mountains, which are in the opposite direction as the BPS.
228. This greatest level of impact is mainly concentrated within the immediate visual envelope (approximately 1km – worst case). Thereafter it would reduce as the BPS becomes a smaller component of the surrounding productive and somewhat scenic, landscape context. Overall, the magnitude of Operational Phase landscape impact arising from the proposed BPS is deemed to be low.

16.4.4.6 Magnitude of Operational Phase Landscape Impacts – FCV

229. The FCV would represent a small-scale permanent feature in the rural landscape involving a physical change to landform and landcover. Alteration to the landform would be limited regarding the footprint, but it would include works below the existing ground level. However, there will not be any removal of existing trees and hedgerows within or around the site. Due to the FCV being substantially below ground there are few above ground features, which include a small operations building, a mounded access point to the FCV and internal circulation roads. The most noticeable feature will be the perimeter palisade security fence, which given the innocuous nature of the internal components of the site, hints at its important function. Overall, the FCV facility will present as a modest and indistinct industrial installation, which will not unduly influence landscape character beyond its immediate surrounds. Consequently, the magnitude of Operational Phase landscape impact is deemed to be low and dissipating quickly with increased distance and broader context.

16.4.4.7 Magnitude of Operational Phase Landscape Impacts – TPR

230. Once operational, the proposed TPR would add to the intensity of engineered/built development in the immediate landscape context of the rural hinterland of Peamount Hospital, the existing Peamount Service Reservoir and the wider context of south-west Dublin. The TPR facility is likely to be recognisable as a large-scale water infrastructure development rather than hospital-related or typical industrial infrastructure already present within the TPR study area. The main visual aspect of the facility would be the engineered embankments surrounding the three storage cells, which would extend up to approximately 11.2m above existing ground levels at a slope angle of 1:2. These embankments, though extensive in footprint (approximately 250m x 120m), have a simple form and would be grassed. In this respect, the proposed TPR would serve, in terms of scale, function and form, as a transitional form of utilitarian land use between Peamount Hospital, the urban fringe business/industrial parks and the rural landscape proper. In this respect, the TPR would provide little sense of urban fringe progression into the rural edge of the city and would not appear out of place in this hinterland setting. This legible sense of transition is aided by the established presence of the adjacent Peamount Hospital and existing Peamount Reservoir, which would help to anchor the TPR facility within this landscape setting.

231. The proposed TPR would be located within LCA 2: Newcastle Lowlands, which is designated as having a 'medium' overall landscape sensitivity, and a 'medium – high' landscape value and a 'low' landscape capacity to absorb development. Notwithstanding these slightly protective landscape classifications, it is not considered that the proposed TPR is at odds with the prevailing hinterland landscape character and would not unduly contribute to the progression of the urban edge into a predominantly rural landscape, which is clearly valued for its rural character on the doorstep of the city.

232. The impact would be greatest within the immediate vicinity (approximately 500m – worst case). Thereafter, the impact would reduce as the TPR becomes a smaller component of the diverse hinterland landscape fabric. Overall, the magnitude of Operational Phase landscape impact arising from the proposed TPR is deemed to be medium – low, primarily as a consequence of the impact in the immediate vicinity as beyond 500m it would be lower.

16.4.4.8 Magnitude of Operational Phase Landscape Impacts – Pipeline Corridor

233. During the Operational Phase, the landscape containing the Pipeline Corridor sections and associated Construction Compounds and Pipe Storage Depots would have been reinstated to the relevant prevailing land cover including substantial replacement of hedgerows. Indeed, the only permanently visible elements that may reveal the alignment of the Pipeline Corridor would be the Line Valve locations (which include fencing and laybys for access and maintenance), power connections, FCV, Air Valves and Washout Valves (including a number of fixed outfall locations). There would also be associated kiosks at selected road intersection points. All of these features are small scale, infrequent and of innocuous design, such

that they would not tend to be noticed by casual observers. Consequently, there would be a negligible magnitude of Operational Phase landscape impact on the rural landscape character of the Pipeline Corridor.

16.4.4.9 Significance of Operational Phase Landscape Impacts

234. Based on the significance matrix (Table 16.7), the significance of Operational Phase landscape effects prior to mitigation are summarised in Table 16.20 for the 38 kV Uprate Works, RWI&PS, WTP, BPT, BPS, FCV and TPR. The significance of landscape effects during the Operational Phase as a result of the Pipeline Corridor (RWRMs and Treated Water Pipeline) would be Slight – imperceptible at RW – 0 to RW – 2000 while effects at all the remaining sections of the Pipeline Corridor would be Imperceptible. There is no potential for significant effects.

Table 16.20: Landscape Effect Significance Pipeline Corridor, 38 kV Uprate Works, RWI&PS, WTP, BPT, BPS, FCV and TPR – Operational Phase

Infrastructure Feature	Sensitivity	Magnitude of Landscape Impact	Significance of Landscape Effect (derived from Table 16.7)	Quality of Landscape Effect
Pipeline Corridor	Medium – Low and High – Medium (at RW – 0 to RW – 2000)	Negligible	Imperceptible and Slight – imperceptible (at RW – 0 to RW – 2000) (Not significant)	Negative – Neutral
38 kV Uprate Works	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
RWI&PS	High – Medium	Medium – Low	Substantial – Moderate (Not significant)	Negative
WTP	Medium – Low	High – Medium	Substantial – Moderate (Not significant)	Negative
BPT	Medium	Low	Slight (Not significant)	Negative
BPS	Medium	Low	Slight (Not significant)	Negative
FCV	Medium – Low	Low	Slight (Not significant)	Negative
TPR	Medium	Medium – Low	Moderate (Not significant)	Negative

16.4.5 Visual Impact Assessment

235. The likely significant visual effects from the Proposed Project were assessed separately from the impacts on the landscape.

16.4.5.1 Pipeline Corridor – Scenic Designations

236. The following scenic designations occur within the study area for the Pipeline Corridor:

- Tipperary: V60 – Views of landscape from M7 at Gortmore south-west of Nenagh (TW – 7600)
- Ormond Way National Waymarked Way (TWA – 400)
- Offaly Protected View V14 (west) (TWA – 22400)
- Offaly Protected View V14 (east) (TWA – 27400)
- Offaly key amenity route ‘R440 Birr to Kinnitty to the county boundary towards Mountrath’ (TWA – 27900)
- Offaly amenity route with ‘carrying capacity’ from ‘R421 from Ballard to Kinnitty’ (TWB – 18700)
- Kildare Scenic View/route (TWE – 8400)
- Kildare Scenic Viewpoint GC27 (TWE – 12600)
- South Dublin Grand Canal National Waymarked Way (TWE – 14100).

237. There would be visually noticeable effects during the Construction Phase that would reduce visual amenity at several of these scenic designations but in all instances the effects would be highly localised and short term. Even though these scenic designations generally have a greater sensitivity than non-designated locations along the Pipeline Corridor, none of the effects are deemed to be significant. The magnitude of impact would reduce during the Operational Phase as it would be extremely difficult to identify the route of the pipeline. This is because disturbance to ground cover that occurred during the Construction Phase will have been ameliorated by the good practice mitigation. Therefore, the significance of effect during the Operational Phase would be Imperceptible (not significant). For these reasons, none of these scenic designations were selected as VRPs in Section 16.4.6.

16.4.5.2 Infrastructure Sites – ZTV

238. A ZTV map is a computer-generated map based on a Digital Terrain Model (DTM), which indicates from where in the study area a development project is potentially visible. Visibility may be possible from beyond the study area but would be unlikely to generate significant adverse effects due to the distances involved. This is 'theoretical' because it only accounts for what may be seen in a bare-ground scenario, not for screening by the likes of vegetation and buildings. In this instance, ZTV maps have been generated for five of the six Infrastructure Sites (RWI&PS, WTP, BPT, BPS and TPR, excluding the FCV) to the extents of their relevant study areas. ZTV maps were not generated for other elements of the Proposed Project such as the FCV, the Pipeline Corridor and the 38 kV Uprate Works as these involve either smaller scale above-ground infrastructure or the infrastructure is underground. In order to generate legible ZTV maps, five of the six Infrastructure Sites (excluding the FCV) listed in Chapter 4 (Proposed Project Description) that are relevant to this chapter were grouped, in terms of structure heights, into three different categories: those (a) less than 5m, (b) 5m to 10m and (c) more than 10m. These ZTV maps are included in Figure 16.1 to Figure 16.8 and Figure 16.15 to Figure 16.16. All ZTV patterns shown on these figures are based on potential visibility of the highest structure within each Infrastructure Site: RWI&PS – 10.9m, WTP – 15.6m, BPT – 7.5m, BPS – 7.6m and TPR – 11.2m above the finished floor level.

239. In this instance, ZTV maps have also been produced for five of the six above-ground Infrastructure Sites (excluding the FCV) using Digital Surface Model (DSM) data. This form of spatial data does take account of existing vegetation and buildings in terms of the screening they offer and is a more realistic measure of visual exposure. This is a more fine-grained analysis of vegetative screening within the immediate context of the site (rather than the entire study area) and, thus, the extent of the DSM-based ZTV map is 1km from the boundary of the RWI&PS and WTP sites and 500m for the BPT, BPS and TPR sites. A comparison of the overlapping portions of the DTM-based ZTV maps and the DSM-based ZTV maps provides an understanding of what proportion of screening is provided by permanent land mass versus vegetation, which can vary over time (felling/growing) and season. It is important to note that ZTV maps inform the visual impact assessment and highlight locations from which representative VRPs may be necessary, or not required at all. As such, they are a tool for the assessor rather than a fundamental part of the assessment itself.

