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## **Greater Dublin Drainage Project**

Irish Water

**Environmental Impact Assessment Report: Volume 3 Part A of 6**

**Chapter 19 Agronomy**

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## 19. Agronomy

This Chapter assesses the potential impacts of the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) on the general agricultural environment and on individual farms located along the route of the Proposed Project. This assessment considers attributes and characteristics associated with general agriculture at a national, local and individual farm level.

At a local or national level, there will be no significant impact from the Proposed Project. There is potential for disruption to agricultural activity at an individual farm level during the Construction Phase of the Proposed Project. This can arise through temporary loss of land, disturbance to services, disturbance from noise or dust during construction, interruption to cropping schedules or other temporary disturbances to farm operations.

A series of mitigation measures have been proposed to minimise adverse impacts on individual farm holdings during both the Construction Phase and the Operational Phase. A Farm Liaison Officer will liaise between the acquiring authority, the appointed contractor(s) and individual landowners in order to reduce or eliminate interruptions to farm practices. Substantial advance notification of intended entry dates, end dates and type of work to be carried out will be given. Strict protocols in relation to the spread of farm disease or weeds will be implemented. Strict protocols in relation to the control of dust and noise will be implemented. Necessary alternative access arrangements will be supplied and reasonable access across the working site to temporarily severed lands will be maintained. Strict protocols in relation to the removal, storage and reinstatement of topsoil will be followed.

### 19.1 Introduction

This Chapter assesses the impact of the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) both during the Construction Phase and the Operational Phase, on the agricultural environment of the Proposed Project.

The Proposed Project will form a significant component of a wider strategy to meet future wastewater treatment requirements within the Greater Dublin Area (GDA) as identified in a number of national, regional and local planning policy documents. The plant, equipment, buildings and systems associated with the Proposed Project will be designed, equipped, operated and maintained in such a manner to ensure a high level of energy performance and energy efficiency.

The table below includes a summary of the Proposed Project elements. A full description of the Proposed Project is detailed within Volume 2 Part A, Chapter 4 Description of the Proposed Project of this Environmental Impact Assessment Report (EIAR).

Proposed Project Element	Outline Description of Proposed Project Element
Proposed Wastewater Treatment Plant (WwTP)	<ul style="list-style-type: none"> <li>• WwTP to be located on a 29.8 hectare (ha) site in the townland of Clonshagh (Clonshaugh) in Fingal.</li> <li>• 500,000 population equivalent wastewater treatment capacity.</li> <li>• Maximum building height of 18m.</li> <li>• Sludge Hub Centre (SHC) to be co-located on the same site as the WwTP with a sludge handling and treatment capacity of 18,500 tonnes of dry solids per annum.</li> <li>• SHC will provide sustainable treatment of municipal wastewater sludge and domestic septic tank sludges generated in Fingal to produce a biosolid end-product.</li> <li>• Biogas produced during the sludge treatment process will be utilised as an energy source.</li> <li>• Access road from the R139 Road, approximately 400m to the southern boundary of the site.</li> <li>• Egress road, approximately 230m from the western boundary of the site, to Clonshaugh Road.</li> <li>• A proposed temporary construction compound to be located within the site boundary.</li> </ul>
Proposed Abbotstown pumping station	<ul style="list-style-type: none"> <li>• Abbotstown pumping station to be located on a 0.4ha site in the grounds of the National Sports Campus at Abbotstown.</li> <li>• Abbotstown pumping station will consist of a single 2-storey building with a ground level floor area of 305m<sup>2</sup> and maximum height of 10m and a below ground basement 17m in depth with floor area of 524m<sup>2</sup> incorporating the wet/dry wells.</li> <li>• The plan area of the above ground structure will be 305m<sup>2</sup> and this will have a maximum height of 10m.</li> <li>• A proposed temporary construction compound to be located adjacent to the Abbotstown pumping station site.</li> </ul>
Proposed orbital sewer route	<ul style="list-style-type: none"> <li>• The orbital sewer route will intercept an existing sewer at Blanchardstown and will divert it from this point to the WwTP at Clonshagh.</li> <li>• Constructed within the boundary of a temporary construction corridor.</li> <li>• 13.7km in length; 5.2km of a 1.4m diameter rising main and 8.5km of a 1.8m diameter gravity sewer.</li> <li>• Manholes/service shafts/vents along the route.</li> <li>• Odour Control Unit at the rising main/gravity sewer interface.</li> <li>• Proposed temporary construction compounds at Abbotstown, Cappoge, east of Silloge, Dardistown and west of Collinstown Cross to be located within the proposed construction corridor.</li> </ul>
Proposed North Fringe Sewer (NFS) diversion sewer	<ul style="list-style-type: none"> <li>• The NFS will be intercepted in the vicinity of the junction of the access road to the WwTP with the R139 Road in lands within the administrative area of Dublin City Council.</li> <li>• NFS diversion sewer will divert flows in the NFS upstream of the point of interception to the WwTP.</li> <li>• 600m in length and 1.5m in diameter.</li> <li>• Operate as a gravity sewer between the point of interception and the WwTP site.</li> </ul>
Proposed outfall pipeline route (land based section)	<ul style="list-style-type: none"> <li>• Outfall pipeline route (land based section) will commence from the northern boundary of the WwTP and will run to the R106 Coast Road.</li> <li>• 5.4km in length and 1.8m in diameter.</li> <li>• Pressurised gravity sewer.</li> <li>• Manholes/service shafts/vents along the route.</li> <li>• Proposed temporary construction compounds (east of R107 Malahide Road and east of Saintdoolaghs) located within the proposed construction corridor.</li> </ul>
Proposed outfall pipeline route (marine section)	<ul style="list-style-type: none"> <li>• Outfall pipeline route (marine section) will commence at the R106 Coast Road and will terminate at a discharge location approximately 1km north-east of Ireland's Eye.</li> <li>• 5.9km in length and 2m in diameter.</li> <li>• Pressurised gravity tunnel/subsea (dredged) pipeline.</li> <li>• Multiport marine diffuser to be located on the final section.</li> <li>• Proposed temporary construction compounds (west and east of Baldoyle Bay) to be located within the proposed construction corridor.</li> </ul>
Proposed Regional Biosolids Storage Facility	<ul style="list-style-type: none"> <li>• Located on an 11ha site at Newtown, Dublin 11.</li> <li>• Maximum building height of 15m.</li> <li>• Further details and full impact assessment are provided in Volume 4 Part A of this EIAR.</li> </ul>

The total Construction Phase will be approximately 48 months, including a 12 month commissioning period to the final Operational Phase. The Proposed Project will serve the projected wastewater treatment requirements of existing and future drainage catchments in the north and north-west of the Dublin agglomeration, up to the Proposed Project's 2050 design horizon.

