Tionscadal Soláthair Uisce
Water Supply Project

Environmental Impact Assessment Report (EIAR)

Volume 3 of 6:
Environmental Assessment

(Chapter 11) Agriculture

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Uisce Éireann
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Jacobs

TOBIN

Contents

Acronyms and Abbreviations

Acronym	Meaning
AAU	Agricultural Area Used
BISS	Basic Income Support for Sustainability
BPS	Booster Pumping Station
BPT	Break Pressure Tank
bTB	Bovine Tuberculosis
CEMP	Construction Environmental Management Plan
CRISS	Complementary Redistributive Income Support for Sustainability
CSO	Central Statistics Office
DAFM	Department of Agriculture, Food and the Marine
EC	European Commission
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
ESBN	Electricity Supply Board Network
EU	European Union
EVC	Equine veterinary consultant
FCV	Flow Control Valve
FEPU	Farm Enterprise Primary Use
ha	Hectares
HGV	Heavy Good Vehicle
km	Kilometre
kV	Kilovolt
l	Litre
LLO	Land Liaison Officer
m	Metre
MV	Medium Voltage
NRAV	Never Received an Agronomy Visit
OSI	Ordnance Survey of Ireland
RWI&PS	Raw Water Intake and Pumping Station
RWRM	Raw Water Rising Main
TPR	Termination Point Reservoir
UAA	Utilisable Agricultural Area
WTP	Water Treatment Plant

11. Agriculture

11.1 Introduction

1. This chapter reports the assessment of likely significant effects of the Proposed Project on the agricultural environment. In accordance with the requirements of the EIA Directive, it identifies, describes and assesses the likely significant agricultural 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 likely significant effects of the Proposed Project, proposes mitigation measures and identifies the residual effects. The assessment has been conducted in accordance with best practice guidance and methodology.

3. 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 11.5.1.

4. Table 11.1 outlines the principal Proposed Project components that have been assessed within this chapter. A full description of the Proposed Project is detailed within Chapter 4 (Proposed Project Description) of this Environmental Impact Assessment Report (EIAR).

Table 11.1: 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	• 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.
Raw Water Rising Mains (RWRMs) (Pipeline) County Tipperary	• 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.

Proposed Project Infrastructure	Outline Description of Proposed Project Infrastructure*
Water Treatment Plant (WTP) (Infrastructure Site) County Tipperary	• 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.
Treated Water Pipeline from the WTP to the BPT (Pipeline) County Tipperary	• 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.
Break Pressure Tank (BPT) (Infrastructure Site) County Tipperary	• 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*
Treated Water Pipeline from the BPT to the TPR (Pipeline) Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• 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.
Booster Pumping Station (BPS) (Infrastructure Site) County Offaly	• 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.
Flow Control Valve (FCV) (Infrastructure Site) County Kildare	• 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*
Termination Point Reservoir (TPR) (Infrastructure Site) County Dublin (within the administrative area of South Dublin County Council)	• 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 75Ml 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	
Proposed 38 kV Uprate Works Ardnacrusha – Birdhill (Power Supply) Counties Clare, Limerick and Tipperary	• 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	
Construction Working Width Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• 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.
Construction Compounds Counties Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council)	• 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.
Pipe Storage Depots Counties Tipperary, Offaly and Kildare	• 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.

5. The total area of land falling within the Planning Application Boundary is 1,233 hectares (ha). This includes both temporary and permanent use of land. Permanent acquisition of land would be required for the RWI&PS, WTP, BPT, BPS, FCV and TPR, and for access roads to these locations, where required.

6. In addition, along the pipeline, Uisce Éireann would acquire a permanent wayleave, which gives it the right to construct, inspect, operate and maintain the RWRMs, Treated Water Pipeline and associated infrastructure. Certain restrictions would apply within this wayleave to protect the pipeline. This would include for example, limiting future development and restricting planting of certain species of trees. Line Valve, Washout Valve and Air Valve locations would be situated within the permanent wayleave, refer to Table 11.2. The permanent wayleave associated with the RWRMs, and Treated Water Pipeline would be 20 metres (m) in width, normally centred on the pipeline. However, at Line Valves the permanent wayleave would be widened to take account of additional permanent features including the kiosks and to provide operational access.

7. In addition, there would be two further wayleaves linked to ancillary pipeline infrastructure. Firstly, to discharge from some of the washout valves there would be a pipe connecting the washout to a permanent outfall. There would be a permanent wayleave associated with this pipe. The wayleave would be 10m in width, normally centred above the connection pipe. At the outfall this wayleave would be widened to allow for the final position of the infrastructure. Secondly, each Line Valve would need a permanent power supply from an existing mains power line; these are included in Appendix A11.2 (Table of Impact Assessment Pipeline Infrastructure). These connections would have a separate wayleave for the Electricity Supply Board (ESB).

Table 11.2: Valve Types and Number

Valve Type	Number and Type of Valves along the Pipeline	Total for Entire Project	No. of Valves Across Agricultural Land
Line Valves:	• 49 Treated Water (Treated Water Pipeline) • 2 Raw Water (RWRMs).	51	46
Washout Valves:	• 39 with permanent outfall (WA) • 148 without permanent outfall (WB) • 49 incorporated with Line Valve installation and without permanent outfall (WB).	236	38 – WA 157 – WB
Air Valves:	• 287 (excluding those at Line Valves) – Treated Water (Treated Water Pipeline) • 2 (excluding those at Line Valves) – Raw Water (RWRMs) • 30 incorporated at Line Valves installations – Treated Water (Treated Water Pipeline) • 2 incorporated at Line Valves installation – Raw Water (RWRMs).	321	262
Manways:	• 64 dedicated – Treated Water (Treated Water Pipeline) • 389 part of Air Valves and Line Valves – Treated Water (Treated Water Pipeline) • 110 coincident with washout valves – Treated Water (Treated Water Pipeline) • 4 dedicated – Raw Water (RWRMs).	567	98
Potential Future Connections (Excluding the TPR)	• 3 Treated Water (Treated Water Pipeline from WTP to TPR) • 1 at the WTP.	4	4

8. In addition to the permanent land take, Uisce Éireann would retain rights of access for inspection, operation, maintenance and repair along the length of the pipeline. The total operational area for the Proposed Project including the 20m wide Permanent Wayleave along the sections of pipeline is approximately 396ha.

9. The Proposed 38 kV Uprate Works are necessary to deliver adequate electrical power to the Proposed Project. The works needed would entail uprating the existing Ardnacrusha – Birdhill (38 kV overhead) Line running from poleset 6B north of Ardnacrusha Substation, in County Clare, in a north-easterly direction and terminating at the Birdhill 38 kV Substation in County Tipperary. The works would also include the removal of polesets on the Ardnacrusha – Birdhill – Nenagh Line and replacement with a double-circuit underground cable and works at the Birdhill 38 kV Substation.

10. The Ardnacrusha – Birdhill Line forms one part of a loop circuit between the substations of Ardnacrusha and Birdhill, with the second being the Ardnacrusha – Birdhill – Nenagh Line.

11. The uprate works associated to the Ardnacrusha – Birdhill 38 kV overhead line comprises the following: replacement/uprate of polesets/structures (15), and replacement of fittings and conductor (110). The existing lines have been in place for approximately 70 years and are primarily constructed on double wooden polesets with a number of portal towers and steel lattice towers where the lines terminate. Wooden polesets are embedded in the soil at a depth of 2.3m, while lattice towers have concrete foundations under each leg extending to 2.5m x 2.5m x 2m. Polesets and towers range in height from 12m to 18m.

12. The proposed works would include 11 structures to be removed and replaced with underground cables on the eastern section of the Ardnacrusha – Birdhill – Nenagh Line. A full breakdown of the Proposed 38 kV Uprate Works and the number of structures affected is provided in Table 11.3.

13. There are 92 agricultural parcels identified that would be affected by the 38 kV Uprate Works; of these, 63 agricultural parcels have existing poleset infrastructure present, 22 have overhead power lines and seven are identified as indicative pole locations, where the 30 metre radius around the existing pole encroaches to an adjacent parcel.

Table 11.3: Proposed 38 kV Uprate Works and Number of Structures

Proposed 38 kV Uprate Works	Number of Structures
Ardnacrusha – Birdhill Line	
Poleset/structures to be replaced/ Uprated	15
Replacement of fittings and conductor	110
Poleset located in SAC[1] (Number to be replaced)	3 (0)
Ardnacrusha – Birdhill – Nenagh Line	
Poleset/structures to be removed and replaced with underground cables	11

14. Power for the RWI&PS and the WTP infrastructure sites would be taken from the existing Birdhill 38 kV Substation. A new power supply would be required to supply the BPT site; it is proposed that a connection be made to the existing medium voltage (MV) overhead power line to the north of the site via ducting, refer to Figure 4.67 (Chapter 4: Proposed Project Description). Power supply to the BPS would be provided by looping a 38 kV cable from the existing 38 kV overhead line network in the locality, refer to Figures 4.27 to 4.30 (Chapter 4: Proposed Project Description) inclusive. Power supply to the FCV site would be provided by ESB Networks from their Low Voltage network via a combination of overhead lines and buried cables routed to a control kiosk on the site. Power supply for the TPR site would be provided by a separate connection from the existing mains supply from the MV substation sited on the existing Peamount facility at the pumping station.

[1] SAC: Special Area of Conservation is a site designated under the EU Habitats Directive (92/43/EEC) to protect habitats and species of European importance.

15. A permanent connection to an electricity supply connection is required at each line valve location; it is proposed to use a mix of overhead lines and underground cables as appropriate (refer to Section 5.25 in Chapter 5 (Construction & Commissioning)). Appendix A11.2 captures land parcels that would be impacted by these connections.

16. A temporary connection to an existing electricity supply would be required for Construction Compounds and Pipe Storage Depots, refer to Table 5.12 of Chapter 5 (Construction & Commissioning).

17. The construction of the Proposed Project is anticipated to run from 2028 through 2032, with the first operational year anticipated to be 2033.

18. This chapter should be read in conjunction with the following chapters of the EIAR and supporting documentation:
    - Chapter 4 (Proposed Project Description)
    - Chapter 5 (Construction & Commissioning)
    - Chapter 6 (Noise & Vibration)
    - Chapter 7 (Traffic & Transport)
    - Chapter 8 (Biodiversity)
    - Chapter 9 (Water)
    - Chapter 10 (Soils, Geology & Hydrogeology)
    - Chapter 12 (Air Quality)
    - Chapter 13 (Climate)
    - Chapter 16 (Landscape & Visual)
    - Chapter 19 (Resource & Waste Management).

19. This chapter is also supported by the following documents:
    - Appendix A11.1 (Farm Survey, this includes A11.1a Farm Survey 2017, A11.1b Screening Survey 2021, A11.1c Farm Survey 2021. A11.1d Screening Survey 2024 and A11.1e Farm Survey 2024/2025)
    - Appendix A11.2 (Table of Impact Assessment Pipeline Infrastructure)
    - Appendix A11.3 (Table of Impact Assessment Infrastructure Sites)
    - Appendix A11.4 (Summary of Land Acquisition Type)
    - Appendix A11.5 (Table of Impact Assessment 38 kV Uprate Works).

20. Figures which are referenced in the text are provided in Volume 5 of this EIAR.

21. To aid understanding, Figures 11.2 to 11.57 (Agronomy Impact Assessment Landholding Maps) provide an overview of the land parcels impacted by the Proposed Project. Each land parcel has been assigned a unique parcel reference identification number. These are listed according to county initials in which they are located followed by a three-digit number assignment. The numbering mostly follows the original order of creation, with some out-of-sequence entries resulting from changes and reassignments as a result of project iterations. These are referenced within the impact assessment tables presented in Appendix A11.2, Appendix A11.3 and Appendix A11.5. For clarity, each land parcel has its own unique code; where one holding may have multiple parcels along the Proposed Project, these are assigned A, B, C following the assigned code.

22. This assessment has been undertaken and reported by a team of competent experts. Refer to Chapter 2 (The EIA Process) for a description of the qualifications and expertise of the specialists that have inputted to this chapter.

11.2 Methodology

23. A single methodological approach in accordance with best practice and guidance was adopted to assess the effects of the Proposed Project on the agricultural environment with refinements applied where necessary for specific farm enterprises such as equine, as outlined in Table 11.4. Relevant guidelines, policy and legislation that were used are listed in Section 11.2.3.

Table 11.4: Methodological Approach for the Agriculture Assessment

Tasks	The Proposed Project	Parameters
1. Define Proposed Project (Planning Application Boundary)	Temporary Infrastructure (defined in Table 11.1) comprising: • Construction Working Width • Construction Compounds • Pipe Storage Depots. Permanent Infrastructure (defined in Table 11.1) comprising: • Infrastructure Sites (RWI&PS, WTP, BPT, BPS, FCV and TPR) • Pipeline Infrastructure (RWRMs, Treated Water Pipelines and associated Washout Valves, Line Valves, Air Valves, Manways and Potential Future Connections) • Proposed 38 kV Uprate Works.	What is being proposed?
2. Define the Proposed Project phases	Construction Phase (defined in Section 11.4.2) Operational Phase (defined in Section 11.4.3)	When and for what duration are the effects likely to be experienced?
3. Define the potential impacts	Construction Phase (defined in Section 11.4.2) Operational Phase (defined in Section 11.4.3)	List potential impacts based on professional experience
4. Define assessment parameters	Farm sensitivity (defined in Section 11.2.7.1) Magnitude of impact (defined in Section 11.2.7.3) Duration of impact (defined in Section 11.2.7.4)	What criteria will be used to classify the effect?
5. Define level of effect	Significance of effects are defined according to Section 11.2.7.5, Table 11.10 and are as follows: • Imperceptible (not significant) • Not Significant • Slight (not significant) • Moderate (significant) • Significant • Very Significant • Profound (significant).	How to describe and compare the likely significant effects?
6. Define impact scale	National (defined in Section 11.6) County (defined in Section 11.6) Individual farm level (defined in Section 11.6)	Consider the wider implications?
7. Present assessment results	Presented in Appendices A11.2, A11.3 and A11.5 and summarised in Section 11.6	-

Table Note:

In line with Environmental Protection Agency (EPA) guidance, this chapter uses effects to describe predicted environmental outcomes (e.g. Assessment of Effects and Residual Effects). The word impact is used only for causal pressures (e.g. land take, severance). Where legacy references remain in appendices, impact should be read as effect.

24. The purpose of this chapter is to describe the likely significant effects the Proposed Project may have on the agricultural environment at a national, county and individual farm level. The following is an explanation of the terminology:

    - National impact: national impacts are defined as impacts that would be of national significance which would have an effect on agricultural production or production within a major section of agriculture at a national scale. Such impacts would be unlikely from a single infrastructure project and would more likely occur through policy decisions, for example, the imposition of control on fertiliser usage or the imposition of control on emissions in relation to greenhouse gases
    - County impacts: county impacts are defined as impacts that are felt at a county level. Impacts might be described as significant at county level where an enterprise of county importance, perhaps with large-scale employment consequences, is interrupted or must cease production
    - Impacts at an individual farm level: these are the impacts of the Proposed Project that would be felt at an individual farm level. The effects on each individual farm are summarised in the impact assessment tables in Appendix A11.2, Appendix A11.3 and Appendix A11.5.

25. The assessment is primarily based on an individual farm level, as reported in Section 11.4 and in Appendix A11.2, Appendix A11.3 and Appendix A11.5; however, consideration has been given to the residual effect on agriculture at a national and county level in Section 11.6.

26. Within Step 5 of Table 11.4, additional receptor-specific analysis was undertaken for specialised equine and stud farm operations. This was not a separate assessment, but a refinement within the agricultural methodology, recognising the heightened sensitivity of horses to noise, vibration, and disturbance. A specialist equine veterinary consultant (EVC) applied equine-specific considerations reflecting horse health, welfare, and behavioural sensitivities, and the safety of handlers. These considerations followed the same overall methodology as the agricultural assessment (desktop study, farm walk, consultation with landholders, mapping review, and professional judgement), with additional factors such as potential for fright responses, foaling unit requirements, and adequacy of screening/fencing. All holdings where this refinement was applied are identified with an ‘EVC’ indicator in Appendix A11.2. The EPA significance framework (Table 11.10) was applied consistently across all farm enterprises, ensuring a single, holistic methodology.

27. The classification of effects has been prepared in accordance with the EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022).

28. No specific issues have been scoped out of the agriculture assessment.

29. ‘Farm Enterprise Primary Use’ is the main farm enterprise identified on the holding. In some cases, there was more than one farm enterprise identified, e.g. Dairy & Tillage (all land tilled or marked for tillage – private, leased, or within mixed use). The primary farm enterprise is indicated first on the ‘Farm Enterprise’ in Figures 11.2 to 11.57. Farm Enterprise Primary Use describes the primary farming enterprise on the holding; they are described as one or multiple of the following:

    - Drystock: Includes beef, sucklers, and contract rearing
    - Dairy: Is used to describe dairy only
    - Equine: Is used to describe equine only
    - Forestry: Is used to describe forestry only
    - Grassland: Includes grazing, silage, hay and leased grassland
    - Horticulture: Is used to describe horticulture only
    - Mixed Livestock: Is used to describe a combination of sheep, equine and or drystock
    - Sheep: Is used to describe sheep only

- Tillage: Is used to describe all land tilled or marked for tillage – private, leased, or within mixed use.

30. A further effort is made to refine the broadness of these descriptions under the title 'Detailed Ag Use' within Appendix A11.2.

31. The Proposed Project would deliver nationally important strategic infrastructure 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 would be decommissioned and therefore, decommissioning of the Proposed Project has not been considered further in this assessment.

32. Testing and Commissioning has been considered as part of the assessments undertaken for the Construction Phase. No additional agricultural effects are expected beyond those already identified.

11.2.1 Infrastructure Considered Within the Agricultural Assessment.

33. The agricultural assessment considers both temporary and permanent project infrastructure. A summary of infrastructure types is provided below; full design descriptions are contained in Chapter 4 (Proposed Project Description) and Chapter 5 (Construction & Commissioning), to which this assessment refers to.

11.2.1.1 Temporary Infrastructure

34. Temporary infrastructure:

- Construction Working Width: Generally 50m, with localised widening where necessary. Temporary land take and reinstatement post-Construction Phase are considered
- Construction Compounds: Eight Compounds, four locations are principal sites, and four other locations are satellite sites. These would be used for storage, access and administration of material
- Pipe Storage Depots: Nine depots would be located throughout the Planning Application Boundary, these would be used as additional compounds to supplement construction material.

11.2.1.2 Permanent Infrastructure

35. Permanent infrastructure:

- Pipeline Infrastructure: RWRMs and Treated Water Pipeline. Ancillary pipeline features including Line Valves, Lay-bys, Kiosks, Washout Valves, Air Valves, Manways, Cathodic Protection, and provision of Potential Future Connections. The agricultural implications were considered in terms of land take, wayleave, drainage, disruption to operations and farm access
- Infrastructure Sites: RWI&PS, WTP, BPT, BPS, FCV and TPR. Each involves permanent land take and temporary construction areas
- Power Connections: Power supplies to infrastructure sites and valves
- Proposed 38 kV Uprate Works: Works along the Ardnacrusha – Birdhill Line and eastern section of Ardnacrusha – Birdhill – Nenagh Line, affecting agricultural parcels with existing infrastructure.

11.2.2 Study Area

36. The study area for the agricultural assessment comprises all agricultural land parcels and farm enterprises directly affected by the Proposed Project within the Planning Application Boundary. This boundary includes all permanent and temporary infrastructure described in Section 11.2.1.

37. Equine enterprises have been considered as part of the agricultural assessment due to their particular sensitivity to disturbance. In recognition of the potential for indirect effects on intensive or specialised equine facilities (for example, construction-related noise that may cause stress or fright responses in horses), the study area has been refined to include a 1km buffer outside the Planning Application Boundary for equine receptors only. This refinement does not constitute a separate assessment but forms an integrated component of the agricultural assessment to ensure that all relevant sensitivities are appropriately addressed.

38. Unless otherwise specified, the term study area in this chapter refers to the Planning Application Boundary, with a 1km buffer applied only in relation to specialised equine receptors.

11.2.2.1 Definition of Agricultural Terms

39. For clarity and consistency throughout this chapter, the following terminology is applied: an agricultural holding refers to all agricultural land farmed as a single unit by one farmer or landholder, irrespective of the number of separate land blocks involved. An agricultural parcel refers to an individual land unit as recorded on the Land Registry mapping system, where parcels are associated with folio numbers that legally define ownership. A farm enterprise refers to the overall agricultural business operation, which may include one or more agricultural enterprise and encompasses the full range of farming activities carried out by the farmer or landholder. For the purposes of this chapter, the term 'farmer' or 'landholder' includes the landowner, tenant, or any other person with responsibility for farming the land. In Ireland, all land ownership is recorded in the Land Registry, where each property is assigned a folio number. While a folio is the legal record of ownership, for the purposes of this assessment the relevant units of analysis are agricultural parcels, holdings and farm enterprises, as defined above.

11.2.2.2 Agricultural Parcels in the Study Area

40. There are 543 agricultural parcels within the study area directly impacted by the Planning Application Boundary. Of the 543 agricultural parcels, 435 are affected by the Proposed Project pipeline route, 16 are affected by the Proposed Project Infrastructure Sites and 92 are affected by the 38 kV Uprate Works.