240. A comparative analysis of the relative DTM- and DSM-based ZTV maps is provided in the following sections.

16.4.5.2.1 RWI&PS ZTV Maps

241. Figure 16.1, the DTM-based ZTV map, indicates that the proposed RWI&PS structures, which range between approximately 3.5m and 10.9m in height, would be potentially visible within the immediate context of the Parteen Basin stretching northwards towards Killaloe/Ballina and southwards to Birdhill and the Parteen Weir. Beyond this central area, the visibility pattern becomes more sporadic and follows elevated ground. This includes the southern slopes of the Arra Mountains to the north-east of the site, the easternmost slopes of the Slieve Bearnagh range to the north and west of the site as well as some of the western slopes of the Silvermines Mountains, which lie to the east of the site. There is little or no potential

for visibility within either the southern extents of the study area or the northern extents surrounding Lough Derg.

242. The DSM-based ZTV map (Figure 16.2) indicates that due to the lack of any obstructions in the direction of the Parteen Basin (to the west and south-west) the open visibility in this direction remains similar to that shown in the bare-ground context of Figure 16.1. Vegetation removal to the east of the site along the proposed access road also allows some limited visibility from this direction, albeit limited to privately owned patches of farmland and forestry rather than sensitive receptors. Otherwise, visibility of the proposed RWI&PS structures is eliminated within the nearest kilometre by the riparian woodland vegetation to the north of the site and forestry throughout the eastern quarters. Most notably, visibility is precluded from the R494 between Birdhill and Ballina.

16.4.5.2.2 WTP ZTV Maps

243. Figure 16.3, the DTM-based ZTV map, shows a similar visibility pattern to that of Figure 16.1, which is unsurprising as both the RWI&PS and WTP have similar height structures and are contained within the same basin context between the Arra Mountains, the Slieve Bearnagh range and the Silvermines Mountains. Thus, the near slopes of these upland areas are afforded open theoretical visibility of the proposed WTP. The lowland area surrounding the WTP site has relatively comprehensive visibility also. The key exceptions are where low ridges approximately 500m to the east and approximately 1.5km to the west and south-west briefly limit views from these directions before the terrain rises again beyond. This local terrain to the east precludes visibility from the R445 approach to Birdhill, whilst the local terrain to the west precludes visibility from much of the Parteen Basin. While there is reasonable potential for visibility from the Killaloe side of the Shannon, there is very limited potential for visibility on the Ballina side.

244. The DSM-based ZTV map (Figure 16.4) shows a massive reduction in potential visibility of the proposed WTP structures within the nearest 1km compared to the bare-earth scenario of Figure 16.3. Actual visibility is largely confined to the nearest agricultural fields to the north and east and tends not to extend beyond 500m to 600m. This precludes visibility from the R445 to the south, the R496 to the north and the local road that links them, which runs to the east of the site. There is also no visibility from the R494 which is situated to the west of the WTP site and there is very limited visibility indicated in respect of surrounding residential dwellings to the north and east of the site. Some visibility re-emerges around 800m to the east of the WTP site on more elevated farmed slopes, but this does not coincide with any roads or residences.

245. Visibility shown from forested areas and on top of treelines can be largely discounted on the basis that the DSM reads the tops of trees as part of the 'surface' and any visibility pattern is effectively generated from 1.7m above the treetops.

16.4.5.2.3 BPT ZTV Maps

246. Due to the nuances of the plateau terrain immediately surrounding the BPT site on top of Knockanacree Hill, Figure 16.5 indicates that visibility is precluded from the northern portion of the study area from almost immediately beyond the site. There is also little or no potential for visibility between Knockanacree Hill and the settlement of Cloughjordan to the south as well as the nearest 1.5km to the west. The absence of near visibility from these identified areas reflects the screening afforded by the brow of the hill. Conversely, due to the locally prominent nature of the hill, theoretical visibility returns in most quadrants of the study area beyond approximately 2km.

247. The DSM-based ZTV map (Figure 16.6) shows a very large reduction in actual visibility compared to the bare-ground scenario of Figure 16.5. Indeed, the visibility of the BPT Control Building is almost wholly contained upon the plateaued hilltop of Knockanacree by a combination of forestry and hedgerows.

16.4.5.2.4 BPS ZTV Maps

248. The DTM-based ZTV (Figure 16.15) indicates that visibility of the BPS would be somewhat limited to the immediate low-lying valley. This valley is aligned in a south-west–north-east orientation from just north of the R440 Regional Road to the Kiltubbrid Island area. The elevated terrain at Kiltubbrid Island would screen views towards the BPS from the lower lying lands that occupy almost the entirety of the northern half of the 5km study area of the BPS. There are a scattering of areas in the southern half of the study area that have a theoretical potential for visibility of the BPS. The DSM-based ZTV map (Figure 16.16) illustrates that rather than having the potential for visibility of the BPS from anywhere within the low valley in which it is proposed, the reality is that this is not likely in the areas along the valley floor to the north-east and south-west of the BPS as evidenced by the intermittent streaks of ZTV pattern in these regions. Indeed, the vegetation within 500m of the BPS provides a high degree of screening here and this effect is anticipated to continue in the low-lying landscape in the remainder of the 5km study area for the BPS.

16.4.5.2.5 TPR ZTV Maps

249. The standard bare-ground ZTV map (Figure 16.7) for the TPR illustrates the limitations of such analysis in flat terrain where vegetation and buildings are not accounted for in terms of screening. This map indicates relatively open visibility of most structures throughout the 5km radius TPR study area, only becoming limited by the hills beyond Newcastle to the south and a subtler rise in terrain to the east around Baldonnel Aerodrome.

250. The DSM-based ZTV map (Figure 16.8) illustrates that in reality there would be almost no potential for visibility of the TPR throughout the south-eastern quarter due to substantial screening between the TPR and Peamount Hospital. In all other directions, the potential for reasonably open visibility is shown across a flat farmland landscape, but this area is very sparsely populated. Furthermore, the DSM-based ZTV map only extends to 500m from the TPR and there are few substantial hedgerows in this nearest portion of farmland.

16.4.6 Representative VRPs Selected for Visual Impact Assessment

251. Based on a consideration of the visual baseline, 26 representative VRPs were selected to aid the visual impact assessment of the various Infrastructure Sites and from which photomontage representations of the Proposed Project were subsequently prepared for both a pre-mitigation and post-mitigation scenario (approximately seven years vegetation establishment). A further three representative VRPs were selected to aid the visual impact assessment of the 38 kV Uprate Works. These are included in Table 16.21. VRP/photomontage locations have not been selected in respect of temporary – short-term or substantially below-ground features such as Construction Compounds and Pipe Storage Depots and the Pipeline Corridor itself. Construction Phase photomontages were not prepared as static images are very limited in their ability to portray the movement, constant change and transient nature of working areas and Construction Compounds. Furthermore, they relate to temporary – short-term impacts and it is considered more pertinent to select VRPs/prepare photomontages in respect of permanent above-ground features in this instance. The selected VRPs are outlined in Appendix A16.2. There are seven VRP location maps – one for the 38 kV Uprate Works and one for each of the Infrastructure Sites. These are as follows: Figure 16.9: 38 kV Uprate Works; Figure 16.10: RWI&PS; Figure 16.11: WTP; Figure 16.12: BPT; Figure 16.13: BPS; and Figure 16.14: TPR and Figure 16.17: FCV.

Table 16.21: VRP Reference Point Locations

VRP		Direction of View/Relevant Infrastructure Site	Figure Reference
VP0.1	National Looped Walk, Ardataggle	W – 38 kV Uprate Works	Figure 16.9
VP0.2	National Waymarked Way, O'Brien's Bridge	SW – 38 kV Uprate Works	Figure 16.9
VP0.3	Regional road, Gortybrigane	NW – 38 kV Uprate Works	Figure 16.9
VP1	Birdhill	N – RWI&PS	Figure 16.10
VP1a	Local road at Kilmaglasderry	E – RWI&PS	Figure 16.10
VP2	R504 south of Birdhill	N – RWI&PS	Figure 16.10
VP3	R446 south-west of Birdhill	NE – RWI&PS	Figure 16.10
VP4	Elevated local road west of the Parteen Basin	E – RWI&PS (and WTP)	Figure 16.10
VP5	R463 west of the Parteen Basin	E – RWI&PS	Figure 16.10
VP6	Clarisford Park	S – RWI&PS	Figure 16.10
VP7	Tountinna Mountain	S – RWI&PS (and WTP)	Figure 16.10
VP8	Birdhill on the R445	N – WTP	Figure 16.11
VP9	Local road at Greenhills	W – WTP	Figure 16.11
VP9a	Local road at Kilmustulla	N – WTP	Figure 16.11
VP10	Local road at Kilmastulla	W – WTP	Figure 16.11
VP11	Intersection of R496 and local road north of WTP site	S – WTP	Figure 16.11
VP12	R496 at Dunally Bridge	S – WTP	Figure 16.11
VP13	R496 at Roolagh	SE – WTP	Figure 16.11
VP14	Knockanacree Woodland/Knockanacree Hill	NW – BPT	Figure 16.12
VP15	Local road at Loughaun north-east of BPT site	SW – BPT	Figure 16.12
VP16	Local road at the base of Knockanacree Hill	SE – BPT	Figure 16.12
VP21	L3003 local road, Pass	W – BPS	Figure 16.13
VP22	L3003 local road, Streamstown	E – BPS	Figure 16.13
VP23	L3003 local road, Coagh Upper	E – BPS	Figure 16.13
VP24	L2008 local road, Commons Upper	SE – FCV	Figure 16.17
VP17	Local road at Peamount	NE – TPR	Figure 16.14
VP18	Local road at Loughtown Lower	E – TPR	Figure 16.14
VP19	Grand Canal at Mullauns	S – TPR	Figure 16.14
VP20	Grand Canal at Balscott	SE – TPR	Figure 16.14