Please note that there is no agronomy assessment of the RBSF. The site is located within an existing/emerging industrial area that is interspersed with one-off residential properties. No agricultural land was identified within the study area.

The purpose of this Chapter is to describe the impact on agronomy at a national, local and individual farm level. The impacts of which are classified in accordance with Environmental Protection Agency's (EPA's) draft *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017).

### **19.1.1 Study Area**

The study area considered in this report includes agricultural land or zoned land in agricultural use at the time of the assessment. The study area encompasses land from Blanchardstown to Baldoyle along the proposed orbital sewer route, WwTP site and outfall pipeline route (land based section).

The agricultural study area encompasses the following proposed elements:

- Proposed WwTP;
- Sludge Hub Centre to be co-located on the same site as the proposed WwTP;
- Proposed orbital sewer route
- Proposed NFS diversion sewer to the proposed WwTP;
- Proposed Abbotstown pumping station; and
- Proposed outfall pipeline route (land based section) from the proposed WwTP to the R106 Coast Road.

To fully consider the potential impacts of the Proposed Project on agriculture, the assessment took into consideration the total land holding of all the affected landowners along the entire length of the proposed construction corridor.

## 19.2 Methodology

In order to fully assess the impact on agriculture of the Proposed Project, a methodological approach was adopted as outlined in Table 19.1 and Appendix A19.1.

**Table 19.1: Methodological Approach**

Tasks	Proposed Project Element	Parameters
1. Define Proposed Project elements	1. Proposed pipeline routes (defined in Section 19.1) 2. Buildings (defined in Section 19.1)	What is being proposed?
2. Define the Proposed Project phases	1. Construction Phase (defined in Section 19.4.1) 2. Operational Phase (defined in Section 19.4.2)	When are the impacts likely to be experienced?
3. Define the possible impacts	1. Construction Phase (defined in Section 19.4.1) 2. Operational Phase (defined in Section 19.4.2)	List all possible impacts based on professional experience
4. Define assessment parameters	1. Farm Sensitivity (defined in Table 19.3) 2. Impact Magnitude (defined in Table 19.4) 3. Duration (defined in Table 19.5)	What criteria will be used to classify the impact?
5. Define level of impact	Imperceptible (defined in Table 19.6) Not Significant (defined in Table 19.6) Slight Effects (defined in Table 19.6) Moderate (defined in Table 19.6) Significant Effects (defined in Table 19.6) Very Significant (defined in Table 19.6) Profound (defined in Table 19.6)	How to describe and compare the predicted impacts?
6. Define impact scale	National (defined in Section 19.4.3) Local (defined in Section 19.4.3) Individual farm level (defined in Section 19.4.3)	Consider the wider implications?
7. Present Assessment Results	Presented in Appendix A19.1	n/a

An assessment of the existing agricultural environment was carried out through a desktop survey of currently available mapping. In addition, individual farm visits were carried out by experienced agronomists during which they completed a targeted questionnaire with each landowner. The farm visits and questionnaire gathered information in relation to farm size, farm enterprise, land quality, intensity of the enterprise, cropping regime and other relevant data. The purpose of the farm visits and questionnaire was to assess how the Proposed Project would impact on the current farming activities carried out on the individual holdings and what mitigation measures would be necessary to reduce or eliminate any potential negative impacts.

The personnel who undertook the farm visits drew on their experience as agricultural consultants and their knowledge of farming practices in the GDA to:

- Identify and describe the agricultural enterprises;
- Identify the potential impacts of the Proposed Project on agricultural activities; and
- Propose mitigation measures to reduce or eliminate the potential impacts.

The following guidelines and publications were considered in undertaking this assessment:

- EIA Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment Text with EEA relevance;
- Planning and Development (Amendment) Regulations 2016 (S.I. No. 71 of 2016);
- Water Services (No. 2) Act 2013;
- *Water Services Strategic Plan* (Irish Water 2015);
- European Union Good Agricultural Practice for Protection of Waters) Regulations 2014 (S.I. No. 31 of 2014);
- Draft *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017);
- *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements* (EPA 2003);
- *Census of Agriculture 2010* (Central Statistics Office (CSO) 2010);
- Soils and Subsoils digital data from the EPA and Teagasc (EPA and Teagasc 2015); and
- National Roads Authority (NRA) (currently Transport Infrastructure Ireland (TII)) *Code of Practice Guide to Process for National Road Project Planning and Acquisition of Property for National Roads* (NRA 2003).

The following definitions are used in carrying out the assessment of the agricultural impact:

- **Field:** an area of land, which is surrounded by a permanent boundary (fence, ditch, hedge, wall, etc.) and is not subdivided by any permanent boundary;
- **Land Parcel:** an integral undivided area of land comprising of one or more fields, which is in single ownership; and
- **Farm Holding:** a single farming enterprise. Some farms will comprise of just one land parcel but others may consist of two or more land parcels.

### 19.2.1 Desktop Study

A desktop study was carried out on currently available mapping. This mapping included Ordnance Survey of Ireland 1: 2,500 scale maps on which the proposed orbital sewer route, Abbotstown pumping station site, WwTP site and outfall pipeline route (land based section) were delineated, and orthophotographic mapping with indicative landownership information. The purpose of the desktop surveys was to assess the baseline conditions and the overall impacts of the Proposed Project at a national and local scale. The following were consulted:

- *Census of Agriculture 2010* (CSO 2010);
- Soils and Subsoils digital data from the EPA and Teagasc (EPA and Teagasc 2015);
- Mapping with indicative landownership information (scale of 1:2,500 at A1); and
- Ordnance Survey mapping (scale of 1:2,500 at A1).

### 19.2.2 Farm Visits

The study area considered in this Chapter of the EIAR includes agricultural land or zoned land in agricultural use at the time of the assessment. The study area encompasses land along the proposed orbital sewer route, WwTP site, outfall pipeline route (land based section) from Blanchardstown to Baldoye. There are 26 agricultural holdings within the study area (refer to Figure 19.1 Agricultural Land Parcels).

Farm visits were completed on 23 holdings. While all landowners were approached, three landowners expressed an unwillingness to be interviewed or permit a walkover of their lands. In these cases, a detailed evaluation was undertaken using a roadside survey and orthophotographic mapping and professional opinion. The farm visits consisted of a physical walkover of the relevant lands together with an interview of the owner/occupier and the completion of a detailed questionnaire survey. An assessment of how the Proposed Project would impact on the current farming operation and the land holding generally was undertaken during and following each farm visit.