41. In addition, a 1km buffer zone from the Planning Application Boundary was considered for likely indirect effects to highly sensitive agricultural receptors. There are 10 likely indirectly affected sensitive receptors identified; these are described as Indirect Equine, due to the highly intensive and sensitive nature of these equine operations to construction works. Therefore, there are a total of 553 (543 + 10) agricultural parcels which have been considered within this chapter.

42. Appendix A11.2 provides the assessment for the 435 agricultural parcels directly affected by the Proposed Project pipeline route and includes the assessment of the 10 likely indirectly affected equine operations which are located within a 1km buffer of the Planning Application Boundary. Appendix A11.3 provides the assessment for the 16 agricultural parcels that are directly affected by the Proposed Project Infrastructure Sites and access roads. Appendix A11.5 provides the assessment for the 92 agricultural parcels that fall within the Planning Application Boundary associated to the 38 kV Uprate Works.

11.2.2.3 Geographic Scope

43. The Proposed Project infrastructure would occur in six counties: Clare, Limerick, Tipperary, Offaly, Kildare and Dublin (within the administrative area of South Dublin County Council). A combination of farm enterprises would be affected by the Proposed Project which are detailed in Table 11.5a and Table 11.5b.

44. Table 11.5a reflects those along the pipeline route and associated sites, excluding the proposed 38 kV Uprate Works. Table 11.5b captures those intersected by the proposed 38 kV Uprate Works. Together, these tables represent the full agricultural baseline within the Planning Application Boundary.

Table 11.5a[2]: Farm Enterprise Primary Use (FEPU) Breakdown per County Directly Affected within the Planning Application Boundary Excluding the Proposed 38 kV Uprate Works

FEPU Identified	Total Number of Agricultural Parcels Identified within the Planning Application Boundary	% of Farm Enterprise that Fall within the Planning Application Boundary	FEPU County Tipperary	FEPU County Offaly	FEPU County Kildare	FEPU County Dublin
Drystock (incl. Beef, Sucklers, Contract Rearing)	117	25.94%	32	70	15	0
Dairy	95	21.06%	45	44	6	0
Sheep	7	1.55%	2	4	1	0
Equine	15	3.33%	4	1	7	3
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	43	9.53%	5	21	11	6
Mixed Livestock (combination of Sheep, Equine and or Drystock)	43	9.53%	3	31	9	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	114	25.28%	41	51	21	1
Forestry	16	3.55%	5	6	5	0
Horticulture	1	0.22%	0	0	1	0

Table 11.5b: Farm Enterprise Primary Use (FEPU) Breakdown per County for the Proposed 38 kV Uprate Works within the Planning Application Boundary

FEPU Identified	Total Number of Agricultural Parcels Identified for the Proposed 38 kV Uprate Works within the Planning Application Boundary	% of Farm Enterprise that Fall within the Proposed 38 kV Uprate Works Planning Application Boundary	FEPU County Clare	FEPU County Limerick	FEPU County Tipperary
Mixed Livestock (combination of Sheep, Equine and or Drystock)	25	27.17%	10	4	11
Forestry	6	6.52%	1	0	5
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	61	66.30%	44	6	11

11.2.3 Relevant Guidelines, Policy and Legislation

45. The methodology used to assess the impacts associated with agriculture is in accordance with relevant legislation and having regard to guidance.

[2] Note: Tables 11.5a and 11.5b include only agricultural parcels within the Proposed Project Planning Application Boundary. Indirect equine receptors located outside the boundary are therefore not included here. The total number of agricultural parcels assessed, including both direct and indirect, is presented in Table 11.14a

46. There are no statutory standards in Ireland related to agriculture/agronomy for construction works or for agriculture relating to the Operational Phase. In the absence of specific statutory Irish guidelines, the assessment has made reference to non-statutory national guidelines, where available, in addition to international standards and guidelines relating to environmental sources.

47. This assessment has been undertaken in accordance with the legislation and consideration of the guidance listed below. It should be noted that any references to legislation include any amendments thereto.

Legislation:

- The EIA Directive
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296/2018), as amended by the European Union (Planning and Development) (Environmental Impact Assessment (Amendment) Regulations 2018 (S.I. No 646/2018)
- Water Services (No. 2) Act 2013
- European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 (S.I. No. 113 of 2022), as amended by the European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2022 (S.I. No. 393/2022)
- European Communities (Environmental Impact Assessment) (Agriculture) (Amendment) Regulations 2017 (S.I. No. 407/2017)
- Potential impacts of the Proposed Project on wetland and peatland have been considered in line with GAEC[3] 2 requirements under Regulation (EU) 2021/2115. Reference has also been made to the Department of Agriculture, Food and the Marine (DAFM) Explanatory Handbook for Conditionality Requirements 2023–2027 (Version 23-03; DAFM 2023b).

Guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government 2018)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022)
- European Commission (EC) Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report (EC 2017).

County Development Plans:

- Clare County Development Plan 2023 – 2029 and the Planning and Development (Clare County Development Plan 2023-2029) Direction 2023 (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).

[3] GAEC: Good Agricultural and Environmental Condition standards under the EU Common Agricultural Policy, which set baseline requirements for soil, water, biodiversity, and habitat protection (including wetlands and peatlands).

11.2.4 Data Collection Methods

48. The baseline data collection and collation involved a desktop study of currently available mapping to identify agricultural parcels along the pipeline that would be directly or potentially indirectly impacted by the Proposed Project.

49. The Proposed Project alignment was delineated on Ordnance Survey of Ireland (OSI) maps, orthophotographic mapping and project-specific data held on a project-specific ArcGIS web GIS service.

50. Land boundary information was assessed throughout each revision of works to identify individual land holdings, using the Land Direct website (Property Registration Authority 2020). Where in-person Agronomy Surveys were carried out these were confirmed or amended based on confirmation of same from the affected landholder.

51. Irish Soil Information System digital data were gathered from the Irish Soil Information website, updated dataset May 2021, accessed August 2024 (Teagasc 2021).

52. The following sources were also consulted to obtain information on the nature of farming at national, county and farm level:

- Census of Agriculture (Central Statistics Office (CSO) 2020)
- Farm Structure Survey 2023 (Central Statistics Office)
- National Farm Survey (Teagasc 2022)
- Farm Structure Survey 2016 (CSO 2016)
- Irish National Soils Map, 1:250,000, V1 (Figure 3.8 in the Irish Soil Information System Synthesis Report). Teagasc, Cranfield University. Jointly funded by the EPA STRIVE Research Programme 2007-2013 and Teagasc (EPA 2014)
- Clare County Development Plan 2023 – 2029 and the Planning and Development (Clare County Development Plan 2023-2029) Direction 2023 (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).

11.2.5 Survey and Analysis Methods

53. The characterisation of the baseline environment was based on all available mapping of the Proposed Project and agricultural and soil maps as described in Section 11.3.2; the review of other data including soil associations; and the results of farm walkovers and questionnaires.

54. Soil association is not a soil classification category[4] but is a cartographic (or mapping) unit. It consists of two or more soils, usually from the same parent material, which are associated with the landscape in a particular pattern. Figure 3.8 in the Irish Soil Information System Synthesis Report (EPA 2014) lists the soil types and soil association of any area.

[4] 'A soil association is a group of soils associated with one area, and which occur in a predictable pattern.

11.2.5.1 Desktop Study

55. A desktop study was carried out based on the Planning Application Boundary for the Proposed Project. The purpose of the desktop study was to identify the baseline conditions and inform assessment of the effects of the Proposed Project at an individual farm, county and national level. The following were consulted:

- Farm Structure Survey 2023 (CSO). The Census of Agriculture collects information on the structural characteristics of agricultural holdings such as land use, farm size, and farm enterprise type
- Irish Soil Information System. Soils and Subsoils digital data (EPA and Teagasc 2015)
- Project specific mapping with landholder information (scale of 1:2,500 at A1)
- OSI mapping (scale of 1:2,500 at A1).

11.2.5.2 Farm Surveys (2017 – 2025)

56. Farm surveys for previous iterations of the project were conducted in 2019/2020/2021 and up to October 2022 and many of these remain applicable to the Proposed Project, where for example, the alignment of the proposed pipeline has not changed. Updated surveys were completed for the Proposed Project in 2024/2025 based on the Planning Application Boundary. The farm surveys were conducted to establish the baseline agricultural conditions of individual agricultural parcels and to record relevant details pertaining to agricultural land use at the time of assessment. These visits provided a detailed understanding of existing farming operations within the study area and informed the assessment of likely significant effects arising from the Proposed Project.

11.2.5.2.1 Initial Farm Consultations (2017)

57. Prior to commencement of the initial farm consultations across summer and autumn in 2017, all landholders were contacted by the then Irish Water Landowner Liaison Officer (LLO), now known as the Uisce Éireann Land Liaison Officer. Each landowner was informed that an individual assessment of their landholding would be undertaken, which would include a walkover study and the completion of a farm survey questionnaire (refer to Appendix A11.1a). Participation in the assessment was offered to all relevant landholders. In summer to autumn 2017, face-to-face interviews and farm walkover assessments were conducted. Farm enterprises ranged in scale, from single agricultural parcels to multiple agricultural parcels. The assessment focused on the full extent of each relevant farm enterprise. Every reasonable effort was made to engage with all landholders impacted by the previous iteration of the project during the 2017 assessment period.

11.2.5.2.2 Follow-Up Farm Engagements (2021)

58. In 2021, further consultations were undertaken in response to previous iterations of the project design. Initial contact was made by the LLO team. To support this engagement, the agronomy team developed an Agricultural Screening Survey (Appendix A11.1b), which was administered via telephone by the LLOs to participating landholders. The outcomes of the survey were used to determine whether and where follow-up face-to-face consultations were required. Where follow up face-to-face meetings were granted Appendix A11.1c was used, coupled with aerial assessments and roadside assessments where practicable.

11.2.5.2.3 Updated Farm Surveys and Engagements (2024/2025)

59. In 2024, as part of the Proposed Project, renewed engagement with landholders was initiated. The agronomy team provided an updated Agricultural Screening Survey (Appendix A11.1d), which was administered by the LLOs.

60. Subsequently, a 'Gap Analysis' of agronomy information was completed in spring 2024. This was used to collate and review all the information on record that had been captured since 2017. Arising from this came a refined list of affected agricultural parcels and associated survey information. The Agronomy team collated a list of holdings to request access for an agronomy walk over in 2024/2025 to ensure most up to date information (Appendix A11.1e).

11.2.5.2.4 Landholder Participation and Alternative Data Sources

61. Where direct access to land or engagement with landholders was not possible, it was not practicable to undertake primary data collection. In such cases, all practicable measures were taken to obtain relevant information through alternative methods and informed professional judgement.

62. Throughout the assessment process (2017, 2021, and 2024/2025), extensive efforts were made to engage with all landholders. However, in certain instances, landholders chose not to participate in the agricultural survey process or access to land was restricted. In these cases, information was gathered using a combination of roadside surveys, aerial analysis of orthophotographic mapping, review of existing survey records, and the professional judgement of the agronomist based on roadside and desktop assessments. The agronomist's notes and observations were then interpreted by the authors and confirmed with the agronomist to inform the assessment of likely significant agricultural effects.

Table 11.6: Agricultural Survey Type and Timeline which was Undertaken by the Agronomy Team for Previous Iterations of the Project and for the Proposed Project

Project Iteration	Year	Timeframe	Type of Survey
Previous iterations of the project	2017	Summer – Autumn	Agronomy Site Visits: Face-to-face or physical walkover survey completed by the Agronomy Team.
		Summer – Autumn	Roadside survey of entire route where viewing was not restricted.
		Summer – Autumn	Agricultural aerial review and assessment of ortho mapping.
	2021	Summer	Agricultural screening survey (completed by LLOs).
		Summer – Autumn	Agronomy Site Visits: Face-to-face or physical walkover survey completed by the Agronomy Team.
		Autumn	Roadside survey of entire route where viewing was not restricted.
		Autumn	Agricultural aerial review and assessment of ortho mapping.
Proposed Project	2024	Spring	Agricultural screening survey (completed by LLOs) for the Proposed Project except the 38 kV Uprate Works.
	2024 / 2025	Autumn 2024 – Summer 2025	Agronomy Site Visits: Face-to-face or physical walkover survey completed by the Agronomy Team.
	2025	Spring – Autumn	Agricultural aerial review and assessment of ortho mapping for the whole of the Proposed Project.
	2025	Spring – Summer	Roadside survey of entire route where viewing was not restricted for the whole of the Proposed Project.
	2025	Spring – Autumn	Equine Specialist desktop study and roadside survey.
	2025	April – Autumn	Equine Specialist Visits: Face-to-face or physical walkover survey completed by the Equine Specialist.
	2025	July – Autumn	Equine Specialist roadside survey of the 1km buffer for the Planning Application Boundary.

11.2.5.2.5 Farm Visit Procedures

63. Prior to undertaking each series of farm visits (in 2017, 2021, and 2024/2025), an individual file was prepared for each affected holding. These files included aerial imagery and mapping detailing the extent of the impacted agricultural parcels, the proposed Planning Application Boundary within each parcel, the indicative infrastructure layout, and a standardised farm survey template.

64. Each farm visit comprised a physical walkover survey of the relevant land, an interview with the landholder, and the completion of a detailed questionnaire (refer to Appendix A11.1). These visits facilitated the assessment of likely significant effects arising from the Construction and Operational Phases of the Proposed Project on existing agricultural activities and land use.

11.2.5.2.6 Professional Assessment and Reporting

65. All agricultural visits in 2017, 2021 and the majority in 2024/2025 were carried out by qualified agricultural consultants from Philip Farrelly and Co., each holding a minimum of a Level 8 bachelor's degree in agriculture. Fewer than 20 visits were carried out by Dr. Michael P Sadlier MVB CertESM CertES(Orth) MACVSc (EqSurg) MRCVS in 2025; these were completed at determined specialised equine operations only.

66. During these visits, consultants recorded observations relating to day-to-day agricultural operations, cropping practices, field sizes, soil characteristics, drainage conditions, and topography. Information gathered through both the structured questionnaires and on-site visual assessments informed the evaluation of likely significant effects associated with the Proposed Project during both construction and operational stages. Where applicable, additional observations were made regarding farm infrastructure and layout, and landholder feedback was formally documented.

11.2.5.3 Proposed 38 kV Uprate Works Farm Surveys (2021/2025)

67. Given that the 38 kV Uprate Works are substantially less intrusive than the works associated with the infrastructure sites and pipeline, a proportionate survey methodology was applied. In 2021, landholders affected by an earlier iteration of the 38 kV Uprate Works were offered the option of a farm visit to discuss agricultural-related queries directly with the Agronomy Team. In the same year, a windshield survey of the project area at the time was undertaken, supplemented where possible with follow-up phone consultations to confirm land use.

68. Further windshield surveys were completed in spring–summer 2025 for the Proposed Project. As the 38 kV Uprate Works mainly involve works on the existing Ardnacrusha – Birdhill Line, agricultural impacts are expected to remain consistent with the current situation, allowing existing farming operations and land use to continue without significant disruption.

69. As described in Chapter 4 (Proposed Project Description), the 38 kV works involve: uprating the existing Ardnacrusha – Birdhill 38 kV overhead line; removal of polesets on the Ardnacrusha – Birdhill – Nenagh Line and replacement with a double-circuit underground cable and associated works.

70. No permanent access routes would be constructed. Future access requirements would be managed under the Electricity Supply Board Network's (ESBN's) existing wayleaves.

71. The 2025 agricultural surveys, summarised in Table 11.6, were undertaken using a proportionate methodology combining roadside observation, aerial mapping, review of existing records, and professional agronomic judgement.

11.2.5.4 Roadside Surveys and Limitations

72. Accompanied farm visits with landholders were the preferred and most accurate method of assessing likely agricultural effects of the Proposed Project. However, full access was not always possible.

73. Where farm visits were not undertaken, the Agronomy Team employed a combination of roadside surveys, aerial imagery, mapping tools, and review of existing records to determine enterprise type, land quality, drainage characteristics, and farm infrastructure. Professional judgement was then applied to assign land use intensity.

74. This approach ensured that the majority of the route (c.85% of landholdings in the 2024/2025 survey period) was covered by direct farm surveys, with the balance assessed through proportionate roadside and desktop methods. Limitations of roadside surveys, such as obstructed views, are acknowledged, but these were addressed where possible using aerial and mapping data.

75. For the agricultural parcels associated with the 38 kV Uprate Works, a roadside inspection was considered sufficient given the relatively limited nature of these works compared with the pipeline infrastructure, and the correspondingly lower potential for disruption to agricultural operations.

11.2.6 Consultations

76. Consultation responses from key stakeholders, landholders and the public were reviewed and considered in compiling this chapter. Chapter 2 (The EIA 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 Report[5] (Irish Water 2016) relating to a previous iteration of the project.

77. The scoping consultation responses relevant to agriculture received from stakeholders are provided in Table 11.7. Further detail on the Proposed Project consultation is included in Chapter 2 (The EIA 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.

Table 11.7: Key Agricultural Scoping Consultation Issues

Consultee	Issue Raised	Comment	Relevant EIAR Section
2016 Scoping Letter and Draft Environmental Impact Statement Scoping Report			
Department of Agriculture, Food and the Marine (DAFM)	The Project should endeavour to site the pipeline adjacent to existing thoroughfares which makes sense and that all agricultural lands disturbed in the process should be returned to their owners.	In so far as reasonably practicable, the pipeline has been sited adjacent to existing throughfares. Agricultural land temporarily acquired will be reinstated.	Section 11.5 details agricultural mitigation
	There is only mention of Compulsory Purchase Orders in relation to the siting of the abstraction and treatment facilities in the vicinity of Parteen Weir.	The Proposed Project will seek to acquire a right to install infrastructure through the lands via negotiations and voluntary agreements in the first instance. Where voluntary settlement cannot be reached within project time scales, the decision may be taken to initiate statutory powers and apply to An Coimisiún Pleanála for Compulsory Purchase Orders to acquire such wayleaves.	Not applicable to this chapter. This is addressed in the planning application.

[5] As set out in Chapter 2 (The EIA 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 Table 11.7 where relevant to the Proposed Project.

Consultee	Issue Raised	Comment	Relevant EIAR Section
DAFM	It is important the proposed route take appropriate account of existing ancillary facilities on farmland including farmyards, manure storage facilities and dwelling houses, etc.	All landholders were afforded the opportunity to meet with an agronomist to discuss the impacts on their farm business. Uisce Éireann will work with all landholders to prevent or reduce any impacts that arise. Specific LLOs have been appointed to engage with landowners on an ongoing basis throughout the Proposed Project. They will liaise directly with landholders and address any queries they may have throughout the lifecycle of the Proposed Project.	Refer to Section 11.5 of this chapter for details of the proposed mitigation measures
	The construction phase must be appropriately and sensitively planned across farmland in order to take account of any local sensitivities regarding farming activities.	This chapter sets out the methodology used and describes the existing environment, examines the likely significant effects of the Proposed Project, proposes mitigation measures, and identifies residual effects. The assessment has been conducted in the context of current relevant standards and guidance.	Refer to Appendix A5.1 (Construction Environmental Management Plan (CEMP)) for working procedures and mitigation measures
	The pipeline itself should be constructed so that it does not affect normal agricultural practice.	All drainage systems impacted will be reinstated. A team of experienced surveyors will survey the pipeline corridor-Construction Working Width and detailed records will be kept during the setting out of the works along the corridor. This will include all features that have the potential to impact, or be affected by the Proposed Project, such as surface drainage/watercourses.	Refer to Chapter 5 (Construction & Commissioning) in this EIAR for further details
	While the documentation available does state that farmers are not to reduce the soil cover to the pipeline, no indication is given in relation to expected minimum depth to be provided. It is important that farmers will be able to undertake normal agricultural practices such as subsoiling or drainage works (depths of up to 1,000mm are not uncommon for drainage). An allowance needs to be made for the potential change of use of any of the agricultural land, say from grazing to tillage, which would impact on the normal working depths for a given area and may require drainage works. The entire pipeline should be placed at a depth which will not hinder any normal operations.	The Treated Water Pipelines and RWRMs would typically be laid at a minimum depth of cover of 1.2m above the crown of the pipe.	Refer to Chapter 4 (Proposed Project Description) and Chapter 5 (Construction & Commissioning)
	During the construction of the pipeline, any land drainage systems (drainage pipes, stone drains, etc.) need to be kept intact across the working area. There will be very limited records for such drainage systems. Interruption of land drainage systems is potentially an issue post construction, if not properly mitigated during the construction phase.	Uisce Éireann will be responsible for restoring all ground within the working strip, and any other ground disturbed by its operations, to a condition equal to or better than that which existed prior to the commencement of the works.	Refer to Section 11.5 of this chapter for details on land reinstatement

Consultee	Issue Raised	Comment	Relevant EIAR Section
2023 EIAR Scoping Methodology Report			
DAFM	DAFM advised that the project does not fall within their remit under the EIA (Agriculture) Regulations and therefore has no comment at this stage. However, a reference to hedgerows and drainage features on agricultural land was noted, and DAFM advised being cognisant of relevant regulations.	This chapter considers the potential impacts on drainage features and hedgerows as part of the assessment. Mitigation measures addressing these impacts are provided in Appendix A11.2. Where field drains or hedgerows are affected by the Proposed Project, they will be reinstated following construction. Reinstatement will be managed in accordance with the CEMP.	Refer to Appendix A11.2.