16.4.7 Construction Phase Visual Effects

252. The nature of the Construction Phase works as they relate to both landscape impacts and visual impacts is detailed in Section 16.4.3 and its associated subsections. To avoid unnecessary reiteration, the descriptions of working methods have not been repeated in detail here. In a general sense, the construction activities that would give rise to visual impacts are clearance of vegetation and ground cover; movement of workers and heavy machinery to and from site and within working areas; and stockpiling of excavated material and building materials. Visual effects therefore relate to reduced enclosure from vegetation, views of bare earth and partially completed structures as well as views of near-constant activity of relatively high intensity often within scenes that are otherwise tranquil or largely static. The assessment of visual sensitivity is made for each VRP in Appendix A16.1. As verified photomontages were only prepared for the Operational Phase, the assessment of visual impacts is weighted towards the permanent effects in the Operational Phase, described in detail in Appendix A16.1 and supported by

verified photomontages in Appendix A16.2. The results of the Operational Phase visual impacts are summarised in Table 16.22, which indicates no significant Operational Phase effects. For this reason, considering producing a proportional report, the reporting of Construction Phase visual effects in this section (Section 16.4.7) is more general than the reporting of the Operational Phase effects described in Appendix A16.1 and summarised in Section 16.4.8.

16.4.7.1 Magnitude of Construction Phase Visual Impacts – 38 kV Uprate Works

16.4.7.1.1 Over-Ground Infrastructure

253. During the Construction Phase some polesets/towers would be removed and replaced with new polesets/towers of a similar size and type. A small number of the new polesets/towers would be repositioned slightly but most would be reinstated in the same location as the ones removed. Also, new interpoles would be constructed and new conductors, similar to the existing conductors, would be hung between the new/existing polesets. Construction Phase visual impacts that would arise as a result of the installing of the proposed over-ground infrastructure would be short term, as the works are anticipated to happen in a short space of time. Construction works would be small in scale and would usually only be viewed from a distance and are likely to create a very minor visual intrusion. Due to the nature and duration of construction works for the proposed OHL equipment, visual impacts would be of a negligible magnitude.

16.4.7.1.2 Underground Infrastructure

254. Construction Phase visual impacts relating to the proposed 38 kV twin circuit underground cable would also be transient in nature but there would be relatively more intense construction activity involving open-cut trenching around the sections of cable being laid, as these involve the use of plant machinery and excavators. However, given the expected rate of construction progress, most visual receptors would not likely experience such visual effects for longer than a number of weeks. Accordingly, the overall Construction Phase visual impacts would be of a low – negligible magnitude.

16.4.7.1.3 Birdhill 38 kV Substation

255. Visual receptors most likely to be affected by the upgrades to the existing Birdhill 38 kV Substation during the Construction Phase are those travelling along the adjacent regional roads. There would be a high quantity of people driving past the site but they would not be highly sensitive to the construction activities related to upgrades to the existing Birdhill 38 kV Substation. Construction would introduce movement within the site and create visual change for those who notice the various new elements being erected but all this activity would be temporary in duration. Construction traffic would be readily absorbed by the existing traffic on the adjoining regional road.

16.4.7.1.4 38 kV Uprate Works Impact Summary

256. Even though there are a variety of receptors with differing sensitivities within the study area, it is not anticipated that there would be any significant Construction Phase visual effects as a result of any part of the 38 kV Uprate Works. The highest levels of Construction Phase visual impact magnitude are considered to occur in the immediate vicinity (<200m) of the proposed 38 kV twin circuit underground cable. These Construction Phase visual impacts are considered to be of a low – negligible magnitude. However, the significance of such impacts is moderated by a general visual setting where visual receptor sensitivity is considered to be medium – low. Taking account of the low – negligible magnitude of impact, coupled with the short-term duration of many aspects of the construction related visual effects, the significance of effect in the immediate vicinity of trenching work is deemed to be, at worst, Slight.

257. Lower levels of visual effect significance would occur in the vicinity (<200m) of the over-ground infrastructure. Construction Phase visual effects for the proposed over-ground infrastructure would also be small in scale and of a transient nature, leading to brief, localised effects only. Even though these works would, in some cases, occur within more sensitive visual settings, such as the River Shannon environs, the balance between the negligible magnitude of impacts and the high sensitivity of some receptors is not considered to result in more than Slight – imperceptible significance of effect.

16.4.7.2 Magnitude of Construction Phase Visual Impacts – RWI&PS

258. For the RWI&PS, the most noticeable visual impact at the commencement of the Construction Phase would be the removal of mature vegetation from within the lakeside site, which would result in a narrow gap in the otherwise consolidated bands of riparian woodland and conifer plantation. This would be most noticeable from elevated locations to the south-east such as Birdhill and across the Parteen Basin from the west. Later ground-level works would have more restricted visibility in all directions other than from the Parteen Basin and the western slopes that rise above it. The intensity of construction activity would have the most noticeable effect on visual amenity within relatively close proximity (approximately <1km) and is therefore relatively localised even if such works are visible from further afield. During the Construction Phase the magnitude of visual impacts is likely to be in the order of high – medium, but due to the short-term duration, such effects are considered to be not significant.

16.4.7.3 Magnitude of Construction Phase Visual Impacts – WTP

259. Even though a considerable amount of vegetation and land cover would be stripped to facilitate the construction of the WTP, the low-lying site would remain substantially enclosed by the dense network of hedgerow vegetation that surrounds it to the north, west and east and by the conifer plantation to the south. Only from distant elevated locations, such as Tountinna Mountain (VP7) where the ground plane of the site would be visible, would early-stage vegetation clearance and construction activity also be visible. Aside from this VRP, the most noticeable visual effects are likely to be experienced in relation to construction traffic entering and exiting the site access along the R445 Regional Road. This is a busy route with few dwellings fronting it except in the outskirts of Birdhill.

260. As the WTP nears completion, the upper sections of partially completed buildings would emerge into view above intervening vegetation from surrounding roads and residences. However, as evidenced in the photomontages of the completed structures (prior to mitigation establishment), such views of the WTP remain very restricted and the visual impact magnitude is not considered to exceed low and would generally be negligible from most surrounding receptors. These short-term effects would not be significant.

16.4.7.4 Magnitude of Construction Phase Visual Impacts – BPT

261. The BPT site itself is relatively well screened by the brow of the hill at Knockanacree and construction activity is likely to be equally well screened as evidenced by the VP15 and VP16 photomontages from local roads that flank the hill. Nonetheless, the site access is proposed from the local road to the west of the site and construction traffic would contribute to the Construction Phase visual impacts along this otherwise quiet road. Such effects would be of a low magnitude and temporary duration.

262. Clear visibility of all aspects of the BPT construction activity would be afforded from the northern edge of the Knockanacree Woodland public amenity area, which lies just to the south-west (VP14). Construction activity is likely to have a high magnitude visual impact on this otherwise tranquil and enclosed woodland/farmland scene, albeit of a temporary duration and therefore not significant.

16.4.7.5 Magnitude of Construction Phase Visual Impacts – BPS

263. Some of the roadside hedgerows along the L3003 local road would be removed to facilitate access into the site which would open up views into the site and reveal various construction works. Three VRPs were selected in the local area and all are situated on the L3003 local road that passes to the south of the site. All are from field gates and any views would be experienced as fleeting glimpses by road users. All three views have a medium – low sensitivity. The construction works would be most visible from the existing field access located a short distance to the east of the site (VP21). Otherwise, as the BPS would be located in a low-lying area, the existing vegetation would have a strong screening effect, thus limiting views of the site to the area immediately adjoining the site. Construction vehicles using the surrounding road networks would be new visible occurrences across the study area. Construction activity is likely to have a medium magnitude visual impact and would be temporary in duration, and therefore would not be significant.

16.4.7.6 Magnitude of Construction Phase Visual Impacts – FCV

264. As the access to the FCV site is through a broad existing gateway there will be no loss of roadside hedgerows or trees and nor will there be any loss of such vegetation within or around the site. Only the pasture within the site will be cleared to facilitate the FCV facility. This comprises of small scale structures, the main component of which, the FCV itself, will be substantially buried below ground. There will be a modest degree of excavation required to construct it. The Construction Phase works will see the movement of heavy machinery within the site and travelling to and from it as well as workers and the temporary stockpiling of excavated material and construction materials. These visual effects will be temporary in duration and of a medium magnitude in a very localised context.