All farm visits were carried out by an experienced agricultural consultant from Philip Farrelly and Co. Observations made during the farm walk in relation to cropping, field size, drainage, soil type, topography, etc., together with information collected by way of the farm questionnaire, were used during and after the farm visit to reach conclusions in relation to the potential impacts of the Proposed Project both during the Construction Phase and Operational Phase. In addition, during the farm visit the consultant made an appraisal of farm facilities and layout and discussed mitigation measures with the landowner/occupier.

The study commenced in 2013 and landowners were interviewed and farm visits conducted. Repeat farm visits and interviews were carried out in 2016 for those farms that indicated that changes to their farming practices had occurred since the original survey in 2013. Where landowners indicated that no changes had occurred in the farming system since 2013, roadside inspections were conducted in 2016 and in 2017.

The farm enterprises operating on the 26 agricultural holdings are summarised in Table 19.2.

**Table 19.2: Farms Classified by Farm Type**

Category	No. of Farms Within the Category	Percentage of Total Farms Within Each Category (%)
Leased <sup>1</sup>	10	38.46
Other <sup>2</sup>	8	30.77
Tillage	4	15.38
Horticulture	2	7.69
Equine	1	3.85
Mixed livestock <sup>3</sup>	1	3.85

The walkover surveys, interviews with the landowners/occupiers, completion of the questionnaire and subsequent study allowed a professional judgement to be reached in relation to the assessment of parameters as defined in Table 19.3, Table 19.4 and Table 19.5. The specific impacts that would affect the individual farms were also assessed together with the potential mitigation for both the Construction Phase and Operational Phase.

### 19.2.3 Impact Assessment Methodology

In rating the significance of impacts from an agricultural perspective, the following criteria, as recommended by the EPA, were adopted. The significance of impact was assessed having regard to the sensitivity of the receptor and the magnitude and duration of the impact.

<sup>1</sup> Seven of the leased holdings are used for tillage and three are used for vegetable production.

<sup>2</sup> Includes two holdings part leased and part farmed, one holding in grassland not farmed, one holding used for allotments, one holding used for hay production, one holding used for research purposes, one holding part in forestry and part leased, and one holding used for a beef enterprise and part leased for tillage.

<sup>3</sup> Includes one holding used for beef and tillage.



This assessment considers the overall effect of the Proposed Project on farm holdings. Various elements of both the Construction Phase and Operational Phase have the potential to impact on agriculture. The potential impacts for both the Construction Phase and the Operational Phase of the proposed orbital sewer route, Abbotstown pumping station, WwTP and outfall pipeline route (land based section) prior to mitigation are described in Section 19.4 of this Chapter. The mitigation measures are described in Section 19.6 and the residual impacts, which will occur after the proposed mitigation measures are implemented, are described in Section 19.7 of this Chapter.

The impact assessment process involved:

- Assigning the receptor sensitivity;
- Identifying and characterising the magnitude and significance of any potential impacts;
- Incorporating measures to avoid and mitigate (reduce) these impacts; and
- Assessing the significance of any residual impacts after mitigation.

This assessment considered the overall impact of the Proposed Project on a national, local and individual farm level.

#### 19.2.4 Impact Assessment Criteria

Each farm is evaluated to determine the sensitivity and any site-specific factors. The main criteria in determining the farm sensitivity is the enterprise type and intensity. This information is obtained from the farm surveys and site inspections. Table 19.3 describes the criteria used for the categorisation of sensitivity. Site specific factors such as soil quality, access type to farm and location of farm are assessed on a farm by farm basis.

**Table 19.3: Criteria for Categorisation of Sensitivity**

Farm Enterprise Type	Intensity*	Sensitivity
Stud farm	High	Very high
	Medium	High
	Low	Medium
Dairy farm, intensive equine enterprise	High	High
	Medium	High
	Low	Medium
Non-dairy grazing livestock enterprises (includes beef, sheep and non-intensive equine) and grass cropping enterprise	High	Medium
	Medium	Low
	Low	Very low
Tillage	High	Medium
	Medium	Low
	Low	Very low
Rough grazing, bog, forestry, woodland	Low	Very low

\*Note: The intensity of the farm enterprise is assessed by site evaluation and details provided at the time of the farm survey

The magnitude of the impact takes into account the type of impact as well as the duration of the impact. The criteria for the assessment of impact magnitude are set out in Table 19.4.

**Table 19.4: Indicative Criteria for the Assessment of Impact Magnitude**

Indicative Criteria	Impact Magnitude
<ul style="list-style-type: none"> <li>• A very high proportion of the land lost (e.g. &gt;15% of the farm).</li> <li>• A very high proportion of the affected farm separated by the Proposed Project (e.g. &gt;25% of the farm).</li> <li>• Permanent loss of farm buildings or water sources.</li> <li>• Impact would cause a change in farming enterprise or dramatic reduction.</li> </ul>	Very high
<ul style="list-style-type: none"> <li>• A high proportion of the land lost (e.g. 10–15% of the farm).</li> <li>• A high proportion of land separated (e.g. 15–25% of the farm).</li> <li>• Farm buildings or water sources may be affected but can be replaced.</li> <li>• Impact would not cause a change in farming enterprise but would require a high degree of operational changes.</li> </ul>	High
<ul style="list-style-type: none"> <li>• A medium proportion of the land lost (e.g. 5–10% of the farm).</li> <li>• A medium proportion of land separated (e.g. 7–15% of the farm).</li> <li>• Farm buildings or water sources may be affected but can be replaced.</li> <li>• Impact would not cause a change in farming enterprise but would require operational changes.</li> </ul>	Medium
<ul style="list-style-type: none"> <li>• A small proportion of the land (e.g. 2.5–5% of the farm).</li> <li>• A small proportion of land separated or no separation (e.g. 3–7% of the farm).</li> <li>• Farm buildings or water sources generally not affected but if affected can be replaced.</li> <li>• Impact would cause a minor change in the day to day operation of the farm.</li> </ul>	Low
<ul style="list-style-type: none"> <li>• A very small proportion of the land lost (e.g. &lt;2.5% of the farm).</li> <li>• A very small proportion of land separated or no separation (e.g. &lt;3% of the farm).</li> <li>• No significant impact on operation of the farm.</li> </ul>	Very low

Note: Temporary and permanent impacts are considered in this assessment.