11.2.7 Appraisal Method for the Assessment of Effects

78. The Planning Application Boundary comprises all agricultural land parcels directly affected by the Proposed Project. This boundary includes both the proposed 38 kV Uprate Works and all other associated works within the Proposed Project; the scale, duration, and nature of the impacts differ substantially.

79. The development of the Infrastructure Sites and Pipeline Infrastructure involves linear excavation across multiple land parcels, with associated temporary infrastructure such as access routes, construction compounds, and temporary storage areas contributing to a broader footprint. These works are expected to result in direct land take, severance of land, and disruption to normal farming operations for a duration of approximately 18 to 24 months. Consequently, the impacts on affected agricultural operations would typically be expected to be high, particularly for intensive or specialist farm enterprises sensitive to disturbance.

80. In contrast, the proposed 38 kV Uprate Works involves uprating of the electricity network, primarily involving the retirement or replacement of pole sets and limited excavation, and would typically result in low-impact, short-duration works with minimal disruption to agricultural activities. These works generally require smaller working areas, can often be completed in a matter of days, and do not typically result in long-term land use change or severance.

81. Accordingly, the assessment of agricultural impacts recognises a clear distinction in the significance of effects arising from the Proposed Project. The development of the Infrastructure Sites and pipeline infrastructure constitute the principal sources of agricultural impact. By comparison, impacts associated with the 38 kV Uprate Works are of lesser significance.

82. The agricultural impact assessment was undertaken following a collation of most recent survey notes available, a desktop assessment of the orthophotography and census of agriculture information. The completion of the desktop assessment allowed the agronomists' and author's professional judgement to be applied when the parameters of Tables 11.8 to 11.10 inclusive, were considered. The criteria are indicative and are based on professional judgement and on the agronomists'/author's experience in assessing the impacts from similar infrastructure projects. Observations and judgements made during assessment allowed the author and agronomists to apply a consistent assessment of impacts to each farm in relation to: what impacts would occur and how they would be felt, and what impacts were likely to occur on each individual farm and the scale of the effect on that farm.

83. The assessment of effects process involved:

- Evaluation of the baseline environment: Evaluating farm types and potential impacts along the Proposed Project
- Assigning sensitivity: The sensitivity of the receiving environment (agricultural holding) is principally influenced by the type of farm enterprise and size of the holding together with the intensity of the agricultural operation

- Identifying and categorising the magnitude and duration of impacts: While the duration of each impact has a predicted life span, the magnitude of each impact would vary from holding to holding depending on factors such as holding size, land take and level of disruption to the farm enterprise operation
- Identifying and assigning the significance of effects.

84. This assessment considered the overall effects of the Proposed Project at an individual agricultural holding level, as well as at county and national level.

11.2.7.1 Sensitivity of the Receptor

85. Table 11.8 sets out the framework used to categorise the sensitivity of the farm enterprise (receptor). Sensitivity is influenced by a combination of factors including the farm enterprise type, the size of the holding, the intensity of activity (e.g. stocking rate, crop output and management intensity), and site-specific conditions such as soil quality, access arrangements, and existing farm infrastructure. For example, a small but intensively managed equine stud may be rated high to very high sensitivity, while a larger, extensively managed drystock farm on moderate soils may be rated medium or low. Intensity of land use was concluded following the farm visit, interview and walkover, which considered land quality, farm management practice, assessment of farm facilities and professional judgement of the agronomist.

86. Where landholder visits were not possible, intensity of land use was assigned by the agronomist using professional judgement supported by roadside observations, aerial imagery, mapping tools and existing records (see Section 11.2.5.4 – Roadside Surveys and Limitations).

Table 11.8: Criteria for Categorisation of Sensitivity

Farm Enterprise Type	Intensity* of the Farm Enterprise (Assessed by Site Evaluation)	Sensitivity	Explanation
Stud farm/ Equine Facilities – Riding arenas, gallops – Intensive Equine	High	Very high	Very high sensitivity due to the need for quiet, controlled environments. Horses are highly reactive to noise, vibration, and sudden activity, with significant risk to welfare and safety.
	Medium	High	Still highly sensitive, but with some operational flexibility. Certain facilities (e.g. turnout paddocks) may be less critical than training arenas, allowing limited adjustment.
	Low	Medium	Sensitivity is reduced as management is less intensive. Basic grazing or exercise fields are more resilient, but disruption can still affect horse behaviour and welfare.
Dairy farm, intensive equine enterprise	High	High	High output, high dependency on land quality and continuity of access.
	Medium	High	Still sensitive, with significant management constraints. While some scheduling flexibility exists, interruption to feed supply, housing, or land access can quickly reduce efficiency.
	Low	Medium	Medium sensitivity. Operations are less continuous and can absorb short delays or alternative arrangements, though disruption remains a concern.

Farm Enterprise Type	Intensity* of the Farm Enterprise (Assessed by Site Evaluation)	Sensitivity	Explanation
Non-dairy grazing livestock enterprises (includes beef, sheep and non-intensive equine) and grass cropping enterprise	High	Medium	Impacts noticeable but generally manageable.
	Medium	Low	Low sensitivity. Occasional inconvenience may arise (e.g. moving stock, accessing fields), but most disruptions can be accommodated with little long-term impact.
	Low	Very low	Extensively managed, generally resilient to disturbance.
Tillage	High	Medium	Medium sensitivity. Intensive cropping is time-dependent (e.g. sowing, spraying, harvesting), so disruption can interfere with yield or quality. However, impacts can often be managed through advance planning, use of contractors, or rescheduling.
	Medium	Low	Low sensitivity. Some flexibility is possible because operations are spread across the season. Temporary delays can usually be absorbed without major loss, and mitigation (alternative access, staggered field work) helps maintain continuity.
	Low	Very low	Very low sensitivity. Low-input or extensive cropping systems have wider operational windows, with minimal impact from short-term disruption.
Rough grazing, bog, forestry, woodland	Low	Very low	Very low sensitivity. These land uses require limited active management and are generally unaffected by minor disruption. Occasional access needs (e.g., stock checks) can be readily adjusted.

* Intensity of farm enterprise was assessed through site evaluation where farm surveys were undertaken. Sensitivity ratings were confirmed using professional judgement, taking account of farm enterprise type, intensity, size of holding, and site-specific conditions such as soils, access, and location. Where landholder visits were not possible, assessments were based on roadside observation, aerial imagery, mapping tools, and existing records (see Section 11.2.5.4 – Roadside Surveys and Limitations).

11.2.7.2 Assigning the Significance of Effects to Each Agricultural and Equine Holding

87. Professional judgement and the EPA Guidelines (EPA 2022) were used to determine the significance of the effect on the receiving environment. There are no specific guidelines associated with ‘agronomy’ or ‘agriculture’; however, an experienced agronomist has the ability to identify how infrastructure projects would cause effects on agricultural practices taking into account the character and sensitivity of affected farm enterprises, the magnitude of impact, duration, probability and consequence. The EPA Guidelines refer to prescribed environmental factors which must be addressed within EIARs (see Chapter 2: The EIA Process).

88. The EPA significance scale (Table 11.10) was applied consistently across the agricultural assessment, with refinements applied where necessary for specific farm enterprises such as equine. For identified specialist equine enterprises, the specific considerations used to assign significance were adapted in line with professional equine practice. These criteria, prepared by the specialist EVC, provide additional equine-specific examples of how levels of effect were assigned. This ensures that equine health, welfare and safety issues are robustly captured while maintaining consistency with the overall EPA framework. All equine enterprises where this approach was applied are clearly identified by the notation ‘EVC’ in Appendix A11.2.

11.2.7.3 Identifying and Categorising the Magnitude of the Impacts

89. The magnitude of impact was identified by the Agriculture Team through professional judgement, informed by a detailed review of farm visit notes, questionnaires, mapping, and the Proposed Project design. Magnitude reflected both the severity of the impact and the duration over which it was likely to be experienced.

90. In line with EPA (2022) guidance, magnitude was not assigned by a single numeric threshold (e.g. percentage land take), as such thresholds could be misleading and fail to reflect how agricultural enterprises function. Instead, a structured framework of considerations was applied to ensure that all assessments are transparent, consistent, and tailored to each holding.

91. The key considerations taken into account included, but were not limited to, the following:

- Farm enterprise type and sensitivity, e.g. dairying, tillage, equine, stud farms
- Proportion and configuration of land take, including whether affected land was strategically important (yards, high-quality fields, land close to buildings)
- Severance of land and the practicality/safety of accessing severed parcels
- Location of the Proposed Project on the holding, including proximity to dwellings, farmyards, and specialist units (e.g. milking parlours, foaling boxes)
- Impacts on farm buildings, yards, water sources or infrastructure, and whether these could be replaced or reinstated
- Drainage and water supply impacts, including irrigation and stock water provision
- Construction Phase impacts, such as disturbance, noise, vibration, dust, and loss of privacy
- Operational Phase impacts, such as restrictions on land use, safety considerations, or interference with farm machinery
- Biosecurity and animal health risks, including specific sensitivities of equine enterprises
- Health and safety implications for farm staff, handlers, and animals
- Extent to which mitigation measures could address or reduce impacts.

92. Professional judgement was applied to weight these considerations together and assign an overall impact magnitude category (ranging from negligible to high), which then fed into the assessment of significance of effect (see Section 11.2.7.5). This approach provided a robust, transparent, and evidence-based assessment ensuring that all material factors were captured in a manner consistent with good practice and EPA guidance.

11.2.7.4 Duration of Impact

93. The duration of impact was based on the EPA definitions, which were set out in Chapter 2 (The EIA Process) of this EIAR. For the Proposed Project, the duration of impacts was short term (1–7 years) for the buried pipeline and permanent (>60 years) for the acquisition of land for the Infrastructure Sites, roadside Lay-Bys and the pipeline ancillary infrastructure, namely Air Valves, Washout Valves and Line Valves.

94. Significance of effects within the Construction and Operational Phases was considered to be determined by the expected onset, duration, and frequency of the impacts. The duration was a key consideration to determining significance of the impact. Table 11.9 was used to define duration.

Table 11.9: Criteria for the Assessment of the Duration of Impact

Criteria	Duration
Momentary	Impacts lasting seconds to minutes
Brief	Less than 1 day
Temporary	Less than 1 year
Short-term	One to 7 years
Medium-term	Seven to 15 years
Long-term	15 to 60 years
Permanent	More than 60 years
Reversible	Impacts that can be undone, for example through remediation or restoration
Frequency of Effects	How often the impact will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)

11.2.7.5 Significance of Effect

95. The significance criteria were based on EPA criteria, as set out in Chapter 2 (The EIA Process). The EPA criteria are defined in Table 11.10 in relation to the agriculture assessment; the third column interprets the significance of the effects using examples relevant to agronomy. Significance of effect was derived by a combination of professional opinion, farm enterprise type, sensitivity of farm enterprise, intensity of farm enterprise coupled with the magnitude of impacts, and the duration of impact.

96. In the context of agriculture, and in accordance with the EPA's Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022), effects assessed as 'Slight' or lower were considered not significant. Effects assessed as 'Moderate' or higher were deemed significant, particularly where they resulted in permanent land loss, disruption to farm enterprise viability, or long-term changes in land use. This classification was based on both the EPA's effect significance criteria and professional agricultural judgement.

97. Appendices A11.2, A11.3, and A11.5 assess the effects on each individual agricultural holding. These effects are summarised in the relevant tables throughout this chapter.

Table 11.10: Significance Criteria for Overall Effect on Agricultural Holdings

EPA Effects Criteria	Definition of Significance from EPA Guidelines	Level of Effect for Agronomy	EVC Level of Effect for Equine Enterprises (Specialist Interpretation – see Appendix A11.2)
Imperceptible (not significant)	An effect capable of measurement but without significant consequences.	An effect so small it is imperceptible or incapable of measurement and without noticeable consequences.	Not generally applicable to equine enterprises, as horses are highly sensitive.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.	An effect is Not Significant where the farm enterprise suffers a slight inconvenience such as relocation of access or loss of shelter or other temporary disturbance.	Minor inconvenience to equine management with no measurable risk to horse safety or enterprise viability.
Slight (not significant)	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.	An effect which causes noticeable changes in the character and management of the farm. The farm enterprise experiences inconvenience as a result of the Proposed Project.	Minor land take or boundary adjustment; no loss of facilities; horses and handlers remain unaffected.

EPA Effects Criteria	Definition of Significance from EPA Guidelines	Level of Effect for Agronomy	EVC Level of Effect for Equine Enterprises (Specialist Interpretation – see Appendix A11.2)
Moderate (significant)	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.	A Moderate effect occurs where the farm enterprise can be continued as before but with increased management or operational difficulties. While portions of the land might be sub-divided, the farm enterprise mix would be such that the farming system could continue perhaps with reduced stock numbers or additional labour, contractor or other changes.	Land take >15% requiring offsite grazing or horse movement; viability slightly impacted; increased costs or management burden.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.	A Significant effect occurs where the farm enterprise suffers significant inconvenience as a result of the Proposed Project. Sub-division would occur, but access could be achieved.	Unsafe access to severed land (e.g. via public roads), isolation of foaling units, removal of mature shelter; land take >30%.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.	A Very Significant effect occurs where the farm enterprise cannot be continued without considerable management or operational changes. There would be significant sub-division on the affected parcel(s). The Proposed Project may affect farm buildings and or/facilities. Access to the sub-divided land can only be achieved through the use of non-farm roads. Where the effect is Very Significant a farm enterprise change may be necessitated, e.g. from dairy to dry stock.	Enterprise viability under threat; safe operation compromised; equine land use significantly reduced or disrupted.
Profound (significant)	An effect which obliterates sensitive characteristics.	A Profound effect occurs where the farm enterprise cannot be continued as a result of the Proposed Project. This would occur where the land take was of such a nature to make the holding unworkable and/or where important farm buildings and facilities are removed. An effect of this degree would be rare and would be most likely to occur on a dairy/horticultural or stud farm.	Enterprise cannot continue, gallops/foaling units obliterated, land too fragmented to be viable, or serious safety risks to horses from traffic/noise.

Table Note:

In the context of agriculture, effects categorised as Moderate are deemed significant in EIA terms, as even modest proportional land loss or severance can materially disrupt the day-to-day operation, viability, and management of farm enterprises in a way not captured by the more general EPA definition.

98. For agriculture, this assessment treated a Moderate effect as significant. This was because, on a working farm, even moderate land take, severance or disruption could have a real effect on daily operations, labour needs and overall farm viability. The EPA definition of Moderate referred to changes in line with existing baseline trends. However, in agriculture, 'baseline' did not mean the farm is unaffected. Additional work, subdivision of land, or the need to hire contractors may have allowed the farm to continue, but these were still meaningful impacts on how the farm operates. For this reason, Moderate effects were treated as significant in this chapter, consistent with Chapter 2, which notes that in some topics (such as agriculture) a Moderate effect could reasonably be considered significant.

11.2.8 Construction Flexibility

99. 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 11.11 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.

100. The construction works necessary to deliver the permanent design (including the construction flexibility defined in Table 11.11) 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.

101. 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 11.11 (i.e. the difference in effects would be imperceptible for the purpose of the assessment).

Table 11.11: 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).	The assessment has taken account of the pipeline being situated anywhere within the 20m corridor. This parameter does not alter the nature or scale of temporary impacts on land during construction, as the Construction Working Width itself would remain constant. Accordingly, the principal effects on agricultural holdings, including soil disturbance, temporary drainage interruption, and severance, would be similar regardless of the precise horizontal alignment within the 20m corridor. While the pipeline alignment would determine the eventual position of the 20m Permanent Wayleave, this would not alter the type or extent of effects. Any severance or land take effects are therefore fully captured by the assessment, irrespective of the pipeline's exact location within the defined boundary.
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.	The likely significant effects would be the same across the defined depth range. With horizon-by-horizon soil reinstatement, grazing/most cropping typically resumes within 3–6 months, with initial heavy-machinery restrictions to avoid compaction. The 20m Permanent Wayleave land-use restrictions (e.g. forestry/solar) apply irrespective of installed pipeline depth.
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).	The location of valves and ancillary pipeline features, which could shift based on changes in the pipeline's vertical or horizontal alignment, has been considered in the agricultural assessment, with this construction flexibility defined to ensure that all features remain within the landholding in which they have been assessed; they cannot move into an unassessed neighbouring holding. The agricultural assessment considered the size and likely above-ground presence of these features and their practical effect on day-to-day agricultural activities. While their presence may require minor adjustments in machinery operation, the overall effect on day-to-day practices is expected to be minimal, particularly once features are sited close to field boundaries where feasible and protected or fenced against livestock.

Design Element	Construction Flexibility	How this has been Applied / Assessed in this Chapter
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.	The agricultural assessment has considered the 10m corridor, ensuring that all potential outfall pipeline positions are captured. Once reinstated, normal agricultural activity can continue across the land, with only the standard restrictions on planting and building applying within the 10m Permanent Wayleave. These limitations are consistent regardless of the precise outfall pipeline alignment chosen 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.	The agricultural assessment has considered the construction flexibility to position the outfall headwalls and discharge points within the Planning Application Boundary (up to 20m from the indicative pipeline alignment). Construction activities such as excavation, vehicle movements and temporary material storage were assumed to occur across this area, allowing the assessment to reflect the maximum extent of short-term disruption, including soil disturbance and temporary loss of productive land. Reinstatement measures were considered on the basis that anywhere within the boundary could be affected, ensuring that soil handling, drainage reinstatement and return to agricultural use are effective throughout. Long-term implications have also been accounted for, with restrictions on planting and building considered as part of the resulting wayleave, while normal farming can resume once reinstatement is complete. This approach ensures that the assessment captures the full extent of construction flexibility, so no additional agricultural impacts would arise regardless of the final outfall location.

11.2.8.1 Variation in Construction Methods

102. In addition to the construction flexibility defined in Table 11.11 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.

103. The assessment reported in this chapter has been based on any of these construction techniques being adopted.

104. 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. As this chapter assesses agricultural holdings, the choice of method does not affect the type or magnitude of agricultural impacts. Therefore, 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).

11.2.9 Difficulties Encountered in Compiling Information

105. As of the 2024/2025 agricultural survey period, physical agronomy walkovers had not been completed for 12.5% of agricultural parcels (see Appendix A11.2, indicated by 'NRAV'[6]). Most of these landholders participated in telephone surveys, and fewer than 10% of landholders directly affected by the Proposed Project (i.e. where excavation works are planned) have had no survey or any direct interaction with the agronomy team. This figure excludes agricultural parcels associated only with power connection infrastructure, as these involve a much smaller land requirement and correspondingly limited agricultural impacts compared with the pipeline construction.

106. In a limited number of cases, fewer than 4% of affected holdings, information gathered during previous project iterations from 2017, farm visits, remains the most recent data available, as those landholders have not engaged with recent Proposed Project agricultural survey efforts since then. Supplementary roadside inspections and aerial imagery were used to validate current land use and farm infrastructure; however, these methods cannot provide the same level of detail as direct consultation and may not capture all changes in enterprise type or management since that time.

107. In a small number of cases where landholder visits were not possible, professional judgement supported by other data sources (e.g. publicly available mapping, roadside inspections, nearby survey data) was used. While these approaches have inherent limitations, they are considered sufficient to identify the likely significant effects. These limitations do not materially affect the robustness of the agricultural assessment or its conclusions.

11.2.10 Cumulative Effects Assessment

108. As noted in Chapter 2 (The EIA Process), intra-project cumulative effects are described within the respective topic chapters, while inter-project cumulative effects are described in Chapter 21 (Cumulative Effects & Interactions). The EIA Directive requires that cumulative effects be considered in the context of the existing baseline and, where relevant, the carrying capacity of the environment.

109. A review of other EIAR topic chapters was undertaken to identify any intra-project effects of note relevant to agriculture. Potential linkages were considered with respect to Chapter 6 (Noise & Vibration), Chapter 7 (Traffic & Transport), Chapter 8 (Biodiversity), Chapter 9 (Water), Chapter 10 (Soils, Geology & Hydrogeology), Chapter 14 (Population) and Chapter 15 (Human Health). These interactions were reviewed to assess whether agricultural enterprises could experience combined or cross-topic effects beyond those already described in this chapter.

110. For water sources, the principal risk relates to potential interference with land drainage and livestock water sources. These effects are already addressed within the agriculture assessment and are mitigated through reinstatement of drains, fencing, and provision of alternative water supplies where necessary.

111. Regarding Population and Human Health, while farming or rural communities may be indirectly affected by construction activities (e.g. noise and/or traffic), these effects are not expected to result in additional significant impacts on the viability of the farm enterprise beyond those already assessed in this chapter.

112. No further intra-project effects were identified in relation to soils, noise, or traffic, as these impacts are temporary, primarily confined to the Construction Phase, and are already subject to reinstatement and mitigation commitments.

[6] NRAV - Never received and agronomy assessment meaning a physical walk site walk over with an agronomy team member.

113. Therefore, no additional environmental effects identified in other topic chapters require further assessment under agriculture. The potential for intra-project cumulative effects has been considered and does not affect conclusions of this chapter.