16.4.7.7 Magnitude of Construction Phase Visual Impacts – TPR

265. Although the TPR site is of a considerable size, it is set back from most surrounding receptors (roads and residences) by hundreds of metres and there is a high degree of vegetative screening around the Peamount Hospital site. Initial construction activity is likely to be openly visible, albeit at a distance and within the context of the hospital backdrop. However, once topsoil and subsoils have been stripped from the site, they would be formed into site perimeter berms, which would thereafter screen much of the ground-level construction activity. Construction Phase visual effects would be short term in duration and are not considered to exceed low in magnitude. Thus, they would not be significant.

16.4.7.8 Magnitude of Construction Phase Visual Impacts – Pipeline Corridor

266. Unlike the Infrastructure Sites, the Construction Phase activity along the general sections of the Pipeline Corridor would be transient as well as being temporary to short-term in duration. Thus, even though there would be a high degree of construction-related activity within and around the section of pipeline being laid and this would cause a noticeable reduction in visual amenity, the works would move swiftly along and the flanking stockpiles of excavated materials would be reinstated shortly thereafter.

267. The main exceptions to this scenario are at the Construction Compounds and Pipe Storage Depots, which would be a constant focus of activity and vehicle movements for a short-term duration. Nonetheless, the duration and readily reversible nature of these effects mean that they would not result in significant visual impacts.

268. There will be some night time visual effects arising from construction lighting at the Construction Compounds, Pipe Storage Depots and trenchless crossing locations. In terms of intensity, this will emanate from mobile lighting structures that are close to the ground and direct light onto the immediate construction site. The lights will be cowled to reduce light spill into surrounding areas and will avail from ground level screening from hoardings around the construction works (see Construction Environmental

Management Plan (CEMP) in EIAR Appendix A5.1). Lighting will not be in operation outside of winter evening hours other than at 24/7 trenchless crossings where directional drilling may be required for several weeks at a particular location – a temporary effect. The duration of lighting effects at Construction Compounds and Pipe Storage Depots may last for several years – a short-term effect, but not outside of winter evening hours. For these reasons, visual effects from Construction Phase lighting relating to the Pipeline Corridor would not be significant.

16.4.8 Operational Phase Visual Effects

269. Operational Phase visual effects are assessed in Appendix A16.1 in conjunction with the photomontages in Appendix A16.2 that have been prepared from each representative VRP. These depict the completed 38 kV Uprate Works, RWI&PS, WTP, BPT, BPS, FCV and TPR in both a pre-mitigation establishment scenario (screen vegetation) and post-mitigation establishment scenario (seven to ten years). Embedded mitigation in the form of building designs and colour schemes is constant for both scenarios. The assessment of Operational Phase visual effects is made based on the pre-mitigation scenario, with post-mitigation effects being covered in the residual effects in Section 16.6. The individual visual assessments at each of the VRPs detailed in Table 16.21 can be found in Appendix A16.1. The assessment of visual sensitivity is made for each VRP in Appendix A16.1.

16.4.8.1 Magnitude of Operational Phase Visual Impacts – 38 kV Uprate Works

270. In specific locations, existing lattice towers and OHL would be dismantled and removed, with the foundations broken up and removed. This would result in a notable reduction in the visual complexity at some locations and would have a positive impact. At other locations, twin wooden pole structures would be replaced by a 1m taller twin wooden pole structure. The OHLs would be replaced, and consequently, the tension of the new OHL may be slightly different (VP0.1). Therefore, many existing views are already characterised by OHL infrastructure and the upgrade of this twin wooden pole structure would not alter this, nor would it notably increase the intensity of infrastructure in the view. This is because the new twin wooden pole structure would be in the same location and would be of a similar height with the same number of OHLs. Furthermore, there would be some locations where the upgrading would be limited to the apparatus on the existing polesets and although it may be visible, the changes are not likely to be perceptible by casual observers (VP0.1 and VP0.2). The magnitude of visual impact is deemed to be low near the Birdhill substation at VP0.3, while VP0.1 and VP0.2 are both negligible. The significance of visual effect is deemed to be Slight – imperceptible at VP0.3 and Imperceptible at VP0.1 and VP0.2, in most instances, and not only because the visual change would be difficult to discern.

271. The proposed 38 kV GIS Modular Building at the existing Birdhill 38 kV Substation would be noticeable to a casual observer, but it would not be taller than the existing envelope of the substation. It would be readily visually absorbed and it would not alter the existing character or have a noticeable reduction to the visual amenity. The upgrades to the existing Birdhill 38 kV Substation would result in a Slight – imperceptible significance of effect.

272. A night time view is also prepared at Birdhill 38 kV substation from VP0.3. Whilst there will be additional lighting visible within the substation emanating from 4m lamp standards within the proposed substation extension site, this is minor in the context of the brightly lit roundabout in the foreground and does not unduly enter into the surrounding rural hinterland which is generally much darker. Furthermore, the lighting will only be activated by movement from site visitors and will therefore be infrequent and illumination will only be for a short period. The night time effect at VP 0.3 is deemed to be Slight – imperceptible.

16.4.8.2 Magnitude of Operational Phase Visual Impacts – RWI&PS

273. During the ongoing (permanent) Operational Phase of the RWI&PS, it would present as additional and isolated built development on the eastern shores of the Parteen Basin at the junction between a long section of naturalistic mixed species riparian woodland to the north and the engineered embankment of the basin to the south.
274. The RWI&PS would be openly visible from the waters of the Parteen Basin for waterborne recreationalists, but even from here it would not be a bulky or visually dominant feature due to its modest scale in the context of broad views. The western façade of the intake structure would also be openly visible from the opposing (western) side of the Parteen Basin. However, the lower slopes of the lands to the west consist of sparsely populated farmland and most dwellings occur above and to the west of the R463 Regional Road. The R463 Regional Road is a designated scenic route in the Clare CDP. Due to localised terrain and vegetation, views across the Parteen Basin from this route, and the adjacent dwellings, are more restricted than its scenic designation might suggest. Indeed, the selected representative VRP from this location (VP5) is one of the few locations where some visibility across the water body is afforded. On the basis of a high – medium sensitivity judgement for this designated receptor coupled with a medium – low magnitude of visual impact, the significance of effect at VP5 is deemed to be Moderate – slight. This is primarily due to the addition of an industrial facility, albeit of a modest scaled and sensitive design, into a section of the vista that has some degree of naturalistic character and is currently devoid of other waterside buildings. For similar reasons, the view of the RWI&PS is deemed to result in a Moderate significance of effect from the recreational amenity area of Clarisford Park (VP6) slightly further to the north from VP5. VP6 is located at a small lakeside picnic spot at the southern edge of Clarisford Park, which is otherwise enclosed by dense and mature trees and woodland. Not only does VP6 represent the most exposed visibility from Clarisford Park, it also represents one of the only publicly accessible parts of Killaloe and Ballina to have any potential for clear views of the RWI&PS.
275. From local road L3076, above and to the west of VP5 on the R463, VRP VP4 represents views afforded to a number of dispersed rural/residential dwellings with elevated eastward views across the Parteen Basin. This is also a section of the Lough Derg Way, a national way-marked walking route. While the RWI&PS is clearly visible from here in a prominent position on the opposing shores of the Parteen Basin, it stands out more as a built counterpoint to surrounding riparian woodland, forestry and farmland than for its scale and design, which are modest and considered respectively. The proposed WTP is also partially visible amongst fields, hedgerows and forestry a further 2.5km to the east, but with little consequence for visual amenity. In the context of such a vast and varied view, the RWI&PS is only considered to give rise to a Slight significance of visual effect even in the context of high – medium receptor sensitivity.
276. As shown in Figure 16.10, VRPs VP1, VP2 and VP3 are all clustered around the slightly elevated settlement of Birdhill to the south of the RWI&PS, representing the settlement itself (VP1) and the approach roads R504 (VP2) and R446 (VP3). Figure 16.11 shows VP8 is also on the R445 close to VP1 but has a slightly different viewing context. From none of these three locations would either the RWI&PS or the WTP structures be visible, resulting in Imperceptible visual effect significance. Indeed, the most that is likely to be discernible of the Proposed Project is a break in the existing treeline that otherwise contains the RWI&PS site.
277. VP7 is from the top of Tountinna Mountain, which is a popular lookout point over the Lough Derg/Arra Mountains setting. Though it is not recognised as a designated scenic view in the Tipperary CDP, it has been attributed a high sensitivity rating in this assessment for its mountain context and location on the Lough Derg Way national way-marked walking trail. This location affords vast panoramic views to the north, south and west, and within the section of the view containing the Parteen Basin, the RWI&PS is clearly visible in its wooded lakeside setting, albeit at a distance of over 7km. The WTP is also visible at a similar distance, around 2.5km further east of the RWI&PS. Together, these aspects of the Proposed

Project are considered to give rise to a low magnitude of visual impact; however, in the context of the high sensitivity rating of VP7, the significance of visual effect is deemed to be Moderate – Slight.