The significance of the impact is determined by evaluating the magnitude and duration of the impact and the sensitivity of the affected farms. The duration of impact is illustrated in Table 19.5.

**Table 19.5: Indicative Criteria for the Assessment of Duration**

Description	Duration
Momentary	Effects lasting seconds to minutes
Brief	< 1 day
Temporary	< 1 year
Short-term	1 to 7 years
Medium-term	7 to 15 years
Long-term	15 to 60 years
Permanent	> 60 years

The Draft EPA *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2017) contains guidelines for describing the significance of impacts. These EPA Guidelines have been adopted in the main, with minor adjustments. A comparison between the EPA Guidelines and the following significance criteria used in this assessment are presented in Table 19.6, as prepared by Philip Farrelly & Co, were used to assess the overall impact on individual farm holdings.

**Table 19.6: Significance Criteria for Overall Impact on Farm Holdings**

Environmental Protection Agency Glossary of Impacts	Significance of Impact as per Environmental Protection Agency Draft Guidelines (EPA 2017)	Level of Impact for Agronomy
Imperceptible	An effect capable of measurement but without significant consequences.	An impact so small it is imperceptible, or capable of measurement but without noticeable consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.	An impact is Not Significant where the farm enterprise suffers a slight inconvenience such as relocation of access or loss of shelter.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.	An impact which causes noticeable changes in the character and management of the farm, but only slightly. The farm enterprise experiences inconvenience as a result of the Proposed Project.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.	A Moderate impact 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 enterprise mix would be such that the farming system could continue, perhaps with reduced stock numbers or additional labour, contractor or other charges.
Significant Effects	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.	Significant impact occurs where the farm enterprise suffers significant inconvenience as a result of the Proposed Project. Sub-division would occur, but access could be achieved.
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 impact 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 to access sub-divided land. Where the impact is Very Significant, an enterprise change may be necessitated, e.g. from dairy to dry stock.
Profound Effects	An effect which obliterates sensitive characteristics.	A Profound impact 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 were removed. An impact of this degree would be rare and would most likely occur on a dairy/horticultural or stud farm.

## 19.3 Baseline Environment

### 19.3.1 Baseline Agricultural Environment

County Dublin<sup>4</sup> has a total Utilisable Agricultural Area, excluding commonage, of 37,963ha according to the *Census of Agriculture 2010* (CSO 2010). This represents approximately 0.80% of the national agriculture land area. There are 798 farms in County Dublin with an average farm size of 47.57ha. This is considerably higher than the national average of 32.7ha.

The predominant farming enterprises are beef, tillage and horticulture. In 2014, 3,400ha of vegetables for sale were produced nationally. Dublin and the Mid-Eastern Region accounted for 1,800ha of this production (representing 52.9% of the national production area of vegetables for sale) (CSO 2014).

<sup>4</sup> County Dublin refers to the whole of Old County Dublin (currently known as Fingal, South Dublin, Dun Laoghaire and Rathdown)

The proposed orbital sewer route and outfall pipeline route (land based section) will be approximately 19.1km long, of which approximately 13.7km will be routed through privately owned land. The land affected is good quality land and comprises a mixture of grassland, tillage and horticulture.

Thirty-nine land holdings will potentially be affected by the construction of the proposed orbital sewer route, Abbotstown pumping station, WwTP and the outfall pipeline route (land based section). A large number of these land holdings (13) are in the ownership of Transport Infrastructure Ireland, Fingal County Council or the daa and are not currently in agricultural use. Approximately 26 of these land holdings are in agricultural use.

### 19.3.2 Soils Within the Study Area

The overall Proposed Project study area is illustrated in Figure 4 .1. Soil types influence the nature and intensity of farming that can be carried out. The information has come from digital data from the Irish Soil Information System. In this Section (Irish Soil Information System 2016)<sup>5</sup>. The predominant soil type found in the land parcels along the proposed orbital sewer route and outfall pipeline route (land based section) are classified as soil association Elton. This soil type is derived from a fine loamy drift with limestone. The soil is associated with flat and gently rolling topography. It is a moderately well drained soil of clay loam texture. This soil association has a moderately wide use range. It is suitable for grassland but it is also suitable for tillage and intensive vegetable production. There is a tradition of vegetable and tillage crops throughout the study area.

The topography within the study area is gently flat to undulating lowland. The land quality in the area is considered good with the land elevations mostly below 100m above ordnance datum. Agriculture in this area is intensive in nature due to the relatively high quality of the soil, enabling all the main farm enterprises to be undertaken.

The horticultural industry, including the potato industry, is of significant importance to this area. Horticulture is concentrated in this area because of the ideal growing conditions in the region: low rainfall amounts, sandy soils and coastal location. The proximity to a large population centre in Dublin City ensures a market for the produce. The importance of the industry to this area is further demonstrated by the number of vegetable buyers and distributors located within the region.

## 19.4 Potential Impacts of the Proposed Project

Various elements of both the Construction Phase and Operational Phase have the potential to impact on agriculture. The likely potential impacts for both the Construction Phase and Operational Phase of the Proposed Project prior to mitigation are described below.

Impacts of the Proposed Project are assessed under the following headings:

- Construction Phase Impacts (Section 19.4.1); and
- Operational Phase Impacts (Section 19.4.2).

Lands will be acquired for the Proposed Project as follows:

- Outright permanent acquisition of 0.5ha at the proposed Abbotstown pumping station site (see Appendix A19.1 Parcel Ref. No. 1);
- Proposed WwTP: permanent acquisition of 16.7ha (see Appendix A19.1 Parcel Ref. No. 14);
- Proposed WwTP: permanent acquisition of 5.65ha (see Appendix A19.1 Parcel Ref. No. 15);

<sup>5</sup> Irish Soil Information System was developed by EPA in conjunction with scientists from Teagasc and Cranfield University.

- Proposed WwTP: permanent acquisition of 6.7ha (see Appendix A19.1 Parcel Ref No. 16); and
- Acquisition by way of a proposed 20m wayleave (permanent) for 19.1km length of pipeline (proposed orbital sewer route, NFS diversion sewer and proposed outfall pipeline route (land based section)).

The construction of the Proposed Project involves the acquisition of a proposed 20m permanent wayleave through the affected landholdings and a temporary acquisition of the proposed construction corridor (40m wide inclusive of the proposed 20m wayleave). All lands within the proposed construction corridor will be reinstated to pre-construction condition.