11.3 Baseline Environment

11.3.1 Land Use

114. The Proposed Project would transverse the administrative areas of six Local Authorities: Clare County Council, Limerick City and County Council, Tipperary County Council, Offaly County Council, Kildare County Council and South Dublin County Council. The route is predominantly through open countryside and has been designed to generally avoid towns and villages.

115. Table 11.12a and Table 11.12b summarise the 2023 Farm Structure Survey (CSO) data on agricultural holdings, farm sizes, and enterprise types across the six counties intersected by the Planning Application Boundary.

Table 11.12a: Breakdown of CSO Farm Structure Survey 2023, Farm Numbers and Size[7] Encompassing the Planning Application Boundary of the Proposed Project

County	Number of Farms	Approx. Area Farmed [AAU ex Commonage] (ha)	Average Farm Size (ha)
Clare	6,251	196,906	31.5
Limerick	5,495	196,721	35.8
Tipperary	7,289	311,969	42.8
Offaly	3,259	115,042	35.3
Kildare	2,580	111,456	43.2
Dublin	680	31,824	46.8

Table 11.12b[8]: Breakdown of the CSO Farm Structure Survey 2023, Farm Enterprises Encompassing the Planning Application Boundary of the Proposed Project

County	No. of Specialist Tillage	No. of Specialist Dairying	No. of Specialist Beef Production	No. of Specialist Sheep	No. of Mixed Grazing Livestock	No. of Mixed Crops and Livestock	No. of Mixed Field Crops	Other	Total
Clare	…	486	5,180	102	115	…	320	37	6,251
Limerick	…	1,248	3,581	67	140	…	355	75	5,495
Tipperary	336	1,617	3,993	277	271	146	545	104	7,289
Offaly	137	346	2,145	136	121	109	216	49	3,259
Kildare	411	164	1,153	293	159	77	271	52	2,580
Dublin	179	25	202	106	45	9	89	25	680

Table Note:
The figures provided in Table 11.12b are taken directly from source, '…' indicates Data suppressed for confidentiality reasons.

116. Table 11.13a presents the number and average size of agricultural landholdings identified within the Planning Application Boundary for the Proposed Project, along the route of the pipeline (including ancillary pipeline infrastructure) and within the infrastructure sites.

[7] Data from Central Statistics Office (CSO), Farm Structure Survey 2023 Table 2.2.
[8] Data from Central Statistics Office (CSO), Farm Structure Survey 2023 Table 2.3.

Table 11.13a: Agricultural Parcels Directly Intersected by the Planning Application Boundary for the Proposed Project, Comprising the Pipeline, Associated Infrastructure and Infrastructure Sites (Excluding the Proposed 38 kV Uprate Works)

County	Number of Agricultural Parcels Within the Infrastructure Sites and along the Pipeline within the Planning Application Boundary	Average Size of Farms Based on CSO (2023)
Tipperary	137	42.8
Offaly	228	35.3
Kildare	76	43.2
Dublin	10	46.8

117. Table 11.13b presents the number and average size of agricultural landholdings identified within the Planning Application Boundary, along the route of the 38 kV Uprate Works which occurs in Clare, Limerick and Tipperary.

Table 11.13b: Agricultural Parcels Directly Intersected by the Planning Application Boundary for the Proposed Project along the Proposed 38 kV Uprate Works (Excluding the Pipeline, Associated Infrastructure and Infrastructure Sites)

County	Number of Agricultural Parcels along the 38 kV Uprate Works within the Planning Application Boundary	Average Size of Farms Based on CSO (2023)
Clare	55	31.5
Limerick	10	35.8
Tipperary	27	42.8

11.3.1.1 Agricultural Land Use – Study Area (Excluding the Proposed 38 kV Uprate Works)

118. Agriculture is the predominant land use within the Planning Application Boundary. A total of 451 agricultural parcels in Counties Tipperary, Offaly, Kildare and South Dublin are directly affected by the Proposed Project comprising of the pipeline, associated infrastructure and infrastructure sites (excluding the proposed 38 kV Uprate Works). In addition to these, 10 agricultural holdings (TY064, TY117, TY118, OY204, OY205, KE069, KE070, KE080, KE081 and KE071) are located within 1,000m of the Planning Application Boundary and have been considered as a receptor-specific refinement to account for equine enterprises with heightened sensitivity to potential indirect effects.

119. The farm enterprise types across the 451 directly affected and 10 indirectly affected (total 461) are summarised in Table 11.14a.

Table 11.14a: Farms Classified by Farm Enterprise Type for Agricultural Land parcels Affected by the Pipeline Route and Infrastructure Sites (Agricultural Parcels = 461)

Farm Enterprise Type	Number of Farms (Agricultural Land Parcels) Assessed Under the Proposed Project	% of Total Farms (Agricultural Land Parcels) Within Each Farm Enterprise Type[9]
Drystock (incl. Beef, Sucklers, Contract Rearing)	117	25.36%
Dairy	95	20.61%
Sheep	7	1.52%
Equine	25	5.42%
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	43	9.33%
Mixed Livestock (combination of Sheep, Equine and or Drystock)	43	9.33%
Horticulture	1	0.22%
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	114	24.73%
Forestry	16	3.47%

11.3.1.1.1 Planning Application Boundary: Agricultural Land Use County Tipperary

120. Within the Planning Application boundary, County Tipperary would be affected by both the pipeline and associated infrastructure together with the proposed 38 kV Uprate Works.

121. The predominant farm enterprises in County Tipperary are specialist dairy and beef. The agricultural area utilised (AAU) in Tipperary is 42.8ha which is 23.3% larger than the national average of 34.7ha. There are 7,289 agricultural holdings in County Tipperary. The farm enterprise breakdown combination operating in County Tipperary comprises specialist tillage (4.6%), specialist dairy (22.18%), specialist beef production (54.78%), specialist sheep (3.8%), mixed grazing livestock (3.7%), mixed crops and livestock (2%), mixed field crops (7.5%) and other (1.4%).

122. Of the 137 agricultural land parcels located within the Planning Application Boundary in County Tipperary, the farm enterprise breakdown for pipeline and associated infrastructure is as follows: Drystock (incl. Beef, Sucklers, Contract Rearing) (32), Dairy (45), Sheep (2), Equine (4), Tillage (all land tilled or marked for tillage – private, leased, or within mixed use) (5), Mixed Livestock (combination of Sheep, Equine and or Drystock) (3), Grassland (incl. Grazing Silage, Hay & Leased Grassland) (41), and Forestry (5). In addition to the 137 agricultural landholdings which are considered for direct effects, (3) additional equine holdings are considered for potential indirect effects.

123. The farm enterprise breakdown for the 38 kV Uprate Works is: (27) agricultural parcels, of which (11) are described as Grassland (incl. Grazing Silage, Hay & Leased Grassland), (11) are described as Mixed Livestock (combination of Sheep, Equine and or Drystock) and (5) are described as Forestry.

124. Of the total agricultural land holdings recorded in County Tipperary, the Planning Application Boundary would affect less than 2%.

[9] Total figures are rounded to the nearest two decimal places, as a result totals may not correspond exactly to 100% due to rounding.

11.3.1.1.2 Planning Application Boundary: Agricultural Land Use County Offaly

125. The predominant farm enterprise in County Offaly is specialist beef production. The AAU in Offaly is 35.3ha which is 1.7% larger than the national average of 34.7ha. There are 3,259 agricultural holdings in County Offaly. The farm enterprise breakdown combination operating in County Offaly comprises specialist tillage (4.2%), specialist dairy (10.6%), specialist beef production (65.8%), specialist sheep (4.1%), mixed grazing livestock (3.7%), mixed crops and livestock (3.3%), mixed field crops (6.6%) and other (1.5%).

126. Of the 228 agricultural land holdings located within the Planning Application Boundary in County Offaly, the farm enterprise breakdown is as follows: Drystock (incl. Beef, Sucklers, Contract Rearing) (70), Dairy (44), Sheep (4), Tillage (all land tilled or marked for tillage – private, leased, or within mixed use) (21), Mixed Livestock (combination of Sheep, Equine and or Drystock) (31), Grassland (incl. Grazing Silage, Hay & Leased Grassland) (51), Equine (1) and Forestry (6). In addition to the 228 agricultural landholdings which are considered for direct effects, (2) additional equine holdings are considered for potential indirect effects.

127. The 38 kV Uprate Works would not occur in County Offaly.

128. Of the total agricultural land holdings recorded in County Offaly, the Planning Application Boundary would affect approximately 7%.

11.3.1.1.3 Planning Application Boundary: Agricultural Land Use County Kildare

129. The predominant farm enterprise in County Kildare is specialist beef production. The average AAU in Kildare is 43.2ha which is 24.5% larger than the national average of 34.7ha. There are 2,580 agricultural holdings in County Kildare. The farm enterprise breakdown combination operating in County Kildare comprises specialist tillage (15.9%), specialist dairy (6.3%), specialist beef production (44.6%), specialist sheep (11.3%), mixed grazing livestock (6.1%), mixed crops and livestock (2.9%), mixed field crops (10.5%), and other (2%).

130. Of the 76 agricultural land holdings located within the Planning Application Boundary in County Kildare, the farm enterprise breakdown is as follows: Drystock (incl. Beef, Sucklers, Contract Rearing) (15), Dairy (6), Sheep (1), Equine (7), Tillage (all land tilled or marked for tillage – private, leased, or within mixed use) (11), Mixed Livestock (combination of Sheep, Equine and or Drystock) (9), Grassland (incl. Grazing Silage, Hay & Leased Grassland) (21), Horticulture (1) and Forestry (5). In additional to the 76 agricultural landholdings which are considered for direct effects, (5) additional equine holdings are considered for potential indirect effects.

131. The 38 kV Uprate Works would not occur in County Kildare.

132. Of the total agricultural land holdings recorded in County Kildare, the Planning Application Boundary would affect approximately 3%.

11.3.1.1.4 Planning Application Boundary: Agricultural Land Use County Dublin

133. There are 680 agricultural holdings in County Dublin. The average AAU in Dublin is 46.8ha which is 34.9% larger than the national average of 34.7ha. The farm enterprise breakdown combination operating in County Dublin comprises specialist tillage (26.3%), specialist dairy (3.6%), specialist beef production (29.7%), specialist sheep (15.5%), mixed grazing livestock (6.6%), mixed crops and livestock (1.3%), mixed field crops (13.1%) and other (3.6%).

134. Of the 10 agricultural land holdings located within the Planning Application Boundary in County Dublin, farm enterprise breakdown is as follows: Equine (3), Tillage (all land tilled or marked for tillage – private, leased, or within mixed use) (6), and Grassland (incl. Grazing Silage, Hay & Leased Grassland) (1). There were no additional areas considered for potential indirect effects.

135. The 38 kV Uprate Works would not occur in County Dublin.

136. Of the total agricultural land holdings recorded in County Dublin the Planning Application Boundary would affect less than 2%.

11.3.1.1.5 Planning Application Boundary: Summary of Agricultural Land Use Within Planning Application Boundary (Excluding 38 kV Uprate Works)

137. The main agricultural land use within the breakdown for the Proposed Project, comprising the pipeline and associated infrastructure is described as Drystock (incl. Beef, Sucklers, Contract Rearing), 25.94% of agricultural parcels; Grassland (incl. Grazing Silage, Hay & Leased Grassland), 25.50% of agricultural parcels; Dairy, 20.84% of agricultural parcels; followed by Tillage (all land tilled or marked for tillage – private, leased, or within mixed use), 9.53% of agricultural parcels; Mixed Livestock (combination of Sheep, Equine and or Drystock), 9.53% of agricultural parcels; Equine, 3.33% of agricultural parcels: Forestry, 3.55% of agricultural parcels; Sheep, 1.55% of agricultural parcels; and Horticulture, 0.22% of agricultural parcels.

138. Approximately 70% of the land within the Planning Application Boundary of the Proposed Project is owner occupied, with the rest being leased or rented on an array of tenancy agreements. The majority of this land is farmed conventionally with fewer than 10 holdings recorded as being farming organically. In addition, some lands are owned by state and private forestry companies, and Bord na Móna. Refer to Appendix A11.2 and Appendix A11.3 for details of farm enterprises within the Planning Application Boundary.

11.3.1.2 Planning Application Boundary: Proposed 38 kV Uprate Works Agricultural Land Use

139. Agriculture is the predominant land use within the Planning Application boundary along the route of the proposed 38 kV Uprate Works, which would cross a total of 92 agricultural land parcels. Of these, (63) contain existing pole sets and overhead powerline infrastructure, (22) contain overhead powerline infrastructure, and (7) are identified under the indicative pole locations and currently have no existing 38 kV infrastructure. The 38 kV Uprate Works would affect (55) agricultural parcels in County Clare, (10) in County Limerick, and (27) in County Tipperary (Tipperary is covered in Section 11.3.1.1.1).

140. In Limerick, beef and dairy farms dominate. The average AAU in Limerick is 35.8ha which is 3.2% larger than the national average of 34.7ha. The farm enterprise breakdown combination operating in County Limerick comprises specialist dairy (22.7%), specialist beef production (65.1%), specialist sheep (1.2%), mixed grazing livestock (2.5%), mixed field crops (6.4%) and other (1.3%).

141. Of the 10 agricultural land parcels located within the Planning Application Boundary in County Limerick, the farm enterprise breakdown is as follows: Grassland (incl. Grazing Silage, Hay & Leased Grassland) (6) and Mixed Livestock (combination of Sheep, Equine and or Drystock) (4).

142. In County Clare, beef systems predominate. The average AAU in Clare is 31.5ha which is 9.2% smaller than the national average of 34.7ha. The farm enterprise breakdown combination operating in County Clare comprises specialist dairy (7.7%), specialist beef production (82.8%), specialist sheep (1.6%), mixed grazing livestock (1.8%), mixed field crops (5.1%) and other (0.5%).

143. Of the 55 agricultural land parcels located within the Planning Application Boundary in County Clare, farm enterprise breakdown is as follows: Grassland (incl. Grazing Silage, Hay & Leased Grassland) (44) and Mixed Livestock (combination of Sheep, Equine and or Drystock) (10) and Forestry (1). The overall distribution of farm enterprise types across the 92 agricultural land parcels affected by the Proposed Project is summarised in Table 11.14b.

Table 11.14b: Farms Classified by Farm Enterprise Type (Based on Farm Enterprise Type Assigned to the Proposed Project (38 kV Uprate Works Only) Agricultural Parcels = 92)

Farm Enterprise Type	Number of Farms (Agricultural Land Parcels) Assessed Under the Proposed Project	% of Total Farms (Agricultural Land Parcels) Within Each Farm Enterprise Type[10]
Mixed Livestock (combination of Sheep, Equine and or Drystock)	25	27.17%
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	61	66.30%
Forestry	6	6.52%

11.3.2 Soil Type

144. Soil types along the route of the Proposed Project are described in detail in Chapter 10 (Soils, Geology & Hydrogeology) of this EIAR. Soil types influence the nature and intensity of farming that can be carried out. Information regarding the soil classifications was obtained from the EPA web-mapping site.

145. General information concerning soil types is contained in:

- General Soil Map of Ireland (An Foras Talúntais 1981)
- Soils of Co. Clare (Finch et al. 1971)
- Soils of Co. Limerick (Finch and Ryan 1966)
- Soils of Tipperary, North Riding (Finch and Gardiner 1993)
- Soils of Co. Offaly (Hammond and Brennan 2003)
- Soils of Co. Kildare (Conroy et al. 1970)
- The EPA website.

146. Reference is made to the Irish Soil Information System digital data downloaded from the Irish Soil Information Website, Irish Soil Information System (EPA and Teagasc 2015)[11].

147. The predominant soil types found along the Planning Application Boundary are classified as the soil associations Elton, Kilrush, Broomhill and to a lesser extent Mylerstown, and Straffan[12]. The land is identified as a fine loamy drift with limestones, siliceous stones or sandstone bedrock depending on the soil association (refer to Table 11.15 for soil association information). Loam is considered ideal for agricultural uses because it retains nutrients well and retains water while still allowing excess water to drain away.

148. The land is associated with flat and gently rolling topography, suitable for grassland and in some cases tillage and intensive vegetable production. There is a tradition of tillage crops on some lands traversed by the Proposed Project.

[10] Total figures are rounded to the nearest two decimal places, as a result totals may not correspond exactly to 100% due to rounding

[11] Available at: http://gis.teagasc.ie/soils/map.php. [Accessed January 2024].

[12] A soil association is a group of soils associated with one area, and which occur in a predictable pattern.

149. Peat is also prevalent along the Planning Application Boundary. This soil type is found in low-lying areas in the Midlands where there are moderate levels of rainfall annually. Peat soil type has a dome-shaped surface and can range in depth between 2m to 7m. Peatland soil is poorly drained and not considered as productive agricultural land.

Table 11.15: Soil Associations and Characteristics

Soil Association	Texture	Drainage	Texture, Substrate, Type
Kilrush (700b)	Fine loamy	Poor	Fine loamy drift with siliceous stones
Broomhill (1100s)	Fine loamy	Well	Fine loamy over sandstone bedrock
Elton (1000a)	Fine loamy	Moderately	Fine loamy drift with limestone
Elton (1000c)	Fine loamy	Moderately	Fine loamy drift with limestone
Elton (1000x)	Fine loamy	Moderately	Fine loamy drift with limestone
Straffan (700d)	Fine loamy	Poor	Fine loamy drift with limestone
Mylerstown (650a)	Fine loamy	Poor	Fine loamy drift with limestone
Peat (1xx)	Peat	Poor	Peat

150. Agricultural activity within the Proposed Project study area is intensive in certain areas, including parts of South Offaly, Tipperary, East Kildare and Dublin due to the relatively high quality of the soil, enabling all the main farm enterprises to be undertaken (e.g. grazing stock: dairy, beef, sheep, equine; and arable: tillage).

11.3.3 Future Baseline

151. The future baseline environment will continue to reflect a predominantly rural agricultural landscape, though subject to ongoing development pressures from energy projects, housing, and national land-use policies.

152. In terms of agricultural trends, land use within the study area is expected to remain dominated by grazing enterprises (beef, sheep, dairy, and equine), with tillage concentrated in the more fertile areas of South Offaly, North Tipperary and East Kildare. Farm Structure Survey (CSO 2023) indicate that average farm sizes are relatively large in Kildare and Dublin, reflecting more commercially oriented enterprises, while elsewhere mixed grazing livestock remains the dominant farm type.

153. At a sectoral level, gradual consolidation of holdings is likely to continue, driven by generational change and economic pressures. Beef margins are expected to remain under strain, while dairy enterprises may continue to expand where land and environmental constraints permit. However, dairy expansion is increasingly constrained by environmental regulation, most notably the Nitrates Regulations and potential future changes to derogations, as well as evolving Common Agricultural Policy measures. These regulatory and policy frameworks may limit stocking intensity and influence land management decisions.

154. Equine enterprises will remain a notable land use, particularly in Kildare, though they are vulnerable to land fragmentation and development pressure. Overall, the agricultural baseline is not anticipated to undergo major structural change in the medium term, but holdings will continue to adapt to market, policy, environmental and climate-related drivers.

155. A further trend influencing future land use is the implementation of national forestry policy (DAFM 2023a), which aims to expand afforestation to meet climate and biodiversity objectives. While the direct uptake within the study area cannot be precisely predicted, this policy has the potential to increase competition for land, particularly on less productive grazing holdings, thereby subtly reshaping the agricultural landscape alongside ongoing development pressures.

156. Agriculture is expected to remain the predominant land use within the study area, although the mix of enterprises and the availability of land may evolve gradually in response to policy, regulatory, market and development pressures.

11.4 Assessment of Effects

157. The following sections present an assessment of the potential significant agriculture effects associated with the Construction and Operational Phases of the Proposed Project with respect to the appraisal methods that have been presented in Section 11.2.

158. This section presents an assessment in the absence of mitigation measures, with the exception of 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). Mitigation measures have been proposed in Section 11.5 to prevent or reduce the potential significant effects. Residual effects after the application of mitigation measures are reported in Section 11.6.

159. Land would be acquired for the Proposed Project. The land acquisition required for each agricultural parcel, including whether the acquisition would be temporary or permanent, has been outlined in Appendix A11.2, Appendix A11.3 and Appendix A11.5 for the Pipeline Infrastructure, Infrastructure Sites and proposed 38 kV Uprate Works respectively. Table 11.16 summarises the land take associated with Infrastructure Sites and Construction Compounds.

160. The construction of the Proposed Project involves the acquisition of a 20m wide Permanent Wayleave through the affected land holdings and a temporary acquisition of land within the Construction Working Width (generally 50m wide inclusive of the 20m wide Permanent Wayleave). All lands within the Construction Working Width would be reinstated to pre-construction condition.

161. The RWRMs and Treated Water Pipeline would incorporate valves such as Air Valves, Washout Valves and Line Valves. A total of 608 valves would be required along the pipeline, the majority of which would be located on agricultural lands as follows:

- 46 Line Valves would occur on agricultural lands
- 195 Washout Valves would occur on agricultural lands
- 262 Air Valves would occur on agricultural lands (refer to Table 11.2).

162. Land would be permanently acquired for the construction of these valves. Refer to Chapter 4 (Proposed Project Description) for further details.