278. The RWI&PS would be bound to the north-east and the south-west by forest, providing visual screening. If this were to be harvested in the future, there could be a corresponding reduction in screening, potentially making the RWI&PS more visually exposed. The greatest potential for visual exposure would be if this occurred before the establishment of the proposed planting. If, when and in what manner this forest is felled is unknown. However, an ecological planting mix is proposed in the site's southern portion and along the length of the site's northern boundary. This planting would help screen the structures within the RWI&PS site even if the forest is completely felled.
279. Overall, it is considered that the proposed RWI&PS would not give rise to significant visual effects because, although it is located in an undeveloped, wooded section of the Parteen Basin shoreline, it confidently fronts the water body with a legibility that illustrates that it has a functional requirement to be there. The form and colour scheme of the buildings, particularly the main intake structure, would also blend well with the surrounding vegetation context with a softened roof profile that favourably presents, rather than attempting to hide, the structure. Even from VP6, where the highest level of visual effect significance is recorded, the RWI&PS is considered to serve as a subordinate focus within the lake view that would not obstruct or unduly intrude on any sensitive aspects of the view. Indeed, located as it is, between naturalistic and anthropogenic sections of the far shoreline, it acts as a transition piece between them and a reminder of the original utilitarian function of the Parteen Basin.
280. A night time view has been assessed from VP4 where the main source of artificial lighting is currently concentrated around the settlement of Birdhill on the opposing slopes above the Parteen Basin in the distance. The proposed lighting associated with the waterside RWI is modest in intensity and internalised within the site, but it does appear in a part of the vista that is not subject of notable lighting in the baseline context. Furthermore, the lighting will only be activated by movement from site visitors and will therefore be infrequent and illumination will only be for a short period. The significance night time visual effect is deemed to be Slight – imperceptible.

16.4.8.3 Magnitude of Operational Phase Visual Impacts – WTP

281. In respect of the RWI&PS, VP7 (Figure 16.10) was selected on the basis of elevated views of both this Infrastructure Site and the proposed WTP. Even though the scale and nature of the WTP is slightly at odds with its immediate context of lowland farming and forestry, in the wider context of this very large and varied view and also in conjunction with the RWI&PS, the significance of effect is deemed to be Moderate – slight.
282. VP8 completes a collection of four VRPs representing the settlement of Birdhill to the south-west of the proposed WTP, but unlike VP1, VP2 and VP3, which were selected mainly with the RWI&PS in mind, VP8 was selected on the basis of its potential to afford views of the WTP. In reality it would not afford views of either, due to existing intervening vegetative screening, and would result in an Imperceptible significance of effect.
283. VP9, VP10 and VP11 are all selected along the nearest local road to the east of the proposed WTP site and have similar visibility characteristics; that is, partial visibility of small sections of roofline and upper façades through and just above a dense veil of layered hedgerow vegetation. In some instances, the visibility of the Proposed Project is predicted to increase marginally during winter months, but the muted tones of the structures would result in similar levels of visual impact magnitude. As VP9 and VP11 have slightly greater visibility of the WTP than from VP10, they are considered to incur Slight significance of visual effect, whereas the minute section of roofline visible from VP10 is considered to result in an Imperceptible significance of visual effect. Given the relatively close proximity to the substantial scale

WTP, the degree of visual impact is remarkably low. This is testimony to the site-selection process which considered the relative containment of a series of potential WTP sites in this locality.

284. VP12 and VP13 were selected to represent views from the R496 Regional Road to the north of the WTP site. From VP12, the very limited view of small sections of roofline and upper façades is considered to result in an Imperceptible significance of visual effect (not significant). By comparison, the view from VP13 is slightly more open and elevated representing a rare occurrence for this section of road, which is otherwise generally contained by vegetation at close quarters. A slightly more comprehensive view of the proposed WTP roof profile that reveals much of its lateral extent is afforded from this location and, thus, a Slight significance of effect is attributed (not significant).
285. The WTP would be bound to the south by a conifer forest, providing visual screening. If in future this were to be harvested, there would be a corresponding reduction in screening, which could potentially make the WTP more visually exposed. The greatest potential for visual exposure would be if this occurred before the establishment of the proposed planting. If, when and in what manner this forest is felled is unknown. However, a screen planting mix would be planted along the western half of the southern perimeter of the fence line of the WTP site while screening would be provided in the form of woodland corridors and hedgerows within the site. This planting would help screen the structures within the WTP site even if the forest is completely felled.
286. Overall, it is considered that the significance of visual effect of the WTP belies its scale and intensity of large industrial buildings and will not result in any significant adverse effects. This is due to its broad locational context in the middle of a lowland basin of farmland and forestry and the visual containment this provides. It is also a function of the separation distance buffer to the nearest visual receptors (roads and residents) and the dense and mature vegetation structures, which occupy the intervening landscape.
287. A night time view has been assessed from VP9 where there are currently some minor distant sources of light above the vegetated horizon in this rural view, but few light sources in the immediate surrounds. The lighting from the proposed WTP will present as a general dull glow exuding from the dark lower ground of forestry and farmland in the middle distance. This may appear slightly ambiguous given the rural context, however the significance of night time visual effect is only deemed to be Slight.

16.4.8.4 Magnitude of Operational Phase Visual Impacts – BPT

288. Three VRPs (Figure 16.12 – VP14, VP15 and VP16) were used to assess the visual effects of the proposed BPT and only one of these is afforded clear views of the proposed structures of the BPT. This was VP14, which is from the edge of Knockanacree Wood on the plateaued top of the modest Knockanacree Hill. Although this view is identified on the Coillte Trail Map (Coillte 2018) for Knockanacree Wood as a scenic view, it is very limited in its extent, at least in the context of the present mature forest that encompasses it. The Control Building of the proposed BPT at the southern end of the site would be the most noticeable aspect of the BPT within the cleft of slightly recontoured ground required to facilitate the BPT. While this alters the nature of this farmland/forest scene and would therefore increase the intensity of built development in view, it does not foreshorten or obstruct any distant aspects of the view. The result is that the pre-mitigation visual effect is deemed to be of Moderate significance. From the lower-lying VP15 and VP16, the BPT, which is partly buried in the Knockanacree Hilltop, would not be visible due to screening by the brow of the hill resulting in an Imperceptible effect significance. Indeed, the only aspect of the proposed BPT that is likely to be noticed from surrounding local roads and residents is the relatively innocuous access track that would connect to the site from the nearest local road to the west. A night time view was also produced for VP16 at the base of the access track, however, the lighting of the BPT will not be discernible from here either and the effect is also Imperceptible. Furthermore, the lighting would only be activated by movement from site visitors and will therefore be infrequent and illumination will only be for a short period. Whilst lighting may be visible from the edge of Knocksink Wood (VP14) it is unlikely that location would attract visitors at night time.

16.4.8.5 Magnitude of Operational Phase Visual Impacts – BPS

289. Three representative VRPs were used to assess the Operational Phase visual effects of the BPS (Figure 16.13 – VP21, VP22 and VP23). All three are from the local road that passes to the south of the site. All are from field gates and what would be experienced as a fleeting view by road users. The BPS would be most noticeable in VP21. The design of the BPS makes it look similar to the barn structures that are common to the area. The significance of visual effect is deemed to be Moderate – slight for both VP21 and VP22, while at VP23 it would be Imperceptible as the BPS would be nestled amongst vegetation within the receiving shallow valley context. Landowner issues prevented a night time view being captured for the BPS facility. However, like the FCV facility, a low level of lighting is proposed for the BPS such that the lighting effects would not be greater than from a rural farmstead and are not considered significant.

16.4.8.6 Magnitude of Operational Phase Visual Impacts – FCV

290. One representative VRP is used to assess the Operational Phase visual effects of the FCV (VP24 – see Figure 16.17). This is located on the adjacent local road at the gateway that will provide access to the FCV site. It also provides visual context for a series of dwellings that occur across farmland to the north-east where a VRP from the public road beyond would likely illustrate a higher degree of screening than actually occurs from some of the dwellings. The FCV, which comprises of a raised mound hosting the access cover as well as a control centre (shed) and perimeter security fence, will be accessed directly through an existing gateway. It will be the potential loss of mature roadside trees and the green palisade security fence around the perimeter of the site that is the most distinctive visual change from the adjacent local road and also from the line of dwellings across the field to the north-east. The view across the field from VP24 will be truncated by the foreground FCV facility. The row of rural dwellings to the north-east will have a relatively clear, but distant view across the field towards the FCV, but again, it will be the loss of existing trees and the security fence they notice most. The significance of effect at the adjacent roadside (VP24) is deemed to be Moderate, whilst it will be Moderate-slight for the more distant line of dwellings to the north-east.

291. A night time view has been assessed for the FCV from VP24 and it affords a close and clear view of the lighting proposed within the facility. This will be of a modest domestic nature and intensity and will give rise to effects that are deemed to be Slight.

16.4.8.7 Magnitude of Operational Phase Visual Impacts – TPR

292. Four representative VRPs were used to assess the Operational Phase visual effects of the TPR (Figure 16.14 – VP17, VP18, VP19 and VP20). VP17 and VP18 are from the surrounding local roads to the south-west and west of the site. VP17 affords views of the shorter southern end of the TPR at a modest distance across farmed fields. From this direction, the Chlorine Dosing Control Building sits to the rear of the main reservoir (contained by grassed berm). From VP18, which is twice the distance away, but across a similar context of flat, open farmland, the full lateral extent of the grassed berm would be visible. In both instances the TPR would sit in close alliance with the concentration of mature vegetation and glimpses of buildings that define the adjacent Peamount Hospital and the existing Peamount Reservoir. While this helps to visually assimilate the proposed structures in this flat farmland context, it is not without generating some increased intensity of industrial built development within each view. Consequently, the significance of visual effect is deemed to be Moderate – slight for both VP17 and VP18, while at VP19 and VP20 it would be Imperceptible. A night time view is also assessed for the TPR from VP17, however, the proposed lighting is very modest in extent and intensity and is screened by the structures of the TPR to the degree that effects are deemed to be Imperceptible. Furthermore, the lighting will only be activated by movement from site visitors and will therefore be infrequent and illumination will only be for a short period should it be visible from other receptor locations.