#### **19.4.1 Construction Phase**

Potential Construction Phase impacts have been identified and are listed below. These impacts are primarily associated with the construction of the proposed orbital sewer route, NFS diversion sewer and outfall pipeline route (land based section) and the associated proposed temporary construction compounds. None of the land holdings will suffer all of the impacts listed. Where possible, mitigation measures during the Construction Phase will reduce or eliminate the impacts. The Construction Phase mitigation measures are included in Section 19.6 and in Appendix A19.1.

##### [Temporary Loss of Land Use on or Adjacent to the Construction Site for the Proposed Pipeline Routes](#)

There will be a temporary loss of lands during the Construction Phase along the route of the proposed 20m wayleave and proposed construction corridor. The works will consist of the installation of an underground linear pipeline along the length of the proposed pipeline routes. It is estimated that the works will be carried out over an 18-month period. The lands which are temporarily removed from agricultural production will be fenced on both sides with temporary access/crossing points to be agreed with each individual landowner.

##### [Temporary Loss of Land for Proposed Temporary Construction Compounds](#)

A total of 6.57ha of land will also be required for the Construction Phase on a temporary basis for the proposed temporary construction compounds on four farms (Parcel Ref. No. 1, 2c, 9b and 19). The works will consist of site preparations, establishing site offices and compounds and drainage works. The lands which are temporarily removed from agricultural production and fenced off during the Construction Phase will be reinstated and will be available for use for agricultural production, following the completion of the Construction Phase.

##### [Temporary Loss of Services \(Water, Power, Paddock Fencing\)](#)

The development of the proposed construction corridor through a landholding may interrupt water or power supplies. In addition, where the farming enterprise involves phased grazing regimes, fences may be removed and the grazing pattern interrupted.

##### [Nuisance Caused by Increased Traffic Volume due to Construction](#)

Increased traffic volumes associated with the construction of the Proposed Project may cause nuisance to the farming operation. Increased traffic and the use of temporary access points may increase the risk of nuisance to farm operators. The increased volume of Construction Phase traffic, from the current absence of traffic noise, poses a risk.

##### [Nuisance Caused by Noise Emanating from the Construction Site](#)

The activity of earth-moving machinery, transport lorries and other ancillary vehicles will generate additional noise emissions near the proposed construction site for the proposed pipeline routes. Noise can be of significance for

farm animals (e.g. when noise becomes excessively loud). In general, animals become accustomed to regular noises and sounds. This is evident by the nationwide grazing of livestock near to motorways.

Intermittent noises can cause fright and distress. Tonal and impulsive noise activity can be of particular concern with certain farm enterprises, such as the breeding and training of horses. Intermittent noises close to farm buildings, particularly milking parlours, can distress livestock. However, there are no dairy enterprises near the Proposed Project area. Noise can also cause a nuisance to farm operators.

#### Nuisance Caused by Dust Emanating from the Construction Site for the Proposed Pipeline Routes

Dust generated from the exposure of soil to the atmosphere during construction may cause annoyance or nuisance to the farmer and farm animals. The proliferation of dust during construction has a nuisance impact if produced in high volumes. Dust may accumulate on vegetable crops growing adjacent to the construction sites for the proposed pipeline routes. The impact dust will have on adjacent crops is dependent on the method of construction, time of year and stage of crop growth.

Livestock are at risk of eye irritations from high levels of windblown dust particles. This stress may reduce productivity and increase management difficulties, especially on equestrian farms.

#### Impact on Shelter

The removal of mature trees and strong hedgerows, which provide shelter to crops and livestock, especially younger stock, will impact on farm holdings. The level of impact will depend on the extent of the shelter removed and the type of enterprise. It should be noted that this is an impact that can be mitigated in certain cases by the replanting of boundary hedgerows and replanting of suitable tree species.

#### Disturbance to Farm Operations

Changes to the layout of farm infrastructure such as paddocking systems can disrupt operations. Irregular paddock shapes require double passes of machinery, and interruption to the existing layout can necessitate a reorganisation of fencing systems. Interruption to farming activities such as the movement of stock may occur during the Construction Phase due to temporary access arrangements and access to sub-divided lands. Land taken out of production may have an impact on Area Based Farm Payments such as the European Union Basic Payment Scheme (BPS)/Greening Payment and other area-based schemes. These payments are activated by farmers declaring eligible hectares of land on which they are carrying out an agricultural activity.

#### Land Condition

During the farm visits, landowners affected by the Proposed Project expressed their concerns that the construction of the proposed pipeline routes through their lands will permanently affect the condition of the land. It has been suggested that, regardless of what reinstatement measures are implemented, the cropping potential of the land will be permanently affected because of the impacts on soil structure and drainage.

Land, soil and drainage systems within the proposed pipeline routes have the potential to be impacted by the construction of the proposed pipeline routes. However, the land and drainage will be rehabilitated following construction. Rehabilitation of land will be progressed in accordance with the Outline Construction Environmental Management Plan (CEMP) for the Proposed Project, which details specific methodologies for soil stripping and land reinstatement (refer to Section 7.3.18 Land Reinstatement of the Outline CEMP).

Land will be returned to its pre-disturbance condition and crop suitability, provided that the correct methodologies are followed during reinstatement. All land reinstatement will be in line with established best practice. The agronomy assessment assumes that it may take some years of cropping for the land to be restored to full

production, and normal disturbance calculations paid to the landowner take account of a potential reduction in yield in the years immediately following construction.

#### Interruption to Drainage Systems

Field drainage systems currently *in situ* may be disturbed and, in places, severed by the construction of the proposed WwTP, orbital sewer route and outfall pipeline route (land based section). These drainage systems will be restored as part of the reinstatement works, but there may be impaired drainage in the period of time between initial disturbance and reinstatement of such drainage works.

#### Restriction on Use of Land for Specialist Crop Production or Animal Husbandry Adjacent to Construction Site

During construction, individual landowners may deem it necessary to adjust the cropping or animal husbandry regime in lands held adjacent to the construction site. For example, equine or bloodstock should not be grazed adjacent to a construction site where intermittent noise emissions may cause fright and lead to injury of the animals. Strict quality control protocols might dictate that vegetable crops destined for fresh consumption would not be grown adjacent to a construction site from which dust may emanate.

#### Spread of Noxious Weeds when Soil is Exposed

Noxious weeds can spread rapidly through exposed soil because of their prolific seed production. Procedures during the Construction Phase, as detailed in the Outline CEMP, will be undertaken to limit the spread of noxious weeds.