163. Land would be required during the Construction Phase for a total of eight temporary Construction Compounds (see Chapter 5: Construction & Commissioning). Of these, five Construction Compounds are proposed at locations where permanent Proposed Project infrastructure sites are planned: CC0 RWI&PS, CC1 WTP, CC3 BPT, CC4 BPS and CC7 TPR.

164. There are an additional three Construction Compounds, at the following locations, where land would be acquired temporarily, and lands will be reinstated and returned to the landholder after the Construction Phase: CC2 Lisgarriff, CC5 Killananny and CC6 Drummond.

165. At the infrastructure sites, in addition to the permanent land take required for the operation of the Proposed Project, a temporary area would also be required to accommodate construction activities. These temporary working areas would extend the footprint of each site during the Construction Phase but would be reinstated and returned to the landholder upon completion of the works (refer to Table 11.16).

Table 11.16: Land Take: Infrastructure Sites and Construction Compounds

Proposed Project Infrastructure	Compound	Permanent Land Take	Temporary Land Take	Construction Compound Area (ha)	Permanent Infrastructure Area (ha)*	Temporary Infrastructure Area (ha)*	Agricultural Parcel Ref.
RWI&PS	CC0	✓	✓	3.4	4	1	TY001, TY002, TY006
WTP	CC1	✓	✓	27.6	31	2.5	TY009, TY010, TY011, TY125, TY126, TY013
Lisgarriff	CC2	N/A	✓	12.2	N/A	N/A	TY090
BPT	CC3	✓	✓	4.9	7	0.8	TY105, TY123
BPS	CC4	✓	✓	5.3	2.6	3	OY069, OY070, OY071
Killananny	CC5	N/A	✓	15.6	N/A	N/A	OY119, OY117B
Drummond	CC6	N/A	✓	13.1	N/A	N/A	KE004
FCV	N/A	✓	✓	N/A	0.5	0.6	KE066
TPR	CC7	✓	✓	12.2	8.3	1.1	DN015

* Includes permanent and temporary land take for the infrastructure site access roads

166. Land would be required on a temporary basis during the Construction Phase for Pipe Storage Depots. There are nine Pipe Storage Depots proposed: PSD1 Carrigatogher; PSD2 Toora; PSD3 Boveen; PSD4 Fortel; PDS5 Derrinboy; PSD6 Derryweelan; PSD8 Rathlumber; PSD9 Graiguepottle; and PSD10 Barberstown; with a combined land requirement of approximately 44ha. The lands will be reinstated and returned to the landholders after the Construction Phase (refer to Table 11.17).

Table 11.17: Land Take Locations and Areas: Pipe Storage Depots

Proposed Location	ID	Temporary Land Take	Pipe Storage Depot Area (ha)	Agricultural Parcel Ref.
Carrigatogher	PSD1	✓	6.5	TY048A, TY049
Toora	PSD2	✓	2	TY124B
Boveen	PSD3	✓	4.8	OY025B
Fortel	PSD4	✓	2.4	OY051
Derrinboy	PSD5	✓	5.8	OY199, OY082
Derryweelan	PSD6	✓	6.2	OY156, OY217
Rathlumber	PSD8	✓	2.9	OY183
Graiguepottle	PSD9	✓	2.3	KE041
Barberstown	PSD10	✓	11	KE058

167. Lands would be permanently required for the creation of new access roads to the Infrastructure Sites. There would also be temporary access and egress points located throughout the Proposed Project to facilitate construction of the Proposed Project.

168. Access to lands would be required on a temporary basis during the Construction Phase for the installation of polesets to provide a power connection to the Line Valves. These power connections are to allow for remote operation of Line Valves and the cathodic protection which would be connected to grounded beds and rectifiers located at Line Valves.

169. Access to lands would be required on a temporary basis during the Construction Phase for the installation and removal and replacement of polesets and restringing of overhead power lines associated to the 38 kV Uprate Works.

11.4.1 Do-Nothing Scenario

170. Under the 'Do-Nothing' scenario, the Proposed Project would not proceed, and therefore no adverse impacts on agricultural land or activities would arise. Existing agricultural practices and land use potential would remain unaffected and continue in their current form.

11.4.2 Construction Phase Assessment of Effects

11.4.2.1 Pipeline Infrastructure, Infrastructure Sites and Temporary Infrastructure – Overview of Construction Phase Impacts

171. The effects associated with the Construction Phase within the Planning Application Boundary (excluding proposed 38 kV Uprate Works, which are covered in Section 11.4.2.3) are outlined below. These impacts primarily relate to the development of temporary Construction Compounds, Pipe Storage Depots, infrastructure sites, the RWRMs and Treated Water Pipelines and ancillary pipeline infrastructure. While no individual farm is expected to be affected by all identified impacts, some holdings would experience a combination of effects. Detailed, farm-specific impact assessments are provided in Appendix A11.2 and Appendix A11.3. The majority of potential impacts applicable to affected farms are summarised in Table 11.18, and these are covered in the following sections. Any impacts not listed in the table are those that are specific to individual holdings and are addressed directly within the appendices.

Table 11.18: List of Construction Phase Impacts within the Planning Application Boundary (Excluding Proposed 38 kV Uprate Works)

List of Construction Phase Impacts	
1	Loss of use of land for duration of Proposed Project Construction Phase
2	Short-term loss of use of land on or adjacent to the Construction Working Width
3	Short-term loss of land at the Construction Compounds and Pipe Storage Depots
4	Loss of services (water, power, paddock fencing)
5	Disturbance caused by increased traffic volume due to construction
6	Disturbance caused by noise emanating from the Construction Phase works
7	Potential adverse impacts caused by dust emanating from the Construction Phase works
8	Impacts on shelter
9	Disturbance to farm operations
10	Effect on area-based payments
11	Interruption to drainage systems
12	Restriction on use of land for specialist crop production or animal husbandry adjacent to the construction works
13	Spread of noxious weeds and invasive species when soil is exposed
14	Spread of animal diseases
15	Spread of soil-borne diseases

11.4.2.1.1 Loss of Use of Land for Duration of Proposed Project Construction Phase (Excluding 38 kV Uprate Works)

172. It is anticipated that construction would start in 2028, subject to planning approval from An Coimisiún Pleanála. The Construction Phase is expected to last for five years (refer to Chapter 5: Construction & Commissioning).

173. During the Construction Phase, works would be carried out in a phased, linear manner. The pipeline would be installed in a series of sections. A new section of the Construction Working Width would be opened only once construction in the preceding section is sufficiently advanced or nearing completion. The length of each active construction section would vary depending on local conditions, including site access and proximity to the public road network, but would typically range between 5km and 15km.

174. As outlined in Chapter 5 (Construction & Commissioning), there would typically be a period of approximately 24 months between the initial occupation of land within the Construction Working Width for pipeline installation and the subsequent return of that land to the landholder, subject to seasonal constraints affecting reinstatement. For construction planning purposes, the winter period is defined as December through February. Land would not be handed back during the winter months until reinstatement is completed. In addition, the appointed Contractor would require intermittent access to the 20m wide Permanent Wayleave during the final year of the overall five-year programme to facilitate commissioning works. This may involve localised excavations at infrastructure points such as Manways and Air Valves to enable final testing and access to the pipeline.

175. Durations of Construction Phase activities are defined within Chapter 5 (Construction & Commissioning). These are outlined in Table 11.19 in relation to the duration definitions defined in the EPA Guidelines (2022), as set out in Section 11.2.7.

Table 11.19: Duration of Construction

Construction Duration	Construction Phase Duration	Post Construction Phase Duration
Construction of the Pipeline: • Contractor entering lands • Stripping and storage of soil • Excavation • Building and laying the pipeline • Backfill of subsoil and topsoil • Land reinstatement • Contractor exiting the lands • Handover of lands to landholder.	Short term (1–7 years) Estimated turnaround time of 24 months	None
Construction Compounds within Proposed Project Infrastructure Sites: • CC0 Satellite RWI&PS • CC1 Principal WTP • CC3 Satellite BPT • CC4 Satellite BPS • CC7 Satellite TPR • Flow Control Valve (Surface level).	Short term (1–7 years) Duration of Construction Phase	Permanent (>60 years) Lands removed from agriculture
Construction Compounds (Construction Phase only): • CC2 Principal Lisgarriff • CC5 Principal Killananny • CC6 Principal Drummond.	Short term (1–7 years) Duration of Construction Phase	None Lands returned to agriculture

Construction Duration	Construction Phase Duration	Post Construction Phase Duration
Pipe Storage Depots: • PSD1 Carrigatogher • PSD2 Toora • PSD3 Boveen • PSD4 Fortel • PSD5 Derrinboy • PSD6 Derryweelan • PSD8 Rathlumber • PSD9 Graiguepottle • PSD10 Barberstown.	Short term (1–7 years) Duration of Construction Phase	None Lands returned to agriculture
Ancillary Pipeline Infrastructure: • Line Valves, kiosk & Lay-By (Surface level) • Washout Valves (Surface level) • Air Valves (Surface level) • Potential Future Connection Points • Manways (Buried with Pipeline).	Short term (1–7 years) Duration of Construction Phase	Permanent (>60 years)
Construction Drainage: • Temporary Attenuation Locations.	Short term (1–7 years) Duration of Construction Phase	None Lands returned to agriculture
Power Connections to the Line Valves • Polesets.	Short term (1–7 years)	Permanent (>60 years)

176. Land required for Infrastructure Sites would be acquired on a permanent basis. Once removed from agricultural use during the Construction Phase, these areas would not be returned to agricultural production. The sites would be securely fenced and retained for the operational needs of the Proposed Project.

11.4.2.1.2 Short-Term Loss of Use of Land on or Adjacent to the Construction Working Width

177. There would be a temporary loss of agricultural land use during the Construction Phase along the route of the Construction Working Width. While the overall construction programme is expected to last approximately five years, the duration of effect on individual landholdings would generally be limited to a period of 18 to 24 months, depending on the specific location and sequencing of works. Construction activities would involve the installation of an underground pipeline along the full extent of the RWRM and Treated Water Pipeline. During this period, affected lands would be temporarily removed from agricultural production and fenced on both sides to prevent livestock access and ensure site security. Further details on access arrangements and fencing are provided in Chapter 5 (Construction & Commissioning).

11.4.2.1.3 Short-Term Loss of Land at the Construction Compounds and Pipe Storage Depots

178. Land would also be required during the Construction Phase on a short-term basis for the Construction Compounds (not within the Infrastructure Sites) and Pipe Storage Depots. The works would consist of site preparation, establishing site offices and compounds and drainage works. The lands which are temporarily removed from agricultural production and fenced off during the Construction Phase would be reinstated and would be available for agricultural production, following the completion of the Construction Phase.

11.4.2.1.4 Loss of Services (Water, Power, Paddock Fencing)

179. The presence of a construction activity within the Construction Working Width through a land holding may temporarily interrupt water or power supplies. In addition, where the farm enterprise involves rotational grazing strategy, such as dairy, existing paddock layouts may be interrupted.

11.4.2.1.5 Disturbance Caused by Increased Traffic Volume due to Construction

180. Increased traffic volumes associated with the Construction Phase of the Proposed Project may cause disturbance to the farming operation. Increased traffic and the use of temporary access points may potentially increase the risk of disruption to farm operators. Traffic entering the Construction Working Width would use assigned Haul Roads to access the Construction Working Width. This is further detailed in Chapter 7 (Traffic & Transport).

11.4.2.1.6 Disturbance Caused by Noise and Vibration Emanating from the Construction Phase Works

181. The activity of earth moving machinery, Heavy Goods Vehicles (HGVs) and other ancillary vehicles would generate noise and vibration emissions in the immediate vicinity of the sites where construction would occur for the Proposed Project. Noise can cause distress to farm animals (e.g. when noise becomes excessively loud). However, in general, animals become accustomed to regular noises and sounds. This is evident by the nationwide grazing of livestock in close proximity to motorways.

182. Intermittent noise can cause fright and distress to animals. Tonal and impulsive noise producing activities can be of particular concern to certain farm enterprises such as equine and dairy. Intermittent noise close to farm buildings, particularly milking parlours, can distress livestock. Noise can therefore cause adverse impacts to farm operators. Where sporadic loud noises occur, fright can cause a herd of cows or horses to ‘stampede’ which can lead to injury and damage to farm infrastructure.

11.4.2.1.7 Potential Adverse Impacts Caused by Dust Emanating from the Construction Phase Works

183. Dust generated by construction machinery and exposure of soil to the atmosphere during construction may cause adverse impacts to the farmer and farm animals. The proliferation of dust during construction may have adverse impacts, if produced in high volumes, as dust may accumulate on vegetable/arable or horticultural crops growing adjacent to the Construction Working Width. The potential impact of dust on adjacent crops or animals is dependent on the method of construction, the time of year, the type of animal and the stage of crop growth.

184. Livestock can be at risk of eye irritations from high levels of windblown dust particles, particularly for example if stock is confined to winter housing vs being out in an open paddock. This stress may reduce productivity and increase management difficulties, especially on equestrian farms.

11.4.2.1.8 Impacts on Shelter

185. The removal of mature trees and hedgerows, which provide shelter to crops and livestock, especially younger stock, may potentially have an effect on land holdings. The level of impact would depend on the extent of the shelter removed and the type of farm enterprise.

11.4.2.1.9 Disturbance to Farm Operations

186. Changes to the layout of farm infrastructure such as paddock layouts can impact operations. Access for dairy cows to and from the milking parlour twice a day may be interrupted. Interruption to free movement of livestock and machinery may occur during the Construction Phase due to temporary access arrangements and access requirements to sub-divided land. Temporary access routes to the Construction Working Width may cause sub-division of agricultural parcels or cause irregular shapes in severed lands. Irregular paddock shapes may require double passes of machinery, e.g. silage or tillage combine machinery, and interruption to existing layouts can necessitate a reorganisation of fencing systems, e.g. paddock layouts.

187. Where farming operations may be interrupted it may take longer to complete tasks as a result of changes to farm layouts during the Construction Phase. There is potential for general disturbance to farm enterprises at all stages of the Construction Phase.

11.4.2.1.10 Effect on Area-Based Payments

188. Land take out of production may have an effect on area-based farm payments such as the Basic Income Support for Sustainability (BISS) and other agri-environmental area-based schemes administered by the Department of Agriculture, Food and the Marine (DAFM). The BISS replaced the former Basic Payment Scheme and Greening Payment under the EU's Common Agricultural Policy (CAP).

189. These payments are area-based supports, activated by farmers declaring eligible hectares of land on which they are carrying out an agricultural activity. To receive payment, farmers must hold and activate eligible entitlements under BISS. If land is removed from agricultural production, it may no longer meet the eligibility requirements, which can reduce the number of hectares that can be declared and consequently impact payment levels.

190. Land eligibility under BISS also determines access to related supports such as the Complementary Redistributive Income Support for Sustainability (CRISS), Eco-Scheme payments, and other agri-environmental measures.

11.4.2.1.11 Interruption to Drainage Systems

191. Field drainage systems currently in situ may be disturbed by the Construction Phase and, in places, severed by the construction of the proposed works.

11.4.2.1.12 Restriction on Use of Land for Specialist Crop Production or Animal Husbandry Adjacent to the Construction Works

192. During construction, individual landholders may deem it necessary to adjust the cropping or animal husbandry regime in lands held adjacent to the construction works. For example, equine or bloodstock may not be grazed adjacent to a construction site where intermittent or sporadic noise emissions may cause fright and lead to injury of the animals.

11.4.2.1.13 Spread of Noxious Weeds and Invasive Species When Soil Is Exposed

193. Noxious weeds can potentially spread through exposed soil because of their prolific seed production. Seeds can be carried by the wind or on machinery used in the construction of the Proposed Project. New species or invasive species can be introduced and dispersed across construction sites.

11.4.2.1.14 Spread of Animal Diseases

194. There is a potential increased risk of animal diseases spreading during or as a consequence of the Construction Phase. This can be due to cattle straying and mixing with other livestock if fences and stockproof boundaries are not maintained. Alternatively, due to the nature of the Proposed Project and approximately 172km of ground disturbance there is potential for wildlife, such as badgers, to become displaced which can result in the spread of disease or infections.

195. In Ireland, the badger is recognised as the principal wildlife reservoir for bovine tuberculosis (bTB) infection (Barroso et al. 2022). As with any linear infrastructure project, there is potential for the spatial spread of bTB to cattle herds through several mechanisms, including:

- Increased badger movement: Construction-related disturbance may lead to changes in badger ranging behaviour, causing them to move more frequently or over greater distances

- Increased contact with cattle: Direct contact: Disturbed badgers may enter cattle grazing areas more frequently, increasing the likelihood of direct encounters. Indirect contact: Badgers may contaminate cattle feed, water troughs, or pasture areas through their excretions, facilitating indirect transmission.

196. Chapter 8 (Biodiversity) outlines the potential for badger setts to occur within the Proposed Project area and presents measures to mitigate disturbance.

11.4.2.1.15 Spread of Soil-Borne Diseases

197. There is an increased risk of spreading soil-borne diseases when soil is exposed, disturbed, or moved during construction activities. Pathogens such as potato cyst nematode (eelworm) and clubroot (affects all members of the brassica family), as well as diseases affecting cereal crops such as take-all, *Fusarium* spp., and *Rhizoctonia*, may be present in the soil and can be unintentionally transferred between landholdings through movement of contaminated soil, vehicles, or equipment.

11.4.2.2 Pipeline Infrastructure, Infrastructure Sites and Temporary Infrastructure – Summary of Construction Phase Effects

198. During the assessment process, the effects on each landholding under the various assessment headings were reviewed. The majority of these effects are expected to be short-term in nature, occurring primarily during the Construction Phase, which is anticipated to last approximately five years. However, in the case of the Infrastructure Sites, the land would be permanently removed from agricultural production during the Construction Phase, as these areas would be retained for the operational needs of the Proposed Project. For all other areas, including the pipeline route and temporary construction areas, land would be reinstated and returned to agricultural use following completion of the Construction Phase. In the absence of mitigation measures, some effects could increase in significance and potentially extend into the long term. Mitigation measures to address these impacts are outlined in Section 11.5. The combination of effects prior to mitigation is illustrated in Appendix A11.2 (pipeline infrastructure) and Appendix A11.3 (infrastructure sites) and summarised in Table 11.20 to Table 11.23.

199. The assessment of Construction Phase effects considered a range of factors, including: land take; the quality and quantity of land temporarily removed from production; the size and location of affected parcels within each holding; farm enterprise type; sub-division impacts; disruption to access and farm infrastructure (e.g. paddock layouts, water and power systems); additional labour requirements for livestock management; and physical disturbances to land, soil, and potentially drainage systems, as well as the location of pipeline infrastructure within each holding.

200. The severity of effects varies depending on the nature of the farm enterprise. For example, a dairy farm requiring twice-daily access across the Construction Working Width would likely experience more significant disruption than a tillage farm, where access across the same area is less frequent.

201. During the Construction Phase, land within the Construction Working Width, Infrastructure Sites, Construction Compounds, and Pipe Storage Depots would be temporarily removed from production. For intensive farm enterprises, such as dairy farming, this reduction in usable land may negatively affect productivity. Sub-division of land can lead to longer travel times, altered access routes, increased movement distances, and changes in field shape, which may hinder operations such as fertiliser application or spraying. Soil disturbance can also cause temporary compaction issues or potentially block land drainage systems.

202. The significance of these effects was determined based on the sensitivity of each landholding, the duration and magnitude of the impact, and professional judgement from the agronomist(s) and author.

11.4.2.2.1 Pipeline Infrastructure – Summary of Construction Phase Effects

203. The results of the pre-mitigation assessment of effects of the Pipeline Infrastructure during the Construction Phase at an individual farm level are summarised in Table 11.20 (Farms) and Table 11.21 (Equine Facilities). Full details of the assessment can be found in Appendix A11.2.

Table 11.20: Pipeline Infrastructure (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Farms (Pre-Mitigation)

Pipeline Infrastructure – Summary of Construction Phase Effects on Farms (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	0	1	0	28	12	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	0	2	1	96	15	0
Dairy	0	0	0	0	29	63	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	0	19	3	75	13	0
Sheep	0	0	0	0	4	3	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	0	2	2	31	7	0
Forestry	0	0	2	1	10	0	0
Horticulture	0	0	0	0	0	1	0
Total (420)	**0**	**0**	**26**	**7**	**273**	**114**	**0**

* Total (420) is the Pipeline Infrastructure, excluding Equine Only Enterprises, Infrastructure Sites and 38 kV Uprate Works.

204. Prior to mitigation, the number of agricultural parcels within the Proposed Project (Pipeline Infrastructure) that would be directly impacted totals 420. Of these, 114 would have Very Significant effects, 273 would have Significant effects, seven would have Moderate (significant) effects, and 26 would have Slight (not significant) effects.