16.4.8.8 Magnitude of Operational Phase Visual Impacts – Pipeline Corridor

293. Once operational and with the Construction Working Width reinstated and land cover re-established, there would be little to distinguish the Construction Working Width from its predominantly rural surroundings. However, there would be some features that are likely to still be visible such as control kiosks and infrastructure at the Line Valve sites, as well as various forms of above-ground valves. The laybys associated with the Line Valves would not be uncharacteristic as they generally adjoin existing roads and, although they would be new features in the visual field, they represent only a very low degree for visual intrusion. The kiosks, fences and other above-ground features would be relatively small in scale and not likely to be noticed or perceptually connected to the below-ground Pipeline Corridor by a casual observer. Nor would any of these features register as out of the ordinary for local residents once they have been in place for more than a few months. For these reasons, there is not considered to be any perceptible obstruction or intrusion of existing views and little noticeable visual change to the nature/character of the landscape in view. In turn, this means the magnitude of Operational Phase visual impacts relating to the various sections of the Pipeline Corridor would be negligible, resulting in an Imperceptible significance of effect.

16.4.8.9 Summary of Operational Phase Visual Effects

294. Table 16.22 provides a summary of the visual effects during operation. Even in the absence of mitigation measures, it is considered that significant effects will not arise at any of the representative VRPs.

Table 16.22: Summary of Operational Phase Visual Effects

VRP	Site	Sensitivity	Magnitude	Pre-mitigation Visual Effect Significance	Quality of Effect
VP0.1	38 kV Uprate Works	High	Negligible	Imperceptible (Not significant)	Neutral
VP0.2	38 kV Uprate Works	High	Negligible	Imperceptible (Not significant)	Neutral
VP0.3	38 kV Uprate Works	Low	Low	Slight – Imperceptible (Not significant)	Negative – Neutral
VP0.3 night time	38 kV Uprate Works	Low	Low	Slight – Imperceptible (Not Significant)	Neutral
VP1	RWI&PS	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP1a	RWI&PS	Medium – Low	Low	Slight (Not significant)	Neutral
VP2	RWI&PS	High – Medium	Negligible	Imperceptible (Not significant)	Neutral
VP3	RWI&PS	Medium	Negligible	Imperceptible (Not significant)	Neutral
VP4	RWI&PS	High – Medium	Low	Slight (Not significant)	Negative
VP4 night time	RWI&PS	High – Medium	Low – Negligible	Slight – Imperceptible (Not significant)	Negative
VP5	RWI&PS	High – Medium	Medium – Low	Moderate – Slight (Not significant)	Negative
VP6	RWI&PS	High – Medium	Medium – Low	Moderate (Not significant)	Negative
VP7	RWI&PS	High	Low	Moderate – Slight (Not significant)	Negative
VP8	WTP	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP9	WTP	Medium – Low	Low	Slight (Not significant)	Negative
VP9 night time	WTP	Medium – Low	Low	Slight (Not significant)	Negative
VP9a	WTP	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Neutral – Positive
VP10	WTP	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Sensitivity	Magnitude	Pre-mitigation Visual Effect Significance	Quality of Effect
VP11	WTP	Medium – Low	Low	Slight (Not significant)	Negative
VP12	WTP	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP13	WTP	Medium – Low	Low	Slight (Not significant)	Negative
VP14	BPT	Medium	Medium	Moderate (Not significant)	Negative
VP15	BPT	Medium	Negligible	Imperceptible (Not significant)	Neutral
VP16	BPT	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP16 night time	BPT	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP21	BPS	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative
VP22	BPS	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
VP23	BPS	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP24	FCV	Medium – Low	Medium	Moderate – Slight (Not significant)	Negative
VP17	TPR	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative
VP17 night time	TPR	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral
VP18	TPR	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative
VP19	TPR	Medium	Negligible	Imperceptible (Not significant)	Neutral
VP20	TPR	Medium	Negligible	Imperceptible (Not significant)	Neutral

16.5 Mitigation and Monitoring Measures

16.5.1 Embedded Mitigation

295. The environment team has worked closely with the infrastructure design team to avoid or reduce environmental impacts through the Proposed Project design. This is referred to as embedded (or design) mitigation. Embedded mitigation is inherent to the Proposed Project design, and forms part of the project description and construction methodology described in Chapter 4 (Proposed Project Description) and Chapter 5 (Construction & Commissioning) of the EIAR. As such, embedded mitigation is considered in the assessment of pre-mitigation effects in Section 16.4. Chapter 3 (Consideration of Reasonable Alternatives) of the EIAR details the reasonable alternatives that have been considered throughout the design development of the Proposed Project, including the environmental factors which have influenced the decision making.

296. The main embedded mitigation measure employed in respect of landscape and visual effects for the Proposed Project is that of avoidance. That is, the process of high-level constraints assessment followed by ever more focused consideration of constraints to determine the preferred water supply option, route corridor options and Infrastructure Site locations. This process is set out in detail in Chapter 3 (Consideration of Reasonable Alternatives).

297. In relation to the Pipeline Corridor, the Construction Working Width would generally be 50m in width; however, Uisce Éireann would retain rights of access for maintenance of the pipeline along a 20m wide Permanent Wayleave which would be centred above the pipeline. Planting restrictions within the 20m wide Permanent Wayleave mean that good practice mitigation replanting will be carried out in the form of low-growing woody species of local provenance including hawthorn, blackthorn and bramble to re-establish the local hedgerow network and field pattern. Typically, removed sections of hedgerow would be replanted using the same species composition as guided by the Project Ecologists. Otherwise, the

approach to planting disturbed areas of ground would be to reinstate vegetation on a like-for-like basis insofar as is possible. The same approach would be applied to land cover by replacing agricultural grassland, scrubland and wooded areas on a like-for-like basis. This means that following a re-establishment period, baseline vegetation patterns would be substantially restored as a result. This planting and seeding has been considered as part of the pre-mitigation assessment of the Operational Phase.

298. Architectural input has been provided in respect of the RWI&PS and WTP structures, as these are substantial scale features of the Proposed Project contained in sensitive landscape settings. The Project Architects considered the arrangement, scale, form and colour scheme of the buildings in conjunction with input from the Project Landscape Architects and Engineers. The architectural design of the RWI&PS and WTP is embedded mitigation that has been considered in the assessment of likely significant effects pre-mitigation, as reported in Section 16.4. The architectural design embedded mitigation measures are presented within Chapter 4 (Proposed Project Description) of this EIAR, with further information being provided in the documentation that supports the planning application for the Proposed Project, including the document entitled 'Water Supply Project - Eastern and Midlands Region: Infrastructure Sites Architectural Statement' and relevant Planning Application Drawings.
299. A circular woodland walk is proposed through the new woodland area within the BPT site that will connect with the existing woodland trails within the adjacent Knockanacree Wood. This takes advantage of the proximity to the public woodland and the proposed landscape design, which seeks to perceptually merge with that and extends the current recreational amenity offering.

16.5.1.1 Architectural Design – RWI&PS

300. The architectural design for the RWI&PS focused on the Raw Water Pumping Station Building that fronts the Parteen Basin as this would be the most visible and potentially impactful feature of the facility. The design incorporates high-quality finishes of natural stone, glass and sinusoidal cladding, and a distinctive tripartite roof with two recesses to break up the massing of the structure as viewed from the west. For the other built structures within the RWI&PS site, a sinusoidal cladding of a 'signal grey' colour would be utilised. While the design intent of the main Raw Water Pumping Station Building combines a bold yet sympathetic design with a visually recessive colour scheme, the design and tone of other structures is more wholly focused on them visually receding against a backdrop of vegetation across seasons.

16.5.1.2 Architectural Design – WTP

301. As can be identified in the visual impact assessment of selected VRPs in the study area of the WTP in Appendix A16.1, due to screening provided by existing vegetation in the landscape, it is the roof profile that tends to be visible from surrounding receptors and only the uppermost sections of façades. To mitigate the visual effects, a diverse approach to scale, massing and finishes is proposed. That is, the various cladding treatments are designed to break up the massing of the structures and to help them to recede against surrounding vegetation patterns through all seasons and remain subordinate in architectural language to the main buildings described in this section.

16.5.2 Specific Mitigation and Monitoring Measures

302. No significant landscape or visual adverse effects have been identified but specific mitigation measures will be implemented to reduce adverse effects.
303. Mitigation and monitoring measures for landscape and visual are described below and are included in the CEMP which has been produced to support this EIAR (refer to Appendix A5.1). Specific Landscape Mitigation Plans at each of the Infrastructure Sites are included in Figure 4.89 to Figure 4.99. The residual landscape and visual effects after planting has established are reported in Section 16.6.

304. No landscape or visual mitigation measures are proposed for the Construction Phase, but good practice measures will be implemented, including that construction work would be undertaken in accordance with BS 5837: Trees in Relation to Design, Demolition and Construction (British Standards Institution 2012), which would include tree protection measures and lighting would be baffled to avoid undue light spill into surrounding areas.