#### Spread of Animal Diseases and Soilborne Diseases

There is an increased risk of spreading animal diseases and soilborne diseases when the soil is exposed. Soilborne diseases such as potato eelworm may spread throughout exposed soil areas. Procedures during the Construction Phase, as detailed in the Outline CEMP, will be undertaken to limit the spread, such as isolating and separately storing the topsoil and subsoil layers, reinstating all drains and ensuring that there is no cross contamination between different landholdings.

#### Summary of Impacts

During the assessment process, the predicted temporary impacts on each land holding under each heading were reviewed. All of the impacts will be temporary in nature (occurring only during the Construction Phase). All of the impacts will be of short duration. However, without mitigation the impacts are longer term in nature and the significance of the impact increases. With the implementation of mitigation measures identified in Section 19.6, the significance decreases due to the temporary nature of the construction impacts. The combination of impacts prior to mitigation is shown in Appendix A19.1. Prior to mitigation, 25 farms are predicted to have a Significant impact, and one farm where the proposed WwTP is being constructed is predicted to have a Very Significant impact.

### **19.4.2 Operational Phase**

Operational Phase impacts have been identified and are listed below. None of the affected farms will experience all of the impacts identified. Where possible, mitigation measures will reduce or eliminate these impacts.

#### Permanent Loss of Land with a Consequent Increase in Fixed Overheads on Retained Lands

The construction of the Proposed Project involves the acquisition of a proposed 20m wayleave through the affected landholdings. The affected landholdings are those on which the Proposed Project elements are due to be constructed and operated. While these lands will be reinstated post-construction for agricultural use, they will be

subject to the proposed 20m wayleave during the Operational Phase. For the majority of landholdings, the proposed 20m wayleave should not affect the day-to-day agricultural use or cropping of the lands during the Operational Phase but would have implications with regard to land use changes (e.g. forestry) or for the construction of farm facilities.

#### Possible Sub-Division of Land with an Interruption of Access to Possible Sub-Divided Lands

There will be no permanent sub-division, other than the right of the acquiring authority to access the lands on a permanent basis for maintenance.

#### Injurious Affection to the Retained Land

Land adjacent to the Proposed Project may have the potential to be disturbed by the footprint of the construction and operation of the Proposed Project. There may be alterations to existing drainage systems.

#### Loss of Productivity of Soils for Cropping Post-Reinstatement

Such loss might be caused by soil mixing, loss of topsoil during storage or reinstatement, or soil compaction. Strict protocols will be followed to ensure lands will be reinstated to their pre-construction equivalent. Topsoil can be lost by wind or water erosion, and some topsoil may be incorporated into the subsoil material during backfilling. If topsoil is lost during stripping, storage or reinstatement, it will reduce the capability of the land by decreasing the amount of available nutrients in the roots zone.

#### Long-Term Cropping

The creation of the permanent proposed 20m wayleave may affect the long-term cropping options and use of the lands. It will not be possible to establish forestry or farm building infrastructure on the proposed 20m wayleave because of the need to obtain unobstructed access to the Proposed Project elements at any given time. The creation of the proposed 20m wayleave may affect the letting potential of the lands.

#### Summary of Impacts

During the assessment process, the predicted Operational Phase impacts, as outlined above, were reviewed for each land holding under each heading. The potential impacts on these land parcels has been assessed. The significance of these Operational Phase impacts is summarised in Appendix A19.1. Prior to mitigation, 25 farms will experience a Not Significant Operational Phase impact, and one farm where the proposed WwTP will be located will have a Significant Operational Phase impact. Mitigation measures have been designed to restore land to its pre-disturbance condition and to minimise alteration to drainage systems. The implementation of these mitigation measures combined with appropriate reinstatement will result in minimal impacts on the current land use, once the Proposed Project is operational. For further details on land reinstatement, refer to Section 7.3.18 of the Outline CEMP.

### **19.4.3 Scale of Predicted Impact Assessment**

The overall impact of the Proposed Project was assessed on a national, local and individual farm level.

The following sections explain the terminology used in this assessment.

#### 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 controls on fertiliser usage or on emissions in relation to greenhouse gases.

#### Local Impacts

These are defined as impacts that are felt at a county level. Impacts might be described as locally significant where an enterprise of local importance, such as being a local employer, is interrupted or must cease production.

#### Impacts at an Individual Farm Level

These are the impacts of the Proposed Project that will be felt at an individual farm level. The impacts on each individual farm are summarised in Appendix A19.1.

### **19.4.4 Assessment of Impacts on Agriculture at a National Level**

#### Proposed Orbital Sewer Route, North Fringe Sewer Diversion Sewer and Outfall Pipeline Route (Land Based Section)

In 2010, there was 4.56 million hectares of utilisable agricultural area on a national level (excluding commonage). Approximately 54.8ha will be acquired within the proposed construction corridor along the proposed pipeline routes. This is 0.0011% of the overall area, and is therefore not deemed to have an impact nationally.

#### Proposed Abbotstown Pumping Station

In 2010, there was 4.56 million hectares of utilisable agricultural area (excluding commonage) on a national level. Approximately 0.5ha will be acquired for the proposed Abbotstown pumping station. This is 0.00001% of the overall area, and is therefore not deemed to have an impact nationally.

#### Proposed Wastewater Treatment Plant

In 2010, there was 4.56 million hectares of utilisable agricultural area (excluding commonage) on a national level. Approximately 29.05ha will be acquired for the proposed WwTP. This is 0.0006% of the overall area, and is therefore not deemed to have an impact nationally.

### **19.4.5 Assessment of Impacts on Agriculture at a Local Level**

#### Proposed Orbital Sewer Route, North Fringe Sewer Diversion Sewer and Outfall Pipeline Route (Land Based Section)

The construction of the proposed orbital sewer route, outfall pipeline route (land based section) and NFS diversion sewer will not result in the removal of any significant agricultural lands from production.

The Construction Phase impacts will be temporary in nature, of short duration, and post-mitigation impacts are deemed to be Not Significant on the majority of holdings. Therefore, no local impacts are predicted.

#### Proposed Abbotstown Pumping Station

The construction of the proposed Abbotstown pumping station will not result in the removal of any significant lands from production. Therefore, no local impacts are predicted.

#### Proposed Wastewater Treatment Plant

The construction of the proposed WwTP will not result in the removal of any significant lands from production. Therefore, no local impacts are predicted.