Table 11.21: Pipeline Infrastructure (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Equine Only Enterprises (Intensive and Extensive) (Pre-Mitigation)

Pipeline Infrastructure – Summary of Construction Phase Effects on Equine Enterprises (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Directly affected Equine Enterprises (15)	0	0	0	2	7	4	2
Indirectly affected Equine Enterprises (10)	0	6	4	0	0	0	0
Total (25)	**0**	**6**	**4**	**2**	**7**	**4**	**2**

205. Prior to mitigation, during the Construction Phase the number of equine enterprises related agricultural parcels associated with the Pipeline Infrastructure of the Proposed Project that would be directly affected totals 15, with those indirectly affected totalling 10. Of the 15 directly affected equine enterprises related agricultural parcels, two would have a Moderate effect (significant), seven would have a Significant effect, four would have a Very Significant effect and two would have a Profound (significant) effect. Of the indirectly affected equine enterprises related agricultural parcels, six would have a Not Significant effect, and four would have a Slight effect (not significant).

11.4.2.2.2 Infrastructure Sites – Summary of Construction Phase Effects

206. The results of the pre-mitigation assessment of effects of the Infrastructure Sites during the Construction Phase at an individual farm level are summarised in Table 11.22 and Table 11.23. Full details of the assessment can be found in Appendix A11.3.

Table 11.22: Infrastructure Sites (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Farms (Pre-Mitigation)

Infrastructure Sites – Summary of Construction Phase Effects on Farms (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	0	0	0	2	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	0	0	0	3	0	0
Dairy	0	0	0	0	1	2	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	0	0	0	5	0	0
Sheep	0	0	0	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	0	0	0	1	0	0
Forestry	0	0	0	0	2	0	0
Horticulture	0	0	0	0	0	0	0
Total (16)	**0**	**0**	**0**	**0**	**14**	**2**	**0**

Table 11.23: Construction Phase Effects for the Infrastructure Sites and Access Roads (Including Associated Temporary Infrastructure)

Non-Linear Infrastructure	Farm Enterprise	Permanent Land Take (ha)	Parcel Ref	Overall Construction Effect Pre-Mitigation
RWI&PS	Forestry	0.74	TY001	Significant (significant)
RWI&PS & Access road to RWI&PS	Grassland (incl. Grazing Silage, Hay & Leased Grassland) & Forestry	2.5	TY002	Significant (significant)
Access road to RWI&PS	Dairy	0.77	TY006	Significant (significant)
Access road to WTP	Forestry	1.12	TY009	Significant (significant)
WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	9.96	TY010	Significant (significant)
WTP	Dairy	17.58	TY011	Very Significant (significant)
WTP	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.9	TY125	Significant (significant)
WTP	Dairy	0.66	TY126	Very Significant (significant)
Access road to WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	0.726	TY013	Significant (significant)
Access road to BPT	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.01	TY123	Significant (significant)
BPT & Access road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	6.96	TY105	Significant (significant)
BPS & Access road	Drystock (incl. Beef, Sucklers, Contract Rearing)	1.69	OY069	Significant (significant)
BPS & Access road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.8	OY070	Significant (significant)
BPS Access Road	Mixed Livestock (combination of Sheep, and Drystock)	0.04	OY071	Significant (significant)
FCV	Mixed Livestock (combination of Sheep, and Drystock)	0.5	KE066	Significant (significant)
TPR & Access Road to TPR	Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	8.33	DN015	Significant (significant)

207. Prior to mitigation, a total of 16 agricultural parcels within the Proposed Project (Infrastructure Sites) would be affected. Of these, 14 parcels would have a Significant effect, while the remaining 2 parcels would have a Very Significant effect.

208. No equine agricultural parcels were identified for the Infrastructure Sites of the Proposed Project.

11.4.2.3 Proposed 38 kV Uprate Works – Overview of Construction Phase Impacts

209. The proposed works involve the uprating of the existing Ardnacrusha – Birdhill 38 kV overhead power line, which has been in place for over 70 years. The uprate would follow the existing alignment, beginning at poleset 6B north of Ardnacrusha Substation in County Clare and running in a north-easterly direction to terminate at the Birdhill 38 kV Substation in County Tipperary, refer to Figures 11.53 to 11.57.

210. In addition to the uprating, the proposed 38 kV Uprate Works includes the removal of certain polesets on the Ardnacrusha – Birdhill – Nenagh Line, their replacement with a double-circuit underground cable, and associated works at the Birdhill 38 kV Substation.

211. As the works would occur within the existing line corridor and mainly involve upgrading existing infrastructure, the land use beneath the overhead line would remain unchanged following completion. Any potential impacts resulting from the works are expected to be localised and temporary in nature, primarily related to construction activities. The construction footprint would typically require an approximate working radius of approximately 30m around the base of each poleset. Appendix A4.3 (Pole Details and Works for the proposed 38 kV Uprate Works) details the precise work to be carried out at each poleset.

212. Detailed, farm-specific impact assessments are provided in Appendix A11.5. The majority of potential impacts applicable to affected farms are summarised in Table 11.24, and these are covered in the following sections. Any impacts not listed in the table are those that are specific to individual holdings and are addressed directly within the appendix.

Table 11.24: List of Construction Phase Impacts for Proposed 38 kV Uprate Works

List of Construction Phase Impacts	
1	Temporary impact to land
2	Disturbance of soils
3	Construction traffic
4	Access arrangements

11.4.2.3.1 Temporary Impact to Land

213. The Construction Phase of the 38 kV Uprate Works would be temporary in nature, where the replacement of existing fittings, replacement of crossarms, replacement of existing polesets, replacement of angle structure, and replacement of the conductor is involved. In general, the size of the temporary working area would be so small that there would be no agricultural parcel that would be expected to experience a temporary loss of land greater than 2.5% of the holding. Existing land use could continue during the Construction Phase.

11.4.2.3.2 Disturbance of Soils

214. During the Construction Phase, there would be some excavation necessary at locations of new interpoles and angle structures. Excavations would also be required for underground sections, but this would be largely within road verges. Disruption to soil may occur at locations of replacement structures, new interpoles, and temporary access tracks.

215. The structure of soils may be potentially affected as a result of the compaction by construction vehicles.

11.4.2.3.3 Construction Traffic

216. Increased traffic volume associated with the Construction Phase of the proposed 38 kV Uprate Works may cause disturbance to farming operations for a brief time period. The number of vehicles would be small (c.1 to 2 tracked 4X4 All-terrain vehicles and/or tracked excavation machines, where practicable), which may cause adverse impacts to farmers.

11.4.2.3.4 Access Arrangements

217. The Construction Phase works along the entire proposed Project 38 kV Uprate Works are expected to last for an estimated six months and construction work in most locations would be completed within a period of days. Undergrounding of the line at the astern section of the Ardnacrusha – Birdhill – Nenagh Line may take a period of weeks to facilitate excavation of trench, laying of cables, backfilling and the reinstatement works; these works would occur within the road verge, not on agricultural land.

11.4.2.4 Proposed 38 kV Uprate Works – Summary of Construction Phase Effects

218. The results of the assessment for the proposed 38 kV Uprate Works at individual farm level pre-mitigation are summarised in Table 11.25. Full details of the assessment can be found in Appendix A11.5.

219. During the assessment process, the temporary impacts on each land holding were reviewed. The majority of the impacts would be temporary (occurring only during the Construction Phase), which is expected to last for an estimated duration of six months.

Table 11.25: Proposed 38 kV Uprate Works – Summary of Construction Phase Effects (Pre-Mitigation)

Proposed 38 kV Uprate Works – Summary of Construction Phase Effects (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	25	0	0	0	0	0
Forestry	0	6	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	7	54	0	0	0	0	0
Total: (92)	**7**	**85**	**0**	**0**	**0**	**0**	**0**

220. In summary, prior to mitigation, 85 agricultural parcels would have Not Significant effects and seven agricultural parcels would have Imperceptible effects (not significant). This is because replacement polesets would be located immediately adjacent to existing polesets; once installed, the existing polesets would be removed. Where fitting and conductors are being replaced, old are being replaced with new with no additional impacts to the agricultural landscape as the old set have been in place for >70 years. Where the line is being restrung, there would be no material impact expected to the land use, other than potential for very minor disturbance to facilitate the restringing of the overhead power line works.

221. No equine agricultural parcels were identified for the proposed 38 kV Uprate Works.

11.4.3 Operational Phase Assessment of Effects

11.4.3.1 Infrastructure Sites and Pipeline Infrastructure – Overview of Operational Phase Impacts

222. Operational Phase impacts have been identified and are described in this section. These potential impacts are primarily associated with the operation of the Infrastructure Sites and Pipeline Infrastructure of the Proposed Project. None of the affected farms would experience all the impacts identified. The farm-specific effects are detailed in Appendix A11.2 and Appendix A11.3.

11.4.3.1.1 Permanent Loss of Land

223. The Infrastructure Sites would necessitate the permanent removal of agricultural land from production. This land take occurs during the Construction Phase, and therefore the effect is accounted for in the Construction Phase effects, however, the loss is permanent and therefore continues throughout the Operational Phase, as these areas would be occupied by the proposed infrastructure and associated facilities for the duration of the project. In the case of the Pipeline Infrastructure, there would be no permanent removal of agricultural land apart from where ancillary pipeline infrastructure such as Line Valves, Washout Valves, Air Valves, and Manways are located.

11.4.3.1.2 Registration of Permanent Wayleave

224. The Proposed Project includes acquisition of a 20m wide Permanent Wayleave. This Permanent Wayleave would be registered on the title of each individual land holding. While it does not involve the acquisition of landownership, the registration of the wayleave may have the following practical implications for landholders:

- Land use implications: The presence of a registered wayleave may influence decisions regarding crop selection and land use within the wayleave corridor
- Cropping and farm enterprise mix: Certain farming practices may need to be adjusted in areas where the wayleave is located
- Farm infrastructure development: The wayleave may restrict the placement of new farm buildings or infrastructure within the designated corridor
- Residential and land development: Future development proposals on the land would need to accommodate the presence of the wayleave.

11.4.3.1.3 Restriction on Forestry

225. Forestry plantations would be required to accommodate the 20m wide Permanent Wayleave, within which planting restrictions would apply. As a result, land within the wayleave would not be eligible for inclusion in forestry planting schemes.

11.4.3.1.4 Exclusion Areas Around Infrastructure (Line Valves)

226. The power connections that are linked to some Line Valves may have associated exclusion areas restricting some deep soil machinery such as the plough.

11.4.3.1.5 Disturbance Associated with Washout Valve Operation (Washout Valves)

227. Washout Valves, installed at strategic locations along the pipeline, would typically only be used once every 30 years or in the event of a catastrophic failure requiring the emergency emptying of the pipeline. Some of these would discharge to agricultural land (Table 11.26). When activated, these valves would discharge water at rates of up to 15l/s. This discharge may result in temporary wetting or flooding of adjacent agricultural lands, directly impacting the 23 agricultural parcels on which the valves are located, while two valves, identified in Table 11.26 with an asterisk (*), would be used solely during testing and commissioning and would not be used during the Operational Phase. Potential effects include temporary changes to soil conditions, reduced crop productivity, and impaired field accessibility. Indirect effects may also occur on surrounding fields depending on soil characteristics, topography, and field boundaries, causing temporary disruption to agricultural activities beyond the immediate discharge area.

Table 11.26: Location of Washout Valves Proposed to Discharge to Adjacent Agricultural Lands

Location of Valve	Washout ID	Discharge Area	Farm Enterprise/ Land Use	Significance of Effect
TY084	WB-014a	Agricultural Land	Dairy	See Appendix A11.2
(*)TY087	WO-37	Agricultural Land	Dairy	
TY090	WB-015	Agricultural Land	Dairy	
TY095	WB-017	Agricultural Land	Dairy	
TY109A	WB-019	Agricultural Land	Tillage	
OY027	WB-023	Agricultural Land	Dairy	
(*)OY027	WO-61	Agricultural Land	Dairy	
OY068	WB-036a	Agricultural Land	Drystock	
OY074	WB-038	Agricultural Land	Dairy + Drystock	
OY077A	WB-038a	Agricultural Land	Dairy	
OY109	WB-046	Agricultural Land	Mixed Livestock	
OY113	WB-047	Agricultural Land	Dairy	
OY115	WB-048	Agricultural Land	Tillage	
OY137	WB-055	Agricultural Land	Drystock	
OY140	WB-056	Agricultural Land	Tillage + Drystock	
OY170A	WB-076	Agricultural Land	Drystock	
OY185	WB-088	Agricultural Land	Grassland	
KE005B	WB-111	Agricultural Land	Tillage + Grassland	
KE007	WB-113	Agricultural Land	Grassland	
KE012A	WB-124	Agricultural Land	Grassland	
KE031	WB-128	Agricultural Land	Tillage + Horticulture+ Drystock	
KE057	WB-135	Agricultural Land	Tillage	
KE066	WB-138	Agricultural Land	Mixed Livestock	
KE059	WB136a	Agricultural Land	Tillage	
DN006	WB140a	Agricultural Land	Equine (Intensive)	

Note: (*) indicates two washout IDs which would only be used during the Testing and Commissioning Phase

11.4.3.1.6 Disturbance to Farming Operations

228. Maintenance work would cause brief disturbance to farming operations (less than one day) during the Operational Phase and would occur infrequently.

229. Annual inspections would cause minimal disturbance to operations.

230. Pipeline features such as Air Valves, Washout Valves and Line Valves may place exclusion areas in some fields. Farm machinery would have to avoid and drive around the infrastructure, depending on its location in the field, whereas previously the machinery could work in straight lines with no obstacles to avoid. Where silage or tillage crops are grown, and potentially meet heights of 1–2m, infrastructure located in the field would need to be clearly marked or indicated to avoid damage to the infrastructure and farm machinery.

231. In the unlikely event maintenance is to be carried out on some of the infrastructure, it may be necessary to excavate localised areas, disturbing the soil profile.

11.4.3.1.7 Sub-Division of Land

232. Sub-division is associated with the permanent acquisition of lands. No sub-division would occur in the case of the pipeline infrastructure. Construction of access roads to the Infrastructure Sites may result in sub-division to some agricultural parcels.

11.4.3.1.8 Drainage

233. Damaged or interrupted drainage systems could adversely affect retained lands during the Operation Phase.

11.4.3.1.9 Loss of Shelter

234. In the absence of appropriate mitigation measures, the removal of existing hedgerows or shelterbelts during the Construction Phase could result in a loss of shelter on retained agricultural lands during the Operational Phase. This reduction in natural shelter may expose fields to increased wind, leading to potential soil erosion, particularly on light or sloping soils. In exposed areas, this could also affect livestock welfare, increasing stress in animals during adverse weather conditions, and may negatively impact crop performance by reducing microclimatic protection.

11.4.3.1.10 Land Condition

235. In the absence of appropriate mitigation measures during the Construction Phase, the productivity of agricultural land during the Operational Phase may be adversely affected by a range of soil-related impacts arising from construction activities. These may include loss of topsoil, improper separation or mixing of topsoil and subsoil, and severe compaction resulting from the movement and operation of heavy machinery, particularly within Construction Compounds and Pipe Storage Depots. Such impacts can reduce soil permeability, impair root development, and restrict crop growth, potentially leading to a long-term decline in soil health and agricultural output.

11.4.3.1.11 Spread of Noxious Weeds and Invasive Species

236. There is a risk of the introduction and spread of noxious weeds and invasive species into areas previously unaffected during the Operational Phase, particularly species such as Japanese knotweed, giant hogweed, ragwort, and common scutch.

237. Soil disturbance during construction can create favourable conditions for colonisation, particularly where contaminated machinery, vehicles, or materials are transferred between sites. If left unmanaged, these species can outcompete desirable vegetation, reduce the value and usability of farmland, and trigger long-term land management issues during the Operational Phase.

11.4.3.2 Infrastructure Sites and Pipeline Infrastructure – Summary of Operational Phase Effects

238. During the assessment process, the Operational Phase effects were evaluated for each landholding across a range of relevant criteria. These effects were assessed and categorised based on the nature and scale of effect on each parcel of land. The significance of these effects is provided in Appendix A11.2 (pipeline infrastructure) and Appendix A11.3 (infrastructure sites). For the pipeline infrastructure, Operational Phase effects are reported at individual farm level, as impacts are only relevant to the holdings on which the infrastructure is physically located. The principal Operational Phase impacts relate to permanent land take, surface infrastructure associated with the pipeline, and occasional disturbance due to inspection and maintenance activities.

239. The operation of the buried pipeline infrastructure would not generally disrupt agricultural use, except on occasion, during maintenance works that would need to be carried out at locations where permanent above-ground features are installed (e.g. valve chambers or access points).

240. The Not Significant effects would not cause an inconvenience to the farms impacted, for example restriction on planting trees more than 4m in height. Existing land use and cropping regimes can and would continue during the Operational Phase, except for restrictions to deep soil cultivations because of the power connections to the Proposed Project.

241. The Slight effects (not significant) would cause some inconvenience to the farms impacted, where valves are present and may cause some adverse impacts to farm enterprises. The effect of valves would be broadly dependent on the land use, the location in the field and whether the chamber is above ground, flush or below ground level.

242. The 20m wide Permanent Wayleave is not expected to affect the day-to-day agricultural use or cropping during the Operational Phase. There may be some disruption to farming activities during infrequent maintenance works. Once the Proposed Project becomes operational, landholders would be able to resume use of land where permanent structures, such as Air Valves, Washout Valves, and Line Valves are not present.

11.4.3.2.1 Pipeline Infrastructure – Summary of Operational Phase Effects

243. The results of the pre-mitigation assessment of effects of the Pipeline Infrastructure during the Operational Phase at an individual farm level are summarised in Table 11.27 (Farms) and Table 11.28 (Equine Facilities). Full details of the assessment can be found in Appendix A11.2.

Table 11.27: Pipeline Infrastructure – Summary of Operational Phase Effects on Farms (Pre-Mitigation)

Pipeline Infrastructure – Summary of Operational Phase Effects on Farms (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	1	7	33	0	0	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	2	23	89	0	0	0	0
Dairy	0	24	68	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	17	33	60	0	0	0	0
Sheep	0	1	6	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	1	8	33	0	0	0	0
Forestry	3	7	3	0	0	0	0
Horticulture	0	0	1	0	0	0	0
Total (420)	**24**	**103**	**293**	**0**	**0**	**0**	**0**

244. Prior to mitigation, of the 420 agricultural parcels within the Pipeline Infrastructure of the Proposed Project, 293 agricultural parcels would have Slight effects (not significant), 103 agricultural parcels would have Not Significant effects, and 24 agricultural parcels would have Imperceptible effects (not significant).

Table 11.28: Pipeline Infrastructure – Summary of Operational Phase Effects on Equine Only Enterprises (Intensive and Extensive) (Pre-Mitigation)

Pipeline Infrastructure – Summary of Operational Phase Effects on Equine Enterprises (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Directly affected Equine Enterprises (15)	0	6	3	2	4	0	0
Total (15)	**0**	**6**	**3**	**2**	**4**	**0**	**0**

245. Prior to mitigation, during the Operational Phase the number of equine enterprise related agricultural parcels associated with the Pipeline Infrastructure of the Proposed Project that would be directly affected totals 15. Of the 15 directly affected equine enterprise related agricultural parcels, six would have a Not Significant effect, three would have a Slight (not significant) effect, two would have a Moderate (significant) effect and four would have a Significant effect.

246. There would be no impacts on the 10 indirectly affected equine holdings during the Operational Phase of the Proposed Project; any potential impacts would be contained within the Planning Application Boundary.

11.4.3.2.2 Infrastructure Sites – Summary of Operational Phase Effects

247. The results of the pre-mitigation assessment of effects of the Infrastructure Sites during the Operational Phase at an individual farm level are summarised in Table 11.29a and Table 11.29b. Details of the assessment can be found in Appendix A11.3.

11.29a: Infrastructure Sites – Summary of Operational Phase Effects (Pre-Mitigation)

Infrastructure Sites – Summary of Operational Phase Effects (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	0	2	0	0	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	2	1	0	0	0	0
Dairy	0	3	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	4	1	0	0	0	0
Sheep	0	0	0	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	0	1	0	0	0	0
Forestry	0	2	0	0	0	0	0
Horticulture	0	0	0	0	0	0	0
Total (16)	**0**	**11**	**5**	**0**	**0**	**0**	**0**

Table 11.29b: Infrastructure Sites and Access Roads – Summary of Operational Phase Permanent Land Take Effects (Pre-Mitigation)

Non-Linear Infrastructure	Farm Enterprise	Permanent Land Take (ha)	Parcel Ref	Overall Operational Effect Pre-Mitigation
RWI&PS	Forestry	0.74	TY001	Not Significant
RWI&PS & Access road to RWI&PS	Grassland (incl. Grazing Silage, Hay & Leased Grassland) & Forestry	2.5	TY002	Not Significant
Access road to RWI&PS	Dairy	0.77	TY006	Not Significant
Access road to WTP	Forestry	1.12	TY009	Not Significant
WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	9.96	TY010	Not Significant
WTP	Dairy	17.58	TY011	Not Significant
WTP	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.9	TY125	Not Significant
WTP	Dairy	0.66	TY126	Not Significant
Access road to WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	0.726	TY013	Not Significant
Access road to BPT	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.01	TY123	Not Significant
BPT & Access Road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	6.96	TY105	Not Significant
BPS & Access Road	Drystock (incl. Beef, Sucklers, Contract Rearing)	1.69	OY069	Slight (not significant)
BPS & Access Road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.8	OY070	Slight (not significant)
BPS Access Road	Mixed Livestock (combination of Sheep, and Drystock)	0.04	OY071	Slight (significant)
FCV	Mixed Livestock (combination of Sheep, and Drystock)	0.5	KE066	Slight (not significant)
TPR & Access Road to TPR	Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	8.33	DN015	Slight (not significant)

248. The operation of the Infrastructure Sites, comprising the RWI&PS, WTP, BPS, BPT, FCV and TPR, would require the permanent acquisition of approximately 53ha of land. This land would be acquired from 11 parcels (TY001, TY002, TY010, TY011, TY125, TY126. TY105, OY069, OY070, KE066 and DN015) for the ongoing operation of these facilities. In addition, permanent land acquisition would be required for the construction of access roads serving these sites. Access roads crossing agricultural land could lead to sub-division of parcels, affecting operations.