16.5.2.1 Mitigation Measures – 38 kV Uprate Works

305. The Construction Phase of the 38 kV Uprate Works allows for the replanting of some of the vegetation removed as a result of trenching work, but no specific landscape or visual mitigation measures are required or are proposed for either the Construction or the Operational Phases.

16.5.2.2 Mitigation Measures – RWI&PS

306. The landscape mitigation design for the RWI&PS (Figure 4.89 and Figure 4.90) seeks to reinstate riparian woodland vegetation insofar as possible within and around the perimeter of the site as a near backdrop for the proposed buildings that reduce the visual prominence of the buildings and also provide a sense of nesting them within the surrounding vegetation context rather than disrupting it.

16.5.2.3 Mitigation Measures – WTP

307. The landscape mitigation plan for the WTP (Figure 4.91 and Figure 4.92) employs a combination of visual screening and integration. Visual screening is for the benefit of receptors within the immediate surrounds of the site and which are located at similar or slightly higher ground levels and would consist of perimeter hedgerow planting around the site. The purpose of internal 'integration' planting is to soften the visible façades of buildings, break up the perceived extent of the site and assimilate it with surrounding vegetation patterns. This would be in the form of individual specimen trees, formal hedgerows, several small native woodland plots and one large broadleaved woodland. This is mainly for the benefit of the elevated longer-distance view of the Proposed Project from VP7 on Tountinna Mountain, which has a more vertically oblique view across the site. It is also proposed to retain and plant a broad buffer along the southern boundary of the site with woodland species that would eventually take over the screening role currently provided by off site forestry compartments adjacent to the south when this is eventually felled.

16.5.2.4 Mitigation Measures – BPT

308. The BPT, specifically the Control Building, has a more utilitarian appearance and would be finished in a recessive colour scheme of muted grey/green tones. In addition to the colour scheme, the building is substantially screened from all directions by terrain except from the top of Knockanacree Wood to the south (see VP14). The view of the BPT from VP14 would be substantially mitigated by perimeter screen planting along the southern and eastern embankments that would blend with the surrounding woodland context (Figure 4.93 and Figure 4.94).

16.5.2.5 Mitigation Measures – BPS

309. The land around the BPS, between the security fence and the stockproof fence, would be planted with a screen planting mix comprised of native whips and advanced nursery stock. The sections of hedgerow along the L3003 local road that would have been removed during the Construction Phase would be replanted behind the proposed sightlines associated with the site entrance. Once established this planting would screen the BPS from most angles and would reinstate the enclosed nature of the L3003 to the south of the site (Figure 4.95).

16.5.2.6 Mitigation Measures – FCV

310. The land around the FCV, between the security fence and the stockproof fence, would be planted with a screen planting mix comprised of native whips and advanced nursery stock to establish a screen hedgerow for all sections of the boundary except the access gate onto the L2008. The roadside vegetation removed to facilitate sight lines will be replaced with new native planting inside the sightline angle and once established will serve to substantially screen the FCV facility from view of passers-by except at the site entrance (Figure 4.96).

16.5.2.7 Mitigation Measures – TPR

311. In terms of mitigation screen planting at the TPR, the strategy is to blend aesthetically and functionally with the existing coniferous treeline that runs along the southern boundary of the Peamount Hospital site by extending this westward. The existing hedgerows would be bolstered and a new section proposed to substantially screen the Stilling Basin and Distribution Chamber structure and the berm surrounding the main reservoir as viewed from the west. Likewise, bolstering on the south-east of the site parameter would blend with the mature broadleaf trees that substantially screen the hospital from eastward views of the TPR. Once established, such planting along the western boundary of the TPR would fully screen the long elevation of the reservoir berm from view (Figure 4.97 and Figure 4.98).

16.6 Residual Effects

312. No potential significant effects were identified in the Construction or Operational Phases that require specific mitigation; however, there would be benefits from the proposed screen planting at the Infrastructure Sites, which relate to non-significant landscape and visual effects, and these are detailed in Table 16.23 and Table 16.24, respectively. The LVIA is structured in a manner that accounts for embedded architectural/site layout mitigation including the colour tone of buildings as part of the pre-mitigation assessment and this is reflected visually in the pre-mitigation photomontage set in Appendix A16.2. The post-mitigation scenario is that which incorporates proposed screen planting measures after an establishment period that would allow it to perform the function intended (approximately five to seven years), while acknowledging that it would be of increasing mitigation benefit up until that point (post-mitigation photomontage set in Appendix A16.2) and would continue to increase in mitigation benefit (thicker/taller vegetation) thereafter.

Table 16.23: Summary of Residual Operational Phase Landscape Effects

Element	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity	Magnitude of Impact	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
Pipeline Corridor	The landscape containing the Pipeline Corridor sections would have been reinstated to the relevant prevailing land cover including substantial replacement of hedgerows in the later period of the construction process. Consequently, there would be a negligible magnitude of Operational Phase landscape impact on the rural landscape character of the Pipeline Corridor.	Medium – Low and High – Medium (at RW – 0 to RW – 2000)	Negligible	Imperceptible and Slight – Imperceptible (at RW – 0 to RW – 2000) (Not significant)	Negative– Neutral	All mitigation in relation to the Pipeline Corridor is embedded mitigation or good practice mitigation and was assessed as an integrated part of the Construction and Operational Phase.	Negligible	Imperceptible (not significant)	Neutral and Negative – Neutral
38 kV Uprate Works	The physical impact of the underground infrastructure and the upgrades to the existing Birdhill 38 kV Substation and over-ground infrastructure are limited. Therefore, the 38 kV Uprate Works would be barely discernible and would not alter the landscape character.	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	Mitigation measures involve reinstating vegetation removed along the route of the underground cables insofar as possible but the residual effect would not change.	Negligible	Imperceptible (not significant)	Neutral

Element	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity	Magnitude of Impact	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
RWI&PS	The RWI&PS would add to the intensity of built development in this waterside landscape context where there is currently a low degree of built development.	High – Medium	Medium – Low	Substantial – Moderate (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Medium – Low	Substantial – Moderate (Not significant)	Negative
WTP	The WTP would represent a major industrial facility that would be contained within an immediate landscape context (c.500m – 1000m radius) that is currently characterised by very low levels of built development and the low intensity rural land uses of pastoral farming and forestry.	Medium – Low	High – Medium	Substantial – Moderate (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	High – Medium	Substantial – moderate (Not significant)	Negative

Element	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity	Magnitude of Impact	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
BPT	The BPT would present as a modest scale feature on top of Knockanacree Hill but would not be dissimilar to a large barn or rural shed, within this rural context of farmland and forestry.	Medium	Low	Slight (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Low	Slight (Not significant)	Negative
BPS	The study area for the BPS contains some sensitive elements but as the BPS would be located at the base of a lowland valley it would be well screened by existing vegetation. The design of the BPS building means that it would present in a very similar way as a typical farm building.	Medium	Low	Slight (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Low	Slight (Not significant)	Negative
FCV	The FCV is a small scale facility that is substantially below ground such that the most noticeable feature is the perimeter security fence which will be readily obscured by perimeter hedgerow planting.	Medium – Low	Low	Slight (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape.	Low	Slight (Not significant)	Negative

Element	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
		Sensitivity	Magnitude of Impact	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
TPR	The TPR would add to the intensity of engineered/built development in a rural hinterland area adjacent to the Peamount Service Reservoir and would be recognisable as a related development.	Medium	Medium – Low	Moderate (Not significant)	Negative	The landscape mitigation plan is primarily to aid visual screening of the Infrastructure Site during the Operational Phase. It would also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Medium – Low	Moderate (Not significant)	Negative

Table 16.24: Summary of Residual Operational Phase Visual Effects (see Appendix A16.1)

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP0.1	38 kV Uprate Works	See Appendix A16.1	High	Negligible	Imperceptible (Not significant)	Neutral	No specific visual mitigation measures are required or are proposed for the Operational Phase.	Negligible	Imperceptible (Not significant)	Neutral
VP0.2	38 kV Uprate Works	See Appendix A16.1	High	Negligible	Imperceptible (Not significant)	Neutral	No specific visual mitigation measures are required or are proposed for the Operational Phase.	Negligible	Imperceptible (Not significant)	Neutral
VP0.3	38 kV Uprate Works	See Appendix A16.1	Low	Low	Slight – imperceptible (Not significant)	Negative – Neutral	No specific visual mitigation measures are required or are proposed for the Operational Phase.	Low	Slight – Imperceptible (Not significant)	Negative – Neutral
VP0.3 night time	38 kV Uprate Works	See Appendix A16.1	Low	Low	Slight – Imperceptible (Not Significant)	Neutral	No specific visual mitigation measures are required or are proposed for the Operational Phase.	Low	Slight – Imperceptible (Not significant)	Neutral
VP1	RWI&PS	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP1a	RWI&PS	See Appendix A16.1	Medium – Low	Low	Slight	Neutral	Tree lined access road and woodland pocket will serve to soften and integrate the accessway and site entrance.	Low – Negligible	Slight – Imperceptible	Neutral
VP2	RWI&PS	See Appendix A16.1	High – Medium	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral
VP3	RWI&PS	See Appendix A16.1	Medium	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP4	RWI&PS	See Appendix A16.1	High – Medium	Low	Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Low	Slight (Not significant)	Negative
VP4 night time	RWI&PS	See Appendix A16.1	High – Medium	Low Negligible	Slight – Imperceptible	Negative	Landscape mitigation will not result in a reduction of light spill for the westerly elevated view because it is not placed along the western waterside boundary of the RWI&PS site.	Low – Negligible	Slight – Imperceptible	Negative
VP5	RWI&PS	See Appendix A16.1	High – Medium	Medium – Low	Moderate – Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Medium – Low	Moderate – Slight (Not significant)	Negative