#### 19.4.6 Assessment of Impacts on Agriculture at an Individual Farm Level

##### Proposed Orbital Sewer Route, North Fringe Sewer Diversion Sewer and Outfall Pipeline Route (Land Based Section)

###### *Construction Phase Impacts*

There are no farms on which the agricultural impact would be Profound. It is predicted that 25 farms will experience Construction Phase impacts which are anticipated to be Significant. One farm will experience a Very Significant Construction Phase impact. Refer to Appendix A19.1 for full detail.

###### *Operational Phase Impacts*

For the majority of landholdings, the proposed 20m wayleave should not affect the day-to-day agricultural use or cropping of the lands during the Operational Phase. Once the proposed pipeline routes are operational, landowners will be able to resume use of the land. Therefore, the Operational Phase impact will be Not Significant in the majority of cases, although one farm will experience a Significant Operational Phase impact. Refer to Appendix A19.1 for full detail.

However, there may be implications with regard to land use changes (e.g. forestry) or for the construction of farm facilities. There will be no permanent sub-division, other than the right of the acquiring authority to access the lands on a permanent basis for maintenance. This may affect the long-term cropping options and use of the lands. It will not be possible to establish forestry or farm building infrastructure on the proposed 20m wayleave because of the need to obtain unobstructed access to the Proposed Project elements at any given time.

##### Proposed Abbotstown Pumping Station

###### *Construction Phase Impacts*

Approximately 0.5ha of land will be permanently acquired and removed from production from one farm to facilitate the construction of the proposed Abbotstown pumping station. This Construction Phase impact is anticipated to be Significant.

###### *Operational Phase Impacts*

The principal agronomy impact during the Operational Phase is land-take. The land-take requirements will be minimised by only taking lands required for the Proposed Project. As a result, the Operational Phase impacts of the proposed Abbotstown pumping station are predicted to be Not Significant.

##### Proposed Wastewater Treatment Plant

###### *Construction Phase Impacts*

The impacts of the proposed WwTP at an individual farm level are presented in Table 19.7. Approximately 29.05ha of land will be acquired from three farms (Parcel Ref. No. 14,15, and 16) for the construction of the proposed WwTP.

**Table 19.7: Farms Classified by Farm Type and Impact**

Enterprise	Land-Take (ha)	Overall Construction Impact
Horticulture	16.7	Very Significant
Leased (tillage)	5.65	Significant
Leased (tillage)	6.7	Significant

### *Operational Phase Impacts*

The principal agronomy impact during the Operational Phase is land-take. The land-take requirements will be minimised by only taking lands required for the Proposed Project. As a result, it is predicted that Operational Phase impacts of the proposed WwTP will be Not Significant in two cases and Significant in one case.

## 19.5 ‘Do Nothing’ Impact

In the case of the ‘do nothing’ scenario, there would be no negative impacts on agriculture. Current agricultural practice would remain unchanged.

## 19.6 Mitigation Measures

The loss of agricultural land as a result of the construction of the proposed WwTP and Abbotstown pumping station will be a permanent loss which cannot be mitigated. The temporary loss of land by means of the proposed 20m wayleave along the proposed orbital sewer route, NFS diversion sewer and outfall pipeline route (land based section) will be mitigated by compensation to the landowner.

Each farm is individual and has developed unique practices to maximise the productivity of the land. Mitigation measures have been designed to address specific issues raised by landowners. Appendix A19.1 details proposed mitigation measures for each of the 26 agricultural holdings. The appointed contractor(s) will develop a CEMP for the Proposed Project which will include all mitigation measures.

Consultation with landowners on the proposed mitigation measures has been undertaken. During planning for the Construction Phase, discussions will centre on queries in relation to the proposed construction works. Particular items to be discussed and agreed in advance of any works commencing shall include:

- Particular access requirements for livestock and vehicles to ensure suitable access will be maintained throughout the duration of the works;
- Fencing requirements, to ensure the appropriate temporary fencing and gates will be used during construction in addition to the fencing type used for permanent reinstatement post-construction;
- Presence of any existing drainage, to ensure connections will be maintained, or temporary solutions will be implemented, during construction works and that appropriate permanent solutions will be in place on completion of the works;
- Services, water to troughs, etc.; and
- Landowner Liaison Officers (LLOs) have been appointed by Irish Water as part of this current planning phase, and will remain in place throughout construction, reinstatement and handover to address any queries that landowners and stakeholders may have throughout the Proposed Project.

The LLOs are Irish Water’s principal point of contact with landowners and will be the interface between Irish Water and the appointed contractor(s). It will be the responsibility of the LLOs to ensure that channels of

communication between the landowners and all aspects of works' progress are maintained at all times; and landowners are kept fully informed of issues raised.

The typical sequence of Construction Phase activities and proposed mitigation for the proposed pipeline routes are outlined in Table 19.8.

**Table 19.8: Sequence of Construction Phase Activities and Proposed Mitigation Measures**

Construction Phase Activity	Description	Outline Construction Environmental Management Plan Section
Condition survey	Route survey, setting out and photo record of condition	4.1.7
Pre-entry agreement	Outlining landowner's particular requirements. This will include a notice of intention to commence work within any private lands and will be given to landowners 28 days in advance of works commencing	7.3.6
Corridor preparation	Installation of temporary fencing, access gates and signage	7.3.9
Topsoil and subsoil	Soil stripping	7.3.10
Proposed construction corridor	Haul road construction within the proposed construction corridor	7.3.11
Hedgerows	Management of hedgerows during construction	7.3.12
Pipe haulage and distribution	Haulage of pipe lengths and stringing along proposed construction corridor	7.3.13
Pipe installation	Trenching – trench excavation	7.3.14
	Pipe Installation – laying the pipe in the trench and tie-ins and installing granular material as surround to pipe to 300mm above crown.	7.3.15
	Testing – pressure testing the pipe	7.3.16
	Backfill – backfill of the trench and installation of valve chambers	7.3.17
Reinstatement	Reinstatement of ground contours, topsoil, fencing, hedgerows	7.3.18
Commissioning	Commissioning of the pipeline	7.3.19

All reinstatement work will be undertaken in accordance with the requirements outlined in the Outline CEMP devised for the Proposed Project.

The principal mitigation is that the Construction Phase will be undertaken in an efficient manner to minimise the disruption to each individual landowner. It is anticipated that the Construction Phase will take 48 months, including a 12 month commissioning period to the Operational Phase.

The potential impacts will be reduced by ensuring the works are carried out in a competent manner in accordance with the Outline CEMP for the Proposed Project, and at all times during suitable weather conditions which will limit damage to soil.