249. As the land required for Infrastructure Sites and their respective access road would be permanently removed from agricultural use during the Construction Phase, the operation of these facilities would not result in further disruption to agricultural activities on surrounding lands during the Operational Phase.

250. In summary, the pre-mitigation assessment of effects of the 16 agricultural parcels which pertain to the Proposed Project Infrastructure Sites has identified five agricultural parcels that would have Slight (not significant) effects, and 11 agricultural parcels that would have Not Significant effects.

251. No equine agricultural parcels were identified for the Infrastructure Sites of the Proposed Project.

11.4.3.3 Proposed 38 kV Uprate Works – Overview of Operational Phase Impacts

11.4.3.3.1 Loss to Land

252. Where new replacement polesets are installed, they would typically replace existing infrastructure that has been in place for over 70 years. As such, there would be no net increase in land loss during the Operational Phase, and the impact is considered negligible (not significant). The footprint of the new polesets would remain consistent with previous usage, and normal agricultural activities would be able to continue around them, as has historically been the case.

11.4.3.3.2 Disturbance to Farming Operations

253. During the Operational Phase it would be necessary for the ESBN to carry out routine inspections of the structures. Routine inspections may cause brief disturbances to farming operations.

11.4.3.3.3 Drainage

254. If existing drainage systems are interrupted during the Construction Phase, drainage issues could persist into the Operational Phase.

11.4.3.3.4 Land Condition

255. Land condition may be negatively impacted during the Operational Phase due to maintenance activities, including potential soil compaction or disturbance from vehicle access.

11.4.3.4 Proposed 38 kV Uprate Works – Summary of Operational Phase Effects

256. The significance of the pre-mitigation Operational Phase effects associated with the proposed 38 kV Uprate Works is summarised in Table 11.30. Full details of the assessment can be found in Appendix A11.5.

Table 11.30: Proposed 38 kV Uprate Works – Summary of Operational Phase Effects (Pre-Mitigation)

Proposed 38 kV Uprate Works – Summary of Operational Phase Effects (Pre-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	25	0	0	0	0	0	0
Forestry	6	0	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	61	0	0	0	0	0	0
Total: (92)	**92**	**0**	**0**	**0**	**0**	**0**	**0**

257. The effects on 92 agricultural parcels would be Imperceptible (not significant).

258. No equine agricultural parcels were identified for the proposed 38 kV Uprate Works.

11.5 Mitigation and Monitoring Measures

11.5.1 Embedded Mitigation

259. The environment team has worked in close collaboration 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 Chapters 4 (Proposed Project Description) and 5 (Construction & Commissioning) of the EIAR. As such, embedded mitigation is considered in the assessment of pre-mitigation effects in Section 11.4.

260. Chapter 3 (Consideration of Reasonable Alternatives) 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.

261. To minimise disruption to livestock and maintain biosecurity, the Construction Working Width will be securely fenced on both sides using appropriate stock-proof fencing. The type and specification of fencing will be determined based on farm enterprise type and in consultation with landholders. These measures are part of the embedded design mitigation described in Chapter 5 (Construction & Commissioning).

262. The design of the Proposed Project has mitigated impacts on individual land holdings through careful routing of the pipeline corridor adjacent to field and property boundaries, where practicable, and by facilitating or partially facilitating requests from landholders to adjust the alignment of the pipeline in order to reduce impacts. The Proposed Project has aimed to position above-ground infrastructure as close to field boundaries as practicable to reduce interference with farming operations. However, where this is not fully achievable, efforts will be made to ensure sufficient clearance for machinery and, where needed, to mark buffer zones or use low-profile designs to minimise disruption to routine agricultural activities.

263. The potential for occurrence of leaks or a burst pipeline has been assessed, and mitigations have been incorporated into the Proposed Project design to reduce this risk. Refer to Chapter 4 (Proposed Project Description) and Chapter 5 (Construction & Commissioning) for project design and engineering mitigations which include incorporation and reinstatement of disrupted drainage, and low voltage currents to identify any potential corrosion that might occur at any part of the pipeline.

11.5.2 Specific Mitigation and Monitoring Measures

264. Specific mitigation measures are proposed to prevent or reduce significant adverse effects. Where appropriate, consideration has been given to the appropriateness of monitoring measures, the purpose of which is to check that the mitigation measures required to prevent or reduce significant adverse effects are delivered and perform as intended, in accordance with the requirements of the EIA Directive.

265. Mitigation and monitoring measures for agriculture are described below and are included in the CEMP which has been produced to support this EIAR (refer to Appendix A5.1).

266. Where specialised or sensitive farming activities (such as intensive equine or dairy operations identified in Appendix A11.2) occur within or adjacent to construction areas, the contractor will apply targeted mitigation measures under its direct control, including dust suppression, noise reduction, fencing, and limits on site access. Where residual risk remains after these measures, Uisce Éireann will seek to enter into temporary land-use restriction agreements with the land holders. Upon receiving notice of commencement of works, the landholder will have the opportunity to plan appropriate management measures, such as relocating stock or adjusting operations to suit their farming activities.

11.5.2.1 Construction Phase

267. The loss of agricultural land as a result of the construction of the RWI&PS, WTP, BPS, BPT, FCV and TPR would be a permanent loss and will be addressed in the statutory compensation process. The temporary loss of land within the Construction Working Width along the proposed pipeline route will be addressed by compensation to the landholder.

268. The impacts on agriculture would generally be short term (1–7 years) and mainly confined to the Construction Phase which would be an approximate five-year period. Measures will be employed to reduce the impacts on farms and allow the continuous operation of affected holdings. For example, as shown in Image 11.1, crossing points will be agreed and suitable access arrangements will be provided which will accommodate the landholder while at the same time facilitating the construction of the Proposed Project.

269. Each farm has developed unique practices to maximise the productivity of the land. Mitigation measures have been designed to address specific issues raised by landholders. In recognition of the need to work with landholders, specific mitigation measures most suitable to individual farm situations will be developed. This will involve continued dialogue with landholders to determine their management systems by the agronomist and LLOs. Landholders will be provided with access to all sub-divided land during the Construction Phase. Temporary crossing points will be provided, and the location and number of these crossing points will be discussed and agreed with landholders. The impact assessment tables in Appendix A11.2, Appendix A11.3 and Appendix A11.5 detail the proposed mitigation measures for each of the 461 agricultural parcels and include:

    - Measures to appropriately manage soil stripping, storage, backfilling and reinstatement
    - Existing land drainage will be reinstated, or new drainage pipes installed where appropriate
    - Access will be maintained to sub-divided land during the Construction Phase
    - Replacement or replanting of any hedgerows or green infrastructure removed as part of the Construction Phase.

270. Active engagement with landholders will be necessary during the Construction Phase to discuss specific requirements such as access arrangements and movement of stock. A Pre-entry Requirements and Record of Construction Report will be completed with the landholder prior to the appointed Contractor entering onto the land for the main pipeline construction. The report will contain landholders' particular reasonable requests in relation to temporary fencing, the provision of access across the Construction Working Width, the provision of water supply and power supply. Landholders will be notified prior to access being required to allow stock to be moved. Construction and farming activities may be scheduled to coincide with cropping cycles, i.e. in fallow periods where practicable. The appointed Contractor will be required, wherever practicable, to carry out the main pipeline activities in the period 1 March to 30 November and will use all reasonable attempts to plan the construction programme in order to comply with this timescale. All reinstatement works will be undertaken in accordance with the Soil Management Plan devised for the Proposed Project (Annex B of Appendix A5.1).

271. Landholders have been consulted on the proposed mitigation measures. During Construction Phase planning, further discussions will address queries about the works. Particular items to be discussed and agreed in advance of any works commencing will include:

    - Access requirements for livestock and vehicles to maintain suitable access throughout the duration of the works
    - Fencing requirements so that the appropriate temporary fencing and gates are used during construction in addition to the fencing type used for permanent reinstatement post construction

- Presence of any existing drainage, to maintain connections, or temporary solutions are implemented during construction works and that appropriate permanent solutions are in place on completion of the works
- Presence of any existing services, e.g. water and power supplies to maintain services, e.g. water to troughs, and power supply to electric fences.

272. LLOs have been appointed by Uisce Éireann as part of this current planning phase, and will remain in place throughout the construction, reinstatement and handover phases to address any queries that landholders and stakeholders may have. They will enable communications with affected landholders and facilitate the reorganisation of farm enterprises at critical times during the Construction Phase. They will also consult with landholders to identify any special management requirements such as specific on farm biosecurity measures isolating and identifying the disease status of farms affected. The works throughout will be executed under the supervision of the engineer acting on behalf of Uisce Éireann. The LLOs will supervise the execution of the works and maintain contact with landholders along the route of the pipeline during the works.

273. The LLOs are Uisce Éireann's principal points of contact with landholders and will be the interface between Uisce Éireann and the appointed Contractor. It will be the responsibility of the LLOs to maintain communication with landholders at all times during all aspects of works. This will include keeping landholders fully informed of any issues raised. The landholders will be informed of the name and address and telephone number of the person to whom queries should be addressed.

274. All reinstatement work will be undertaken in accordance with the requirements outlined in the Soil Management Plan devised for the Proposed Project (Annex B of Appendix A5.1). Reinstatement will start with the restoration of the subsoil by ripping it to a minimum uniform depth of 600mm. This depth of ripping will loosen any material compacted during construction. All surface stones and roots above 150mm in diameter will be removed. Regrading of subsoil will be carried out. The spreading of subsoil will be carried out in favourable weather conditions. The subsoil will be evenly spread across the Construction Working Width leaving it level. Topsoil will then be spread evenly across the Construction Working Width. Reseeding will be carried out on completion of topsoil spreading. Refer to Chapter 5 (Construction & Commissioning) for further details.

275. The principal mitigation is that the Construction Phase will be undertaken in an efficient manner which will follow the planned construction programme to reduce as far as practicable the disruption to each individual landholder.

276. Potential impacts will be reduced by carrying out the works in a competent manner in accordance with the CEMP for the Proposed Project (Appendix A5.1), and only during suitable weather conditions, not during periods of incessant rain when works may damage soil.

277. Individual landholders will be given the maximum possible notice in advance of commencement of construction works. The works will, in so far as possible, be carried out in accordance with a programme of which the landowner will be kept informed, enabling them to plan farming activities and minimise disruption.

11.5.2.1.1 Loss and Temporary Severance of Agricultural Land

278. Construction activities will be confined to the Planning Application Boundary. The Construction Working Width area will be fenced off (with a stock-proof fence) during the Construction Phase. The type of fencing will be agreed in consultation with landholders. Temporary access points will be provided to allow landholders to cross the Construction Working Width. A typical crossing point is shown in Image 11.1 and discussed in further detail in Chapter 5 (Construction & Commissioning).

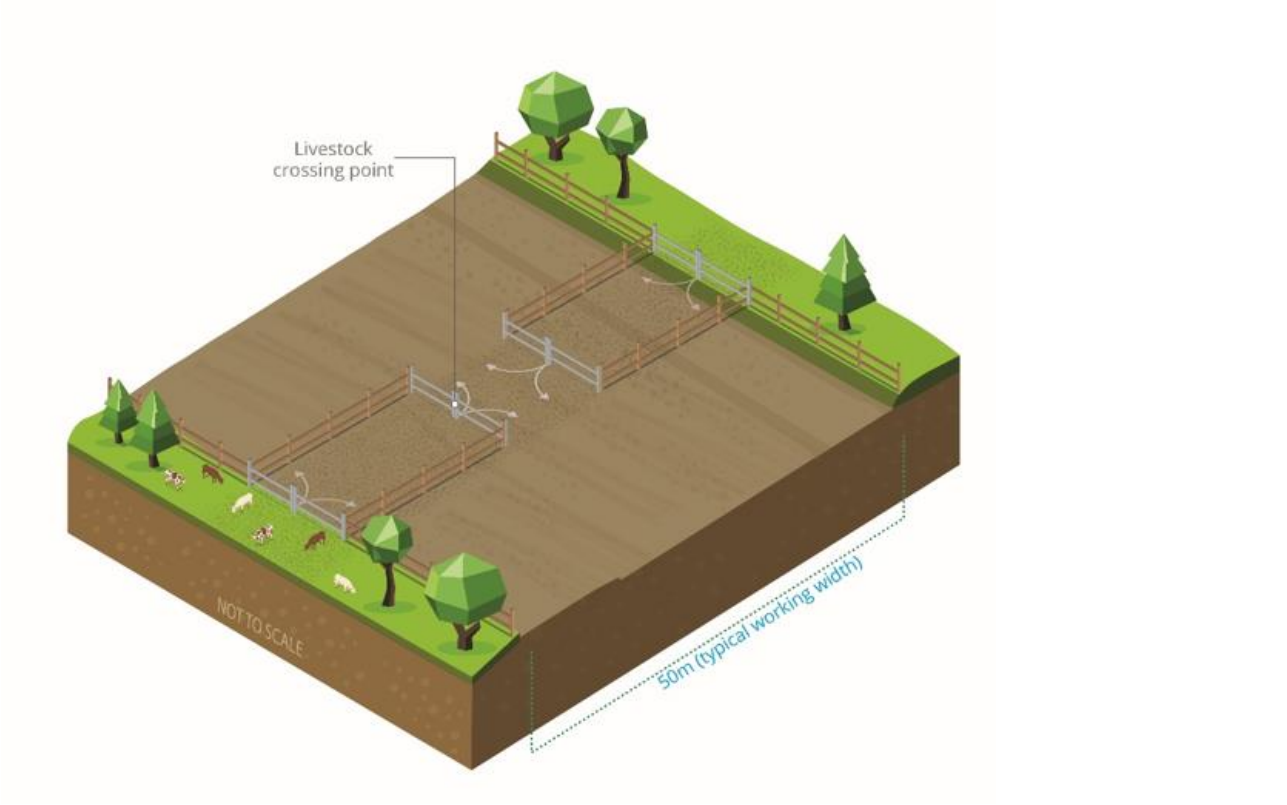

Image 11.1: Typical Crossing Point

279. The proposed pipeline routes will be buried and, where practicable, will be routed as close to field boundaries as practicable to reduce sub-division of agricultural parcels.

280. Permanent land take and temporary loss of production will be financially compensated. All agricultural lands will be reinstated to pre-construction conditions. The impacts on agriculture would generally be short term and mainly confined to the Construction Phase. Some longer-term impacts may occur, such as restrictions on land use, the restriction on farmyard expansion within the 20m wide Permanent Wayleave area, or a burden on title. All reinstatement works will be weather-dependent to reduce impacts on land after completion of reinstatement of the working area. Reinstatement works will only be carried out during periods of appropriate weather conditions. The appointed Contractor will be required wherever practicable to carry out the mainline pipeline activities in the period 1 March to 30 November.

11.5.2.1.2 Loss of Services (Water, Power, Fencing)

281. If existing water and electricity supplies are disrupted during the Construction Phase, an alternative water supply and electricity supply will be made available such as water tanker or electric cable ducting. If permanent access to surface drinking water sources is disrupted, alternative groundwater supplies will be provided (or compensation will be provided to allow farmers to drill their own wells).

11.5.2.1.3 Disturbance from Construction Traffic

282. A Traffic Management Plan has been developed (Appendix A7.2) and will be implemented by the appointed Contractor for the Construction Phase to reduce disturbance to landholders. Materials would be transported along haul roads, and access and egress points will be designed to allow construction traffic to turn safely on and off the road reducing the occurrence of potential disruptions or hazards created by turning or moving machinery. Refer to Chapter 5 (Construction & Commissioning) for further details on Haul Roads.

11.5.2.1.4 Disturbance from Construction Noise and Vibration

283. Noise and vibration mitigation measures will be implemented by the appointed Contractor in accordance with the provisions outlined in Chapter 6 (Noise & Vibration).

284. In general, livestock are known to adapt quickly to changes in their noise environment. However, on holdings where sensitive or specialised bloodstock are present, such as high-value or performance equine operations, additional precautions may be necessary. Where practicable, animals may be temporarily relocated away from areas in close proximity to the Construction Working Width during periods of high construction activity (e.g. the field where the works is taking place). Alternatively, the temporary placement of excavated material in the form of a soil bund may be used to provide both a visual and acoustic buffer between construction activities and livestock.

285. In certain cases, particularly where intensive equine operations are present, it may be necessary for the construction Contractor to liaise directly with the landholder to coordinate and schedule works. This may include agreeing on specific time windows for construction or for equine activities, such as horse training or exercise, to minimise potential disruption, stress to animals or possible injury to the handler.

11.5.2.1.5 Disturbance from Construction Dust

286. The appointed Contractor will employ measures to prevent the spread of dust and mud onto adjoining lands. These measures are described in Chapter 12 (Air Quality).

11.5.2.1.6 Removal of Hedgerows and Shelterbelts

287. Any shelter removed during the Construction Phase will be reinstated, where appropriate. However, replanting will not include trees within the 20m wide Permanent Wayleave, in accordance with standard utility infrastructure requirements. Hedgerow replanting will reflect the original species mix but will be selected to avoid any risk of damage to the RWRMs and the Treated Water Pipeline (refer to Chapter 5: Construction & Commissioning). Replanting activities will be carried out in compliance with relevant DAFM regulations, including guidance on tree felling, hedgerow restoration, and environmental management. An appropriate aftercare programme will be implemented to ensure the successful establishment of replanted hedgerows.

11.5.2.1.7 Disturbance to Farm Operations

288. Consultation and liaison between the appointed Contractor and landholders during the Construction Phase will take place to inform the appropriate measures to be taken to reduce disruption and to enable Proposed Project activities to occur, as far as practicable, in conjunction with farming operations. Individual landholders will be given sufficient notice in advance of construction works so they can arrange their farming activities on lands held adjacent to the Proposed Project Construction Working Width so as to reduce the potential impacts to their overall farming operations. Landholders will be consulted on specific access arrangements and stock movement.

289. By locating the RWRMs and Treated Water Pipeline routes as close as feasible to existing farm boundaries, the effect on farming infrastructure will be reduced as far as reasonably practicable.

11.5.2.1.8 Effects on Area-Based Payments

290. No additional mitigations are proposed. This will be a matter for review, discussion with relevant landholders and potential compensation, which is outside the EIA process.

11.5.2.1.9 Effect on Field Drainage

291. Pre-construction liaison meetings with landholders will be held to agree the extent of existing land drainage systems that will be impacted by the Construction Phase and to agree the nature and extent of replacement drains required. A detailed record of the locations of land drains intercepted during the Construction Phase will be kept. A LLO will be on-site to record land details. This process will also be followed during reinstatement works.

11.5.2.1.10 Spread of Noxious Weeds and Invasive Species

292. All plant and equipment used during the Construction Phase will be thoroughly cleaned using a power washer unit prior to leaving site, to prevent the spread of invasive species. A sign-off sheet will be maintained to confirm cleaning. Chapter 8 (Biodiversity) and the CEMP (Appendix A5.1, Annex F: Invasive Species Management Plan) contain further details on measures that will be taken to prevent the spread of invasive and non-native species. The Contractor's environmental records will confirm the presence of invasive and non-native species and the appropriate actions to be taken, in line with the requirements set out in the Invasive Species Management Plan.

293. Staff involved in the works will be informed of the specific locations of any invasive species in the area and the appropriate actions or working restrictions to be applied.

11.5.2.1.11 Biosecurity and Animal Health Risks

294. Disease prevention protocols and farm biosecurity measures will be observed as part of normal construction management procedures. Infrastructure projects through agricultural land are not uncommon, and established measures are routinely implemented to protect the integrity and ongoing viability of agricultural operations. The appointed Contractor will liaise with the DAFM in relation to crop and livestock health. Stock-proof boundaries will be maintained to prevent animals from straying or coming into contact with other livestock. In the event that a notifiable disease outbreak occurs, or specific national biosecurity measures are introduced, any additional requirements will be implemented as directed by the relevant authorities, in coordination with affected landholders and stakeholders.

11.5.2.1.12 Spread of Soil-Borne Diseases and Alien Species

295. All construction equipment will arrive on site clean and free from weeds, soil, and debris. Wash-down facilities will be provided where appropriate. Biosecurity measures will be implemented in accordance with EU Regulation (EU) No 1143/2014 on the prevention and management of the introduction and spread of invasive alien species, as well as relevant Irish national legislation and guidance. These measures are designed to prevent, minimise, and mitigate the potential adverse impacts of invasive alien species on biodiversity, ecosystem services, human health, and the economy.

296. Within the designated Construction Working Width, controls will be in place to ensure that machinery can move freely within defined working corridors without facilitating the transfer of soil material between landholdings. Specifically, soil excavated from one landholding will not be transported to another, and care will be taken to avoid introducing external soil onto individual holdings.