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP6	RWI&PS	See Appendix A16.1	High – Medium	Medium – Low	Moderate (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low	Moderate – Slight (Not significant)	Negative
VP7	RWI&PS	See Appendix A16.1	High	Low	Moderate – Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – Negligible	Slight (Not significant)	Negative
VP8	WTP	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP9	WTP	See Appendix A16.1	Medium – Low	Low	Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Low	Slight (Not significant)	Negative
V9 night time	WTP	See Appendix A16.1	Medium-Low	Low	Slight (Not significant)	Negative	Landscape mitigation may soften and marginally reduce light spill, however, because there is not a direct view of the light sources there will still be some light emanating from the WTP site.	Low	Slight (Not significant)	Negative
VP9a	WTP	See Appendix A16.1	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Neutral – Positive	Native hedgerow screening around entrance and along site access to soften and screen the development.	Medium – Low	Moderate – Slight (Not significant)	Neutral – Positive
VP10	WTP	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP11	WTP	See Appendix A16.1	Medium – Low	Low	Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – negligible	Slight – Imperceptible (Not significant)	Negative – Neutral
VP12	WTP	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral
VP13	WTP	See Appendix A16.1	Medium – Low	Low	Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – Negligible	Slight – Imperceptible (Not significant)	Negative – Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP14	BPT	See Appendix A16.1	Medium	Medium	Moderate (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – Negligible (summer) Low (winter)	Slight/Slight – Imperceptible (seasonal) (Not significant)	Negative – Neutral
VP15	BPT	See Appendix A16.1	Medium	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral
VP16	BPT	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP16 night time	BPT	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	Landscape mitigation will not have a bearing on light spill from the BPT site.	Negligible	Imperceptible (Not significant)	Neutral
VP21	BPS	See Appendix A16.1	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – Negligible	Slight (Not significant)	Negative
VP22	BPS	See Appendix A16.1	Medium – Low	Medium	Moderate (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low – Negligible	Slight – Imperceptible (Not significant)	Negative – Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP23	BPS	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral
VP24	FCV	See Appendix A16.1	Medium – Low	Medium	Moderate (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Medium – Low	Moderate – Slight (Not significant)	Negative
VP17	TPR	See Appendix A16.1	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low	Slight – Imperceptible (Not significant)	Negative – Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP17 night time	TPR	See Appendix A16.1	Medium – Low	Negligible	Imperceptible (Not significant)	Neutral	Landscape mitigation will not have a bearing on light spill from the TPR site.	Negligible	Imperceptible (Not significant)	Neutral
VP18	TPR	See Appendix A16.1	Medium – Low	Medium – Low	Moderate – Slight (Not significant)	Negative	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project.	Low	Slight – Imperceptible (Not significant)	Negative – Neutral
VP19	TPR	See Appendix A16.1	Medium	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

VRP	Site	Description of Potential Sensitivity of Receptors/Magnitude of Impacts	Pre-Mitigation				Mitigation and Monitoring Measures	Post-Mitigation		
			Sensitivity	Magnitude	Significance of Environmental Effect	Quality of Effect		Residual Magnitude	Residual Significance	Quality of Effect
VP20	TPR	See Appendix A16.1	Medium	Negligible	Imperceptible (Not significant)	Neutral	The landscape mitigation plan will aid visual screening of the Infrastructure Site during the Operational Phase. It will also help integrate the Infrastructure Site into the surrounding landscape and to compensate for the removal of vegetation during the Construction Phase of the Proposed Project but the residual effect would not change.	Negligible	Imperceptible (Not significant)	Neutral

313. Excluding results where the visual effect is already 'Imperceptible' in a pre-mitigation scenario, which equates to over half of the selected VRPs, Table 16.24 shows that mitigation screen planting reduces effect significance in most instances. A summary of the overall residual visual effects for the Pipeline Corridor, 38 kV Uprate Works and Infrastructure Sites (RWI&PS, WTP, BPT, BPS, FCV and TPR) is provided in the next sections.

16.6.1 Residual Visual Effects – Pipeline Corridor

314. The Operational Phase visual effects along the Pipeline Corridor, which account for the embedded mitigation and good practice mitigation, are deemed to be Imperceptible. No specific mitigation measures are proposed, thus the residual significance of effect would remain unchanged. No likely significant effects.

16.6.2 Residual Visual Effects – 38 kV Uprate Works

315. Visual effects along the underground cable route are deemed to be Slight – imperceptible. Mitigation measures involve reinstating vegetation removed along the route of the underground cables insofar as possible. Following the implementation of the proposed mitigation measures, visual effects would be Imperceptible. No likely significant effects.

16.6.3 Residual Visual Effects – RWI&PS

316. For the RWI&PS, mitigation screen planting only has a minor influence on the residual visual effect. One of the main reasons for this is that the structures would remain substantially screened by surrounding mature vegetation that is not being felled as part of the Proposed Project, particularly throughout eastern quarters. Mitigation planting will only serve to supplement this existing vegetation. Contrastingly, from western quarters, the lakeside Raw Water Pumping Station Building would not be screened by mitigation planting for functional reasons and remains visible from receptors within and around the opposing shores and slopes of the Parteen Basin. In this instance, the main benefit of mitigation planting is the sense of establishment and integration it provides to the structures and the relationship with their surroundings. There would be a minor reduction in the visible extent of the RWI&PS structures from the sensitive VP6 at Clarisford Park, thereby reducing visual effect significance from Moderate to Moderate – slight. No likely significant effects.

16.6.4 Residual Visual Effects – WTP

317. For the WTP, the main benefit of perimeter mitigation planting is that it will serve to bolster and enhance existing boundary hedgerows that would be retained around the WTP site, while adding another layer of density and consolidation to the stacked hedgerows existing in the farmed landscape between the nearest receptors and the well-buffered site. Generally, only small sections of the WTP roof profile and upper façades would be visible through gaps in intervening vegetation. This supplementary planting reduces the number and extent of such gaps resulting in residual visual effects that are one category lower than in a pre-mitigation scenario in most instances.

318. Perimeter screen planting in conjunction with internal lines of planting helps to visually assimilate the extensive WTP site when viewed from the elevated vantage point of VP7. Although the roof profiles of the buildings remain visible, the significance of effect is deemed to reduce from Moderate – slight to Slight. This assessment accounts for the view of both the RWI&PS and the WTP, which both benefit from mitigation planting. No likely significant effects.

16.6.5 Residual Visual Effects – BPT

319. Mitigation screen planting in respect of the BPT is provided almost entirely for the benefit of VP14 at the edge of Knockanacree Wood. This mitigation will be very effective, as it will almost entirely screen views of the BPT features, thereby reducing the visual effect significance from Moderate to Slight/Slight – imperceptible – the variation accounting for the fact that during winter months veiled views may still be afforded through bare vegetation. The proposed planting would also blend with the existing mature woodland that encloses other aspects of the view from VP14 and would not appear out of place or contribute to noticeably greater sense of visual containment. No likely significant effects.

16.6.6 Residual Visual Effects – BPS

320. The proposed new hedgerows along the local road to the south of the site to replace the sections removed to accommodate the proposed sightlines for the site entrance, plus the mitigation screen planting along the eastern and western boundaries of the BPS will be very effective in screening the BPS. The upper portion of the BPS would still be visible over the mature screen planting from VP21 but it will reduce the significance of effect to Slight. Screen planting adjoining VP22 would foreshorten the view but would reduce the significance of effect to Slight – imperceptible (not significant). Specific mitigation measures will not be noticeable from VP23.

16.6.7 Residual Visual Effects – FCV

321. Proposed mitigation screen planting around the boundary of the FCV will be very effective in screening the small scale features contained within the facility. This vegetation would visually blend with the dense and mature vegetation that already lines the L2008 local road. Consequently, the pre-mitigation visual effect is deemed to reduce from Moderate to a residual visual effect of Moderate – slight at VP24. For the dwellings that lie around 200m across the field to the north-east, the significance of effect will reduce to Imperceptible following mitigation establishment. No likely significant effects.

16.6.8 Residual Visual Effects – TPR

322. Proposed mitigation screen planting along the southern and western boundaries of the TPR will be very effective in screening the engineered berm that contains the reservoir as well as the Stilling Basin and Distribution Chamber at the southern end of the site. This vegetation would visually blend with the dense and mature vegetation that already surrounds the southern and western sides of Peamount Hospital and the existing Peamount Reservoir such that it would not appear incongruous in its own right. Consequently, the pre-mitigation visual effect is deemed to reduce from Moderate – slight to a residual visual effect of Slight – imperceptible from both VP17 and VP18. No likely significant effects.

16.6.9 Summary

323. The Proposed Project would result in negative adverse landscape and visual effects prior to mitigation; however, they are not deemed to be significant. The mitigation measures will result in a general reduction to the magnitude of visual impacts and would help the Proposed Project to integrate into the wider landscape fabric. There would be no significant residual landscape and visual effects from the Proposed Project during the Construction or Operational Phases.

16.7 References

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