Individual landowners shall be given maximum notice in advance of construction works so they can arrange their farming activities on lands held adjacent to the Proposed Project construction sites to minimise the potential impacts to their overall farming operations. The Construction Phase works and maintenance during the Operational Phase shall be undertaken in a competent manner during suitable weather and in as timely a manner as possible.

### Noise During the Construction Phase and the Operational Phase

Noise mitigation measures will be put in place by the appointed contractor(s) as described in Chapter 15 Noise and Vibration in Volume 3 Part A.

### Dust During Construction Phase

The appointed contractor(s) will employ measures to prevent the spread of dust and mud onto adjoining lands. These measures are described in Chapter 14 Air Quality, Odour and Climate in Volume 3 Part A.

### Impact on Land During Construction of the Proposed Project

Construction activities will be confined to the proposed construction corridor (40m). The wayleave area will be fenced off (with a stock-proof fence) during the Construction Phase. The type of fencing will be agreed in consultation with landowners. Temporary access points will be provided to allow landowners to cross the temporary wayleave. The proposed pipeline routes will be buried and, where possible, will be routed as close to field boundaries as practicable to minimise sub-division of land parcels.

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 will 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 on the proposed 20m 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.

### Impact on Drainage

Liaison meetings with landowners 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. An Agricultural Liaison Officer will be on-site to monitor the stripping and storing of topsoil and will record land details. This process will also be followed during reinstatement works.

### Disease Protocols and Farm Biosecurity

Disease protocols and farm biosecurity measures to protect and prevent the spread of pests and diseases will be adhered to. The appointed contractor(s) will comply with the Department of Agriculture, Food and the Marine's regulations in relation to crops and livestock diseases. All construction equipment will arrive on-site clean, free of weeds, soil and debris. Biosecurity measures will be implemented to minimise the spread of soilborne diseases and weeds during the construction of the proposed pipeline routes. The risk associated with the spread of soilborne diseases and the implications this could have on the intensive horticultural and potato enterprises located throughout the study area will be accounted for. The construction of the proposed pipeline routes will be on a phased basis between the proposed orbital sewer route to the west of the proposed WwTP site and the proposed outfall pipeline route (land based section) to the east of the proposed WwTP site. It will be necessary for a full clean down of all equipment used by the appointed contractor(s), including machinery, vehicles and footwear before entering farm premises. Biosecurity measures will be implemented to minimise the spread of soilborne diseases and weeds during the Construction Phase of the Proposed Project. All agricultural lands will be reinstated after the Construction Phase of the Proposed Project.

### Impact on Shelter

Any shelter that is removed will be reinstated. Sapling plants will be planted to match existing species.

### Land Contamination

The areas where fuel tanks are located will be bunded with impervious material. Fuel deliveries and refuelling will be strictly controlled and will only take place in designated areas. An emergency plan will be drawn up to deal with fuel spillages.

### General Measures

By siting the proposed pipeline routes as close as possible to existing farm boundaries, the impact on farming infrastructure will be minimised. Consultation between the landowners and the appointed contractor(s) during the Construction Phase will take place and will ensure that appropriate measures are taken to minimise disruption to farming operations. Landowners will be liaised with to enable Proposed Project activities to occur in conjunction with farming operations, and landowners will be consulted on specific access arrangements and stock movement.

## **19.7 Residual Impacts**

Residual impacts have been assessed following the implementation of mitigation measures, and are discussed under the following terms:

- Residual impacts at a national and local level;
- Residual impacts at individual farm level at the proposed WwTP; and
- Residual impacts at individual farm level along the proposed orbital sewer route, Abbotstown pumping station, NFS diversion sewer and outfall pipeline route (land based section).

### **19.7.1 Residual Impacts at a National and Local Level**

The Utilisable Agricultural Area in Ireland is 4,569,359ha, excluding commonage (CSO 2010). The Utilisable Agricultural Area in County Dublin<sup>6</sup> is 37,963ha. Approximately 30.3ha of land will be acquired for the proposed WwTP and Abbotstown pumping station. This land will be removed from agricultural production. The area is not significant at a national or local level.

Approximately 54.8ha will be temporarily taken out of agricultural production during the Construction Phase of the proposed orbital sewer route, outfall pipeline route (land based section) and NFS diversion sewer.

There will be short- to medium-term impacts on soil structure during the Construction Phase of the Proposed Project. The impact is Not Significant at a national or local level. There will be no significant change in land use due to the Proposed Project.

Therefore, there will be no impact of national or local significance as a result of the construction of the Proposed Project.

### **19.7.2 Residual Impacts at Individual Farm Level at the Proposed Wastewater Treatment Plant**

Approximately 29.8ha of land will be acquired for the proposed WwTP. One intensive horticultural enterprise (Parcel Ref. No. 14) will suffer a Significant impact because 16.7ha will be acquired from the land holding, which will necessitate a complete reorganisation of the existing farm operation and crop rotation practices. Two farms (Parcel Ref. No. 15 and 16) will not have a Significant residual impact as a result of the acquisition of land for the proposed WwTP.

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<sup>6</sup> County Dublin refers to the whole of Old County Dublin (Currently Known as Fingal, South Dublin, Dun Laoghaire and Rathdown)

### **19.7.3 Residual Impacts at Individual Farm Level along the Proposed Orbital Sewer Route, Abbotstown Pumping Station, North Fringe Sewer Diversion Sewer and Outfall Pipeline Route (Land Based Section)**

Appendix A19.1 details the residual impacts that the Proposed Project will result in for each of the individual farm holdings.

In summary, 54.8ha will be temporarily taken out of agricultural production during the Construction Phase of the proposed orbital sewer route, outfall pipeline route (land based section) and NFS diversion sewer. Approximately 0.5ha of land will be acquired and taken out of production permanently for construction the proposed Abbotstown pumping station. It is predicted that the residual impact post-mitigation will be Not Significant on 25 farms holdings, and one farm will experience a Significant impact following reinstatement of land.

There will be no significant change in land use along the Proposed Project. There will be short- to medium-term impacts due to soil disturbance and possible interruption to drainage systems. The residual impact on land affected by the proposed orbital sewer route and outfall pipeline route (land based section) will not be significant and the impact will be short- to medium-term. It is not predicted that there will be any residual impacts at a national, local and individual farm level as a result of the proposed NFS diversion sewer.

### **19.8 Difficulties Encountered in Compiling Required Information**

Farm visits were not undertaken on three farms (Land Plots 3, 4 and 19) either because the landowner declined to participate in the assessment or could not be contacted. However, a detailed evaluation was undertaken using a roadside survey and orthophotographic mapping.

### **19.9 References**

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