297. Full clean-down procedures will be applied before any machinery or vehicles enter or exit the project site, particularly where they cross public roads or move between geographically separate sections of the route. These protocols are critical to maintaining compliance with regulatory requirements and minimising biosecurity risks throughout the Construction Phase of the Proposed Project.

11.5.2.1.13 Land Condition and Soil Compaction

298. Land reinstatement will be progressed in accordance with the methodologies outlined in Chapter 5 (Construction & Commissioning). Reinstatement will start with the restoration of the subsoil by ripping it to a minimum uniform depth of 600mm. This depth of ripping will loosen any material compacted during construction. All surface stones and roots above 150mm in diameter will be removed. Regrading of subsoil will be carried out. The spreading of subsoil will be carried out in favourable weather and workable ground conditions. The subsoil will be evenly spread across the Construction Working Width leaving it level. Topsoil will then be spread evenly across the Construction Working Width. Reseeding will be carried out on completion of topsoil spreading. Soil cleared from agricultural parcels will be stockpiled and protected during construction to prevent subsoil and topsoil mixing. The stockpiled soil will be used during reinstatement.

299. LLOs will be present on-site to monitor the stripping, handling, and storage of topsoil, and to record land use details for each affected holding. All land reinstatement will be carried out in accordance with the Soil Management Plan (Annex B of Appendix A5.1). While the physical reinstatement of land and return to the landholder is expected to occur within 18 to 24 months following the commencement of construction, it is recognised that the recovery of soil structure and agriculture productivity may require a longer period. For the purposes of this assessment, a conservative recovery window of three to five years is assumed for the reinstatement of agricultural function. This estimate reflects expected short-term reductions in yield or quality, particularly on intensively managed or tilled land, and informs the basis for any proposed mitigation or compensation arrangements.

300. The level of the trench area shall be the same as that of the surrounding ground, around one year after restoration is completed. Any excess excavated soil material will be removed from site. In most cases this will be subsoil; all topsoil will be reinstated.

11.5.2.1.14 Intensive Equine Enterprise Specific Mitigation

301. Mitigation measures specific to intensive equine locations within the Proposed Project include:

- At one location, the Proposed Project directly intersects with an equine training gallop. The gallop will be unavailable during haul road construction, pipeline installation, and reinstatement. Outside these periods, it will be kept operational through management practices comparable to those employed at racetracks (e.g. Leopardstown, Aintree). A suitable fibre/sand surface will be laid across the haul route when the gallop is in use, removed during haul traffic, and reinstated/levelled for galloping. No construction activity will take place while horses are using the gallop[13]
- To mitigate potential stress caused by noise and visual disturbance, the landowner will receive a minimum advance notice prior to construction works commencement. This will allow sufficient time to relocate bloodstock to alternative paddocks
- Access to severed lands will be maintained throughout the construction period
- Noise and Visual Screening: Berms of excavated soils will be strategically placed within the wayleave corridor (east, west, or north of the trench, depending on location) to provide supplementary screening. In addition, at specific locations, temporary noise and visual barriers (approximately 3m high and constructed from materials sympathetic to the surrounding environment) could be installed.

[13] These mitigation measures will be implemented if a separate land use agreement is not entered into with the land holder.

11.5.2.2 Operational Phase

11.5.2.2.1 Permanent Loss of Land

302. The operation of the Proposed Project will require the permanent removal of agricultural land from production at infrastructure sites. This represents a permanent loss of land which cannot be physically mitigated. Compensation will be provided to affected landholders to address this loss.

11.5.2.2.2 Establishment of a 20m Wide Permanent Wayleave Over Lands

303. The establishment of a 20m wide Permanent Wayleave may have implications for land value, letting value, cropping regimes, farm enterprise mix, and future development potential. Any such impacts will be addressed through an appropriate financial compensation package.

11.5.2.2.3 Restriction on Forestry

304. Any limitations placed on the establishment or replanting of forestry as a result of the 20m wide Permanent Wayleave or associated infrastructure will be considered within the overall compensation framework.

11.5.2.2.4 Disturbance to Farm Operation

305. Routine inspections and periodic maintenance activities, including for pipeline infrastructure and 38 kV Uprate Works, will be undertaken during the Operational Phase. These will be planned and coordinated with landholders to minimise disruption. Notification will be provided in advance of such works to allow landholders to adjust farming activities and relocate livestock where necessary. All biosecurity and disease control protocols will continue to be observed. These activities are expected to be infrequent and short in duration.

306. Continued monitoring for noxious weeds and invasive species will be undertaken during routine maintenance inspections, and appropriate control measures will be implemented as required. Refer to Appendix A5.1 Annex F (Invasive Species Management Plan).

11.5.2.2.5 Sub-Division of Land

307. Where new access roads are required, they will be aligned, where practicable, along existing field boundaries to minimise the sub-division of agricultural parcels and disruption to farm layouts.

11.5.2.2.6 Drainage

308. If instances where existing land drainage systems are affected, equivalent drainage systems will be reinstated to maintain existing functionality and prevent any long-term impacts on land usability.

11.5.2.2.7 Management of Washout Valve Operations

309. To address potential impacts associated with Washout Valve use, the rare discharge events will be carefully managed to reduce disruption to agricultural land. Discharges, which may occur at rates of up to 15l/s, will be retained to a bunded area where feasible, subject to prevailing ground conditions. Prior to any planned discharge (rare occasion), excluding emergency scenarios, landholders of the (23, plus two that would be impacted during testing and commissioning only) affected agricultural parcels will be notified in advance to allow time for adjustments to farm operations. Site-specific conditions, including soil type, topography, and existing field boundaries, will be reviewed to inform the most appropriate discharge management approach. Where required, temporary measures such as discharge dispersion or flow control, may be employed to avoid prolonged surface saturation. In the event of unplanned discharge, post-event inspections will be undertaken to assess any impacts to agricultural use, and appropriate remedial actions will be agreed with the landholder if necessary.

11.5.2.2.8 Loss of Shelter

310. Any hedgerows or shelterbelts removed during construction will be reinstated post-construction to restore shelter provision and field boundary structure.

11.5.2.2.9 Land Condition

311. All land disturbed during construction will be reinstated in accordance with the mitigation measures outlined in the CEMP, including the Soil Management Plan (Appendix A5.1, Annex B). No further operational mitigation is anticipated in relation to land condition.

11.5.2.2.10 Equine Enterprise Specific Mitigation

312. For specific intensive equine enterprises, Operational Phase mitigation will focus on the treatment of permanent above-ground features such as Washout Valves, Air Valves, Manways, outfalls and electricity poles. These structures will be fenced off in accordance with equine industry standards to ensure safety for grazing and exercising horses. In practice, this means incorporating such features into existing boundary lines where possible, or extending fencing across paddock boundaries where necessary, to eliminate the risk of collision or entrapment.

313. Where fencing requires the exclusion of small sections of paddocks, the associated land loss is minor (generally less than 1–3% of the total farm area) and does not affect the overall viability of the holding. Electricity poles and overhead lines, where present within paddocks, will also be subject to appropriate fencing and layout design confirmed with the landowner. These measures, agreed in consultation with the specialist EVC, ensure that equine enterprises can continue normal operation during the Operational Phase without residual safety concerns.

314. No indirect effects are anticipated during the Operational Phase, other than those experienced by the holdings in which the Proposed Project infrastructure is physically located.

11.6 Residual Effects

315. Residual effects have been assessed following the implementation of mitigation measures, and are discussed in this section in terms of:

- Residual effects at individual farm level
- Residual effects at county and national level.

11.6.1 Residual Effects of the Proposed Project at Individual Farm Level

11.6.1.1 Pipeline Infrastructure (Including Associated Temporary Infrastructure): Construction Phase Residual Effects

316. The results of the post-mitigation assessment of effects of the Pipeline Infrastructure during the Construction Phase at an individual farm level are summarised in Table 11.31 (Farms) and Table 11.32 (Equine Facilities). Full details of the assessment can be found in Appendix A11.2.

Table 11.31: Pipeline Infrastructure (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Farms (Post-Mitigation)

Pipeline Infrastructure – Summary of Construction Phase Effects on Farms (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	19	8	11	3	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	44	26	29	15	0	0
Dairy	0	13	11	31	31	6	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	47	20	37	6	0	0
Sheep	0	4	2	0	0	1	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	25	8	8	1	0	0
Forestry	0	9	2	1	1	0	0
Horticulture	0	0	1	0	0	0	0
Total (420)	**0**	**161**	**78**	**117**	**57**	**7**	**0**

317. Post-mitigation, during the Construction Phase the number of directly affected farm related agricultural parcels associated with the Pipeline Infrastructure totals 420. Of these, seven would have a Very Significant effect (significant), 57 would have a Significant effect (significant), 117 would have a Moderate effect (significant), 78 would have a Slight effect (not significant), and 161 would have a Not Significant effect.

Table 11.32: Pipeline Infrastructure (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Equine Only Enterprises (Intensive and Extensive) (Post-Mitigation)

Pipeline Infrastructure – Summary of Construction Phase Effects on Equine Enterprises (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Directly affected Equine Enterprises (15)	0	0	3	10	2	0	0
Indirectly affected Equine Enterprises (10)	0	10	0	0	0	0	0
Total (25)	**0**	**10**	**3**	**10**	**2**	**0**	**0**

318. Post-mitigation, during the Construction Phase the number of equine enterprises related agricultural parcels associated with the Pipeline Infrastructure that would be directly affected totals 15, with those indirectly affected totalling 10. Of the 15 directly affected equine agricultural parcels, three would have a Slight effect (not significant), 10 would have a Moderate effect (significant) and two would have a Significant effect (significant). Of the indirectly affected equine agricultural parcels all 10 would have a Not Significant effect.

11.6.1.2 Infrastructure Sites (Including Associated Temporary Infrastructure) – Construction Phase Residual Effects

319. The results of the post-mitigation assessment of effects of the Infrastructure Sites during the Construction Phase at an individual farm level are summarised in Table 11.33. Full details of the assessment can be found in Appendix A11.3.

Table 11.33: Infrastructure Sites (Including Associated Temporary Infrastructure) – Summary of Construction Phase Effects on Farms (Post-Mitigation)

Infrastructure Sites – Summary of Construction Phase Effects on Farms (Post-Mitigation) by Number of Agricultural Parcels							
Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	1	0	0	1	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	0	0	3	0	0	0
Dairy	0	1	0	0	2	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	1	1	1	1	0	0
Sheep	0	0	0	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	1	0	0	0	0	0
Forestry	0	3	0	0	0	0	0
Horticulture	0	0	0	0	0	0	0
Total: (16)	**0**	**7**	**1**	**4**	**4**	**0**	**0**

320. Post-mitigation, during the Construction Phase the number of farm related agricultural parcels associated with the Infrastructure Sites that would be affected is 16. Of these, four would have a Significant effect, four would have a Moderate effect (significant), one would have a Slight effect (not significant), and seven would have a Not Significant effect.

321. No equine agricultural parcels were identified for the Infrastructure Sites of the Proposed Project.

11.6.1.3 Proposed 38 kV Uprate Works – Construction Phase Residual Effects

322. The results of the post-mitigation assessment for the proposed 38 kV Uprate Works during the Construction Phase at an individual farm level are summarised in Table 11.34. Full details of the assessment can be found in Appendix A11.5.

Table 11.34: Proposed 38 kV Uprate Works – Summary of Construction Phase Effects on Farms (Post-Mitigation)

Proposed 38 kV Uprate Works – Summary of Operational Phase Effects on Farms (Post- Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	25	0	0	0	0	0	0
Forestry	6	0	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	61	0	0	0	0	0	0
Total: (92)	**92**	**0**	**0**	**0**	**0**	**0**	**0**

323. Post-mitigation, during the Construction Phase the number of agricultural parcels associated with the 38kV Uprate Works that are within the Planning Application Boundary is 92. Eighty-five of these agricultural parcels would have a reduction in the level of effects from Not Significant to Imperceptible (not significant). Post-mitigation all 92 agricultural parcels would have Imperceptible effects (not significant).

324. No equine agricultural parcels were identified for the proposed 38 kV Uprate Works.

11.6.1.4 Pipeline Infrastructure – Operational Phase Residual Effects

325. The results of the assessment for the Pipeline Infrastructure post-mitigation during the Operational Phase at an individual farm level are summarised in Table 11.35 (Farms) and Table 11.36 (Equine Enterprises). Full details of the assessment can be found in Appendix A11.2.

Table 11.35 Pipeline Infrastructure – Summary of Operational Phase Effects on Farms (Post-Mitigation)

Pipeline Infrastructure – Summary of Operational Phase Effects on Farms (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	1	39	1	0	0	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	2	108	4	0	0	0	0
Dairy	0	83	9	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	17	87	6	0	0	0	0
Sheep	0	7	0	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	1	35	6	0	0	0	0
Forestry	3	10	0	0	0	0	0
Horticulture	0	1	0	0	0	0	0
Total (420)	**24**	**370**	**26**	**0**	**0**	**0**	**0**

326. Post-mitigation, during the Operational Phase the number of agricultural parcels associated with the Pipeline Infrastructure that would be directly affected totals 420, of which 26 agricultural parcels would have a Slight effect (not significant), 370 agricultural parcels would have a Not Significant effect, and 24 agricultural parcels would have Imperceptible (not significant) effects.

Table 11.36: Pipeline Infrastructure– Summary of Operational Phase Effects on Equine Only Enterprises (Intensive and Extensive) (Post-Mitigation)

Pipeline Infrastructure – Summary of Construction Phase Effects on Equine Enterprises (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Directly affected Equine Enterprises (15)	0	9	5	1	0	0	0
Total (15)	**0**	9	5	1	**0**	**0**	**0**

327. Post-mitigation, during the Operational Phase the number of equine agricultural parcels associated with the Pipeline Infrastructure that would be directly affected totals 15. Of the 15 directly affected equine agricultural parcels, nine would have a Not Significant effect, five would have a Slight effect (not significant) and one would have a Moderate (significant) effect.

328. There would be no impacts on the 10 indirectly affected equine holdings during the Operational Phase of the Proposed Project; any potential impacts would be contained within the Planning Application Boundary.

11.6.1.5 Infrastructure Sites – Operational Phase Residual Effects

329. The results of the assessment for the Infrastructure Sites post-mitigation during the Operational Phase at an individual farm level are summarised in Table 11.37a and Table 11.37b. Full details of the assessment can be found in Appendix A11.3.

Table 11.37a: Infrastructure Sites – Summary of Operational Phase Effects on Farms (Post-Mitigation)

Infrastructure Sites – Summary of Construction Phase Effects of Farms (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	0	1	1	0	0	0	0
Drystock (incl. Beef, Sucklers, Contract Rearing)	0	3	0	0	0	0	0
Dairy	0	3	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0	5	0	0	0	0	0
Sheep	0	0	0	0	0	0	0
Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	0	1	0	0	0	0	0
Forestry	0	2	0	0	0	0	0
Horticulture	0	0	0	0	0	0	0
Total: (16)	**0**	**15**	**1**	**0**	**0**	**0**	**0**

Table 11.37b: Infrastructure Sites and Access Roads – Summary of Operational Phase Permanent Land Take Effects on Farms (Post-Mitigation)

Non-Linear Infrastructure	Farm Enterprise	Permanent Land Take (ha)	Parcel Ref	Overall Operational Effect Post-Mitigation
RWI&PS	Forestry	0.74	TY001	Not Significant
RWI&PS & Access road to RWI&PS	Grassland (incl. Grazing Silage, Hay & Leased Grassland) & Forestry	2.5	TY002	Not Significant
Access road to RWI&PS	Dairy	0.77	TY006	Not Significant
Access road to WTP	Forestry	1.12	TY009	Not Significant
WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	9.96	TY010	Not Significant
WTP	Dairy	17.58	TY011	Not Significant
WTP	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.9	TY125	Not Significant
WTP	Dairy	0.66	TY126	Not Significant
Access road to WTP	Drystock (incl. Beef, Sucklers, Contract Rearing))	0.726	TY013	Not Significant
Access road to BPT	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.01	TY123	Not Significant
BPT & Access Road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	6.96	TY105	Not Significant
BPS & Access Road	Drystock (incl. Beef, Sucklers, Contract Rearing)	1.69	OY069	Not Significant
BPS & Access Road	Grassland (incl. Grazing Silage, Hay & Leased Grassland)	0.8	OY070	Not Significant
BPS Access Road	Mixed Livestock (combination of Sheep, and Drystock)	0.04	OY071	Not Significant
FCV	Mixed Livestock (combination of Sheep, and Drystock)	0.5	KE066	Slight (not significant)
TPR & Access Road to TPR	Tillage (All land tilled or marked for tillage – private, leased, or within mixed use)	8.33	DN015	Not Significant

330. Post-mitigation, during the Operational Phase the number of farm related agricultural parcels associated with the Infrastructure Sites that would be directly affected totals 16. Of the 16 agricultural parcels, 15 would have Not Significant effects and one would have a Slight (not significant) effect.

331. No equine agricultural parcels were identified for the Infrastructure Sites of the Proposed Project.

11.6.1.6 Proposed 38 kV Uprate Works – Operational Phase Residual Effects

332. The results of the assessment for the 38 kV Uprate Works during the Operational Phase at individual farm level post-mitigation are summarised in Table 11.38. Full details of the assessment can be found in Appendix A11.5.

Table 11.38: Proposed 38 kV Uprate Works – Summary of Operational Phase Effects (Post-Mitigation)

Proposed 38 kV Uprate Works – Summary of Operational Phase Effects (Post-Mitigation) by Number of Agricultural Parcels							
Farm Enterprise Detail	**Imperceptible (not significant)**	**Not Significant**	**Slight (not significant)**	**Moderate (significant)**	**Significant**	**Very Significant**	**Profound (significant)**
Mixed Livestock (combination of Sheep or/and Equine and or Drystock)	25	0	0	0	0	0	0
Forestry	6	0	0	0	0	0	0
Grassland (incl. Grazing Silage, Hay & Leased Grassland)	61	0	0	0	0	0	0
Total: (92)	**92**	**0**	**0**	**0**	**0**	**0**	**0**

333. Replacement polesets would be installed immediately adjacent to the existing polesets, which would then be removed, and any conductor replacements simply swap old components for new in the same locations. Because the original polesets and conductors have occupied these parcels for over 70 years, no additional disturbance to the agricultural landscape is anticipated. The undergrounding of the eastern section of the Ardnacrusha – Birdhill – Nenagh Line would result in overground polesets being permanently removed. Where these polesets were located within agricultural land, this may be beneficial to landholders where previously they may have been a source of disturbance which required an awareness to avoid when navigating heavy machinery within the fields. The residual effects of the proposed 38 kV Uprate Works on all agricultural parcels would be Imperceptible (not significant).

334. No equine parcels were identified for the proposed 38 kV Uprate Works.

11.6.1.7 Overall Summary of Residual Effects of the Proposed Project at Individual Farm Level

335. Residual effects on agricultural holdings at the individual farm level range from Not Significant to Very Significant (significant) for the Construction Phase and Imperceptible to Slight (not significant) for the Operational Phase. The most pronounced residual effects occur on more intensive enterprises such as dairy and stud farms, where land take, severance, or operational disruption have a greater bearing on day-to-day management. By contrast, residual effects on more extensive grazing and tillage enterprises are generally lower in significance, reflecting their greater capacity to absorb small proportional land losses.

336. For equine enterprises, which are considered highly sensitive receptors, residual effects were identified and are detailed in Appendix A11.2.

- During the Construction Phase: 15 directly affected equine enterprises were identified. Most experienced residual Moderate (significant) effects, while a smaller number encountered Significant effects. In addition, 10 indirectly affected equine enterprises were assessed as having Not Significant residual effects
- During the Operational Phase: With equine-specific mitigation measures in place, including fencing of above-ground infrastructure and integrating small permanent structures into boundary lines, most directly affected equine parcels would experience Not Significant or Slight (not significant) effects. Only one parcel (KE072) would experience a residual Moderate (significant) effect. No residual operational effects are anticipated for the 10 indirectly affected equine holdings.

11.6.2 Residual Effects of the Proposed Project at County and National Level

337. As reported in the Farm Structure Survey (CSO 2023), the Utilisable Agricultural Area (UAA) in Ireland is approximately 4,620,096 hectares (excluding commonage). The total operational area associated with the Proposed Project, including the 20m wide Permanent Wayleave, is approximately 396 hectares. Most of this land will be reinstated to agricultural use following construction, with permanent occupation limited to Infrastructure Sites and small areas required for above-ground infrastructure such as Air Valves, Washout Valves, Line Valves, kiosks, Lay-Bys, and access roads. This affected area represents just 0.0086% of the national UAA. In line with the assessment criteria in Section 11.2, the residual effect at a national level is therefore deemed Imperceptible (not significant).

338. At county level, the combined number of farms in Tipperary (7,289), Offaly (3,259), Kildare (2,580) and Dublin (680) is 13,808, with a combined UAA of approximately 570,291 hectares (excluding commonage). The total operational area of 396 hectares equates to approximately 0.07% of this combined UAA. Applying the same assessment criteria, the residual effect at county level is also considered Imperceptible (not significant).

339. On this basis, residual effects on agricultural land at both county and national scale would be Imperceptible (not significant).

11.7 References